

# Using DINA to Evaluate U.S. Capital Income Tax Proposals

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## Abstract

This paper extends application of the distributional national account (DINA) method beyond historical analysis to a forward-looking policy assessment of eight topical U.S. capital income tax proposals including corporate income tax repeal, corporate integration, and a reduced form of the pending 2017 U.S. tax legislation. An Adjusted DINA framework is developed that caters to the U.S. institutional perspective with a profit-and-investment shifting concept to recast the idea of labor bearing some corporate income tax. In this model, projections of policy induced growth, if applicable, are incorporated into distributions. This Adjusted DINA framework highlights that corporate tax reductions, deficit-financed or not, as well U.S. adoption of permissive territoriality jeopardize low income groups. Economic growth projections for the proposals are shown to put at risk whether some low income groups experience post-tax income losses or meagre absolute gains, and even if the projected growth were to materialize there is little relief for the relative inequality owing to capital income tax reductions.

The traditionally used cash-oriented, tax-centric, and realization-dependent distributional model (referred to generically as a “Cash-plus” method) is also tested in this exercise. In contrast to the Cash-plus method, a DINA-based approach offers alternative pre-tax income classifiers to account for demographic, statutory, and behavioral variations that afflict cross-section analyses of inequality, along with a comprehensive definition of government and deficit impacts. A DINA-based approach is found to offer a robust and intuitive method for looking prospectively at many capital income tax proposals, suggesting that DINA’s virtues would reward expansion of its role beyond historical evaluation.

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## A. DINA and Alternatives

The distributional national accounts (DINA) uses administrative tax and other data to inform factor, pre-tax, and post-tax concepts all adding up to the same exogenously determined level of national income.<sup>1</sup> An alternative distributional method, termed here the “Cash-plus” approach because it is more conceptually rooted in (taxable) cash-like compensation than DINA,<sup>2</sup> generally allocates total income for distributional purposes that, compared to the DINA approach, is closer to (albeit still generally higher than) what is reported on U.S. individual income tax returns.<sup>3</sup>

While both the DINA and Cash-plus methods often use administrative data similarly as guideposts in the allocation of income beyond what is evident from tax returns and information documents, the capital and labor income totals assigned under the Cash-plus approach are lower. For the United States, Driessen (2017a) calculated aggregate income differences of \$1 to \$3 trillion (ranging between roughly 10 to 20 percent of total income) between DINA and a variety of Cash-plus distributional methods for annual snapshots between 2012 and 2015 (see Table 1). The income omitted from Cash-plus models appears to accrue disproportionately to those with higher incomes.

Compared to the DINA approach, it appears that the Cash-plus method omits a greater proportion of capital than labor income,<sup>4</sup> accentuating the distributional differences between DINA and Cash-plus methods when evaluating capital income historically or attempting to look forward at the policy impact of a capital income tax proposal.<sup>5</sup>

The DINA method, along with its virtue of explicitly permitting analysis of the link between inequality and economic growth,<sup>6</sup> addresses criticisms levied at Cash-plus distributional analyses.<sup>7</sup> The DINA model is closed, allocating government outlays (including for U.S. states and localities), revenues (including state, local and foreign taxes), and net cross border income flows.<sup>8</sup> Unlike traditionally open models (as U.S. Cash-plus models are), the closed DINA approach gives a comprehensive perspective

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<sup>1</sup> Piketty, Saez, and Zucman (2017); see also WID.world website for detail.

<sup>2</sup> Among U.S. organizations using a Cash-plus variation are the Congressional Budget Office for historical distributions; the Joint Committee on Taxation, the Department of Treasury’s Office of Tax Analysis, the Brookings-Urban Tax Policy Center for present law status quo and policy analysis. See their websites for more detail at [cbo.gov](http://cbo.gov), [jct.gov](http://jct.gov), [treasury.gov](http://treasury.gov), and [taxpolicycenter.org](http://taxpolicycenter.org).

<sup>3</sup> See Driessen (2017a). The broader concept of income “recognition” is associated with Cash-plus models and is intended to convey a limited tax-based approach to both labor and capital income, subsuming the “realization” concept that was previously intended just to describe an approach to capital income allocation.

<sup>4</sup> See supplemental data breakdowns for Piketty et al. (2017), and CBO (2016).

<sup>5</sup> There are other analytical approaches to income distribution, for example analyses that emphasize mobility between income classes using panel data. Further, for historical analysis, an accrual approach can be undertaken that like the DINA method on average allocates higher levels of income in distributions (but not calibrated by a national income total as with DINA) than Cash-plus approaches. Because the focus here is forward-looking analyses of proposals, the accrual approach is not considered separately because at least with respect to capital income the accrual approach for practical purposes should be similar to DINA, as for the most part there are no general official accrual basis forecast baselines like there are for the national income concept used in DINA.

<sup>6</sup> Piketty et al. (2017).

<sup>7</sup> For discussion of these criticisms, see Driessen (2017a).

<sup>8</sup> As discussed more below, the DINA approach does not explicitly present information on foreign investors for a variety of reasons including limits of sovereignty and information, so the DINA model is not entirely closed for this among other causes.

that is not directly influenced by government financing or outlay choices.<sup>9</sup> Nor are DINA results directly affected by policies that affect how much capital income is identified as taxable income. These policies include changes in capital gain and dividend taxation or definition, as well as tax provisions prompting business entity choices that often accompany enacted tax rate or capital income tax integration changes.<sup>10</sup>

The flexibility in the DINA options for using two pre-tax income classification approaches permits examination of the effects of demographic change as well as the robustness to evaluate a policy from, say, either a pension contribution or benefit perspective.<sup>11</sup> Nor do DINA models have to make sometimes simplistic “income gross-up” adjustments in to order augment pre-tax income.<sup>12</sup> The conformity of presentation offered by DINA also is useful for international comparison, in contrast to Cash-plus models whose income totals track taxable income that changes quite a bit across nations.

The advantages of simplicity and accessibility of the Cash-plus approach are also its flaws. The Cash-plus method’s greater reliance on administrative data means that it is closer to the well-known tax return format that many policymakers are familiar with,<sup>13</sup> and at least the federal based U.S. Cash-plus approach does not have to make what can be difficult outlay and deficit allocations or deal with the state/local levels.<sup>14</sup> Both approaches target actual revenue collections while also attempting to convey economic burden of taxes, so neither model has a practical information advantage in that regard.

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<sup>9</sup> To the extent these government taxing or spending choices affect overall economic activity, DINA will reflect such macroeconomic effects, but DINA cannot be directly manipulated as Cash-plus models can be by off-model spending or deficit choices as described by Driessen (2017b).

<sup>10</sup> One of the rationales for DINA is prior criticisms of Piketty and Saez results for how their Cash-plus approach handled the Tax Reform Act of 1986. Those criticisms, although overstated and seemingly only lodged at Piketty and Saez even though many other researchers and organizations use a Cash-plus model, still pertain to the Cash-plus model that remains in wide use.

<sup>11</sup> With respect to the latter, partially for myopic short-term scorekeeping reasons, workers have been encouraged to forego upfront deductions for retirement contributions in order to pay less tax when benefits are received (“Rothification”). The DINA options for looking at pre-tax factor income or pre-tax national income, with the latter deducting retirement contributions and adding back benefits, allows for consistent examination of Rothification, while the Cash-plus approach is not robust to Rothification that would change the overall and relative levels of distributed income. This same DINA flexibility in income classifiers also makes DINA better than a Cash-plus method for a longer or even lifetime perspective on tax and government outlay incidence. With the Cash-plus approach, one can use dummy variables or other techniques for tax change endogeneity (e.g., 1986-87 capital gains realizations), but that approach becomes cumbersome the more tax-induced structural changes there are.

<sup>12</sup> A comparative issue that seems to favor DINA over Cash-plus is the bias introduced by the income gross-up technique used in Cash-plus models for raising pre-tax income to hold individuals harmless for the assignment of corporate and other taxes. Under the Cash-plus approach, it is not clear why corporate taxes that are burdening nonprofits or insurance companies are flowed through to individuals, but dividends received by these nonprofit and insurance entities (or capital gains realized at the entity level) are not being flowed through to individuals.

<sup>13</sup> This is not to say that the Cash-plus modelers do not make substantive imputations (e.g., Medicare and Medicaid, etc.). Plus in using the broad term “Cash-plus,” this paper follows the somewhat deceiving practice of the modelers themselves in referring to their approaches as “cash” or “expanded cash” or “market” when the underlying models are both more and less than what the labels imply.

<sup>14</sup> The Cash-plus models should deal with the international levels, taking account of foreign investors and explicitly adopting a national rather than domestic income approach. The JCT does the former and also calculates conventional (that is, before accounting for macroeconomic growth caused by a proposal) revenue estimates by holding GNP and not GDP constant, but JCT does not take the next step of allocating in distribution tables deferred foreign earnings and profits in both directions, as Piketty et al. (2017) do. Further, the DINA model permits a

Another difference between DINA and Cash-plus models is the unit of observation, with DINA tracking adults over 19 while other models focus on households or tax filing (and non-filing) units. This choice affects results, both historically and across countries.<sup>15</sup>

A second choice that has to be made for either the DINA or Cash-plus approach involves what groups to emphasize (short of an explicit social welfare function) and whether to focus on pre-tax income (and within that category for DINA choosing between two options), tax and/or spending levels and tax rates, post-tax income, or disposable income. The DINA modelers have demonstrated that what goes on with the Top 1% is of such magnitude that this group at a minimum merits extra attention. Further, tax levels or tax rates or government outlays in isolation should probably not be the primary focus in either DINA or Cash-plus methods.<sup>16</sup>

Another virtue of the DINA method, at least with respect to capital income tax policy, concerns the U.S. Federal corporate income tax rate effectively embedded in the Cash-plus models. This embedded rate, calculated by dividing corporate taxes by the corporate income allocated within the model with the latter including the receipt of corporate dividends, the realization of capital gains on the sale of corporate and equities, and the gross-up for the corporate tax itself, was found to be 41% for 2013, essentially roughly transposing the effective corporate tax rate found in other tax and financial analyses (one closer to 14%) that viewed income comprehensively.<sup>17</sup>

Nevertheless, the comprehensiveness of DINA also requires examining differences within income categories to best tease out welfare outcomes historically and, if as tested here, of policy proposals on a going forward basis. This inevitably will involve some complexity: it may be that some forms of labor or capital income included in DINA that are cash or near-cash or are less restricted in some sense could be valued in a way that makes historical or policy evaluation comport with intuitions. That is, \$1 of cash in hand likely at the margin is worth more to an individual than \$1 of retained earnings held by a company of which the individual is a shareholder, and so on. The Cash-plus approach clearly misses by omitting so much non-cash income, but it behooves us to attempt to improve DINA to differentiate income components in practical ways that add descriptive and prescriptive value (as is attempted below with an adjustment to deferred foreign earnings.)

## **B. DINA-based Analysis of Policy Proposals**

For DINA's short life it has been promoted and used as a tool for historical analysis. Of course there is policy information embedded in historical analysis, for example the comparison of pre- and

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breakout by disposable income not calibrated to national income, thus similar to a cash concept, but the Cash-plus approach does not return the favor by offering a version calibrated to the level of national income as in DINA.

<sup>15</sup> Piketty et al. (2017) address this in their Data Appendix. See below for discussion of possibility that using adults rather than households or tax units pushes up the labor share of the Top 1%'s (and maybe other high income groupings') total income.

<sup>16</sup> See Nunns *et al.* (2017) at 293, and Driessen (2017b). DINA is better prepared than Cash-plus models to present comprehensive post-tax income that is post-outlay, post-deficit, and, in the case of forward-looking policy analysis, post-growth for any national income change caused by a proposal.

<sup>17</sup> Driessen (2014). This corporate tax rate transposition occurring in Cash-plus models has overall tax rate effects but also indicates the suppression of after-tax capital income within the Cash-plus model.

post-tax income offers a rough indication of the impact of government activity on inequality.<sup>18</sup> Yet for the most part DINA has been used for description rather than prescription or prediction.

While DINA seems to fill its role in historical analysis well, more should be asked of the concept because more is needed for policymaking. All the aforementioned reasons (comprehensiveness, flexibility, etc.) why the DINA method is an improvement over the Cash-plus approach in historical evaluations also apply to evaluation of the distributional effects of proposed policy changes. An additional advantage to using DINA for forward-looking policy evaluation is conformity: policy enacted today becomes tomorrow's history, and a consistent distributional framework reduces confusion in the inevitable conversations that blend policy and history.

In the United States the official organizations responsible for providing policy information often shy away from making historical assessments of inequality, with the external and internal bifurcation of tax and government spending responsibilities contributing to separation of historical and policy tasks.<sup>19</sup> Even if one prefers the Cash-plus approach over the DINA method, distributional models should be gauged by their consistency and intuition for which capital income proposals offer a good test.

The application of DINA to policy proposals presents challenges including: (1) Identification of a test period requiring the forecasting of relevant income and incidence assumptions to establish a baseline for evaluation; and (2) Calculation of revenue or cost estimates for the policy proposal (including macroeconomic or dynamic effects). However, these complexities apply whether one uses the DINA method or a Cash-plus approach to evaluate a policy proposal on a forward-looking basis.

Options for adopting DINA with regard to forecasts of national income components include official U.S. government forward-looking baselines (which also contain deficit effects) regularly produced by the Office of Management and Budget and the CBO.<sup>20</sup> The factor, tax, outlay and other DINA details (including state and local government activity, as well as foreign taxes) would also have to be sorted out, whether by following recent trends or reverting to the mean or otherwise, with additional attention to demographic and other changes.<sup>21</sup> Ideally any macroeconomic effects of a proposal would also be included in a DINA-based forward-looking analysis. It bears reiterating that most of these issues

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<sup>18</sup> What's referred to in DINA as post-tax is also post-outlay and post-deficit, so it might more aptly be called "post government." It is also necessary to caveat that that government policy as a structural matter via growth or other means affects both pre-tax factor and pre-tax national income in the DINA model, thereby complicating any conclusion one can reach by trying to interpret the role of government action in the comparison of pre- and post-tax income. But DINA by design has less government endogeneity issues in its post-tax income measure than Cash-plus approaches that are largely reliant on reported taxable income.

<sup>19</sup> Piketty et al. and CBO regularly offer U.S. historical distributions; JCT, OTA, and TPC only offer *status quo* current law or policy distributions. CBO is involved in some capacity with both historical and policy distributional analysis (though technically CBO only acts as aggregator for JCT with respect to tax proposals, current law, and recent bill enactments). It would be ideal if there was conformity for historical and policy distributions (CBO/JCT are close). Within CBO, its Tax Analysis Division does historical evaluation primarily focusing on tax but also looking at some transfer programs, while other parts of CBO deal with costing policy changes in the provision of government outlays.

<sup>20</sup> With the lack of forward-looking accrual baselines, DINA and accrual likely converge for forward looking policy analysis.

<sup>21</sup> CBO (2013) has researched the distribution of most Federal government outlays. Also, DINA's use of adults over 19 may be less affected by family and tax unit formation secular changes than distributional approaches employing households or tax filing units for observation.

have to be confronted by any forward-looking policy model already, and in the case of DINA this extra modeling effort would be rewarded by permitting historical and policy conformity.

Short of taking all these steps to apply DINA to policy proposals, this paper illustrates the difference between DINA and Cash-plus approaches by using 2013 income levels to evaluate a variety of capital income tax proposals.<sup>22</sup> Revenue estimates and other economic effects of these proposals will be calculated as necessary.

## **C. Adjusting DINA for Profit Shifting, Tax Incidence, and Foreign Deferral**

### **C.1 Profit Shifting and Corporate Tax Incidence**

The DINA approach treats corporate taxes as borne entirely by owners of capital<sup>23</sup> and cross-border income flows in a manner consistent with national income accounting.<sup>24</sup> Both of these choices seem reasonable in general and particularly for historical analyses that focus on post-tax income.<sup>25</sup> However, some adjustments to these assumptions are made in this paper in order to capture key elements of U.S. capital income tax proposals (including the pending U.S. taxation).

Core U.S. tax policy issues include the treatment of foreign source income of U.S.-headquartered multinational enterprises (USMNEs), potential base erosion and profit shifting (BEPS) involving both USMNEs and companies operating in the United States that are affiliates of foreign-headquartered multinational enterprises, whether corporate tax burden is shifted to labor, and the effects of U.S. adoption of a participation exemption. Many proposals, in addition to including capital income tax rate base components, would change the current U.S. system of worldwide taxation. Other proposals involve either explicit or implicit integration of the corporate and pass-through tax structures with the individual income tax.

In order to accommodate these U.S. policy issues, this paper adjusts the DINA approach (creating what is referred to as “Adjusted DINA” hereafter) in two ways. First, the current U.S. institutional approach of allocating 25 percent of the corporate tax to labor<sup>26</sup> is adopted by linking the shift to BEPS instead of the common U.S. approach of simply piggybacking the shift on general U.S. corporate tax liability. This is not an endorsement of the idea of this corporate tax shifting in principle as much as a concession to what U.S. agencies are doing anyway along with an effort to more directly target what likely is causing the shift in the cross-border context. A second adjustment is to discount cross-border flows to capture the difference to capital owners between a worldwide deferral system and the participation exemption that the United States is likely to move to (or has adopted by the time this paper is presented). Whether or not one models a shift of some corporate tax to labor, for capital income tax policy the DINA approach’s comprehensive treatment of cross-border income allows for a

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<sup>22</sup> 2013 is convenient because it is a year for which information provided by CBO can be used to present a Cash-plus baseline for comparison with DINA-based analyses.

<sup>23</sup> Piketty et al. (2017), Data Appendix at 25. See also Piketty and Saez (2012) at 6.

<sup>24</sup> Alvaredo et al. (2017), FN 19 p.28.

<sup>25</sup> The incidence of the corporate tax does not matter for historical analysis of post-tax income, Piketty et al. (2017) at 14.

<sup>26</sup> JCT and CBO allocate 25 percent of the corporate tax burden to labor. JCT (2013) suggests this shift takes 10 years to fully phase in. JCT also assumes 5% of individual income taxes paid on pass-through income are borne by labor, which is not modeled in this paper as part of the Cash-plus approach.

more nuanced evaluation than the Cash-plus approach that, because of its dependence on realization, has limited means for reflecting BEPS or any kind of lockout effect linked to foreign deferred earnings.<sup>27</sup>

The adjustments to DINA for profit shifting linked to corporate tax incidence are conceptually straightforward even though, at this stage, some quantitative simplification of BEPS and other issues is required. Based on calculations of BEPS effects,<sup>28</sup> for baseline purposes U.S. labor pre-tax/factor income is decreased by \$100 billion (\$50 billion for inbound BEPS, and \$50 billion for outbound BEPS).<sup>29</sup> Note that the adjustment made here effectively links labor outcomes to BEPS in roughly the same magnitude that the JCT and CBO assumptions about labor's share of the corporate tax burden links labor outcomes to just corporate tax receipts in pro rata. While the amounts in play for corporate tax rate changes are similar, the policy outcomes can be quite different as later results in this paper demonstrate.

With regard to whether labor bears some corporate income tax mediated by BEPS incentives or some other means, one has to look at the entirety of a proposal. In addition, while labor income is not distributed all that progressively though for sure more progressively than capital income, the political ramifications of labor being assumed to bear corporate tax are important, and thus the mechanism (in this paper's case, BEPS) by which labor is considered to be burdened also matters.

Combining recognition of BEPS effects with a shift of some of the corporate tax burden to labor permits consideration of proposals that conceivably aid U.S. labor not just by reducing or eliminating the U.S. corporate tax rate per se but also changes that specifically target BEPS effects and that may raise revenue in doing so. This Adjusted DINA approach also allows for nonlinearity in effects, reflecting the notion that deferred foreign earnings of USMNEs are disproportionately located in very low-taxed foreign subsidiaries, with those deferred (or exempt, in the event of a U.S. participation exemption) profits and presumably any real investment relocatable to the U.S. domestic economy that might aid U.S. labor being relatively inelastic to reductions in the U.S. tax rate.<sup>30</sup> The policy implication of this nonlinearity is that the impact of reducing the U.S. corporate tax rate from 35 percent to, say, 20 percent would not necessarily result in a proportionate increase in real investment owing to USMNE

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<sup>27</sup> Any allocation of corporate tax to labor should take account of cross-border profit shifting and also allow for the possibility that worldwide taxation, including the targeting of profit shifting, may aid labor. This broadens the scope of the incidence story so as not to focus strictly just on corporate tax levels. If one believes labor bears some corporate tax, that burden shift may be related less to the corporate tax rate itself, at least over a relevant tax rate range, than what profit shifting under current law does or, with respect to proposals, what something like territoriality does to BEPS incentives.

<sup>28</sup> These estimates cover inbound and outbound BEPS effects, and are consistent with JCT and Treasury tax expenditure calculations and some other BEPS findings, e.g., Clausing (2016).

<sup>29</sup> This long run effect is assumed for the policy exercise in this paper. With respect to historical analysis, both types of BEPS activities with regard to the U.S. tax base have changed over time. A more rigorous approach could model BEPS as a function of transfer pricing disputes or globalization or tax treaty coverage or global tax rates and tax systems (e.g., deferral versus exemption) or tax and financial reporting (in the United States, reported foreign deferral went from under \$50 billion a year to \$400 billion in space of a couple decades, in parallel to financial reports of indefinitely reinvested earnings overseas). Of course, not all overseas investment or deferral is related to profit shifting but the U.S. non-taxation of deferred foreign earnings (like territoriality would be without enough anti-BEPS provisions) is distorting and encourages BEPS and investment shifting. From a modeling perspective, the more one believes in dynamic growth effects or that labor bears a portion of the corporate income tax, the more important it is to use a broad measure of capital income so as to accurately portray growth and its incidence.

<sup>30</sup> Dowd et al. (2014).

activity. Further, the BEPS adjustment to DINA permits granular consideration of cross-border investment and labor effects of changing from deferral of foreign earnings to territoriality.<sup>31</sup>

## C.2 Foreign Deferral

The abandonment by many countries of worldwide taxation in favor of a participation exemption for dividends received from foreign related parties (i.e., systems that are more territorial than found in traditional residence-based worldwide taxation)<sup>32</sup> invites reconsideration of the modeling of revenue and income distribution pertaining to the taxation of foreign source income. For both historical and policy evaluations, the preference expressed by companies, investors, and policymakers for exemption over deferral<sup>33</sup> compels an attempt to show this preference in distributions.

The DINA approach for the United States, unlike the Cash-plus method, already allocates the deferred income of controlled foreign corporations for distributional purposes. The extra value to investors and companies of full territoriality is the unlocking of funds that previously were restricted in mobility in order to qualify for deferral and avoid home country tax.<sup>34</sup> This burden of deferral owing to the restriction is reflected in the Adjusted DINA approach as a 12.5 percent discount applied to deferred foreign earnings (effectively reducing the value of these earnings to both domestic and foreign investors in USMNEs, \$40 and \$10 billion, respectively, at 2013 levels).<sup>35</sup> This discount would be removed with adoption of participation exemption or with full worldwide taxation that does not permit deferral.<sup>36</sup>

Discounting deferred foreign income to capture lock-out is important for displaying the effects on income and wealth inequality of moving from deferral to territoriality.<sup>37</sup> This discount could also be applied to historical DINA-based analysis since it is a rather straightforward adjustment to a discrete income component (though perhaps only of real empirical importance in the last 25 years or so).

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<sup>31</sup> Of course nationalism can be advanced under the guise of anti-BEPS proposals. The generic anti-BEPS provisions discussed in this paper are assumed to fall within the bounds of legitimate anti-BEPS targeting and not being used for, say, retaliation or bargaining among nations.

<sup>32</sup> Acknowledging that territoriality is a continuum rather than binary.

<sup>33</sup> In the United States, the dissatisfaction with deferral was evidenced in the enactment of the 2004 tax holiday and the subsequent continuing quest for either another temporary holiday or a permanent participation exemption, even in the face of relatively low global interest rates that made repatriation less necessary to meet domestic needs. The U.S. perspective on territoriality can be seen as a progression from the view that U.S. residual taxation was not that important for foreign source active income to the current notion that the burden of deferred earnings (e.g., the lockout of such earnings) caused by home country residual taxation generally grows over time.

<sup>34</sup> In the United States there are workarounds to such restrictions. As a result, a substantial portion of foreign deferred earnings are actually deposited in U.S. banks.

<sup>35</sup> The 12.5% discount rate was selected after considering the age profile of the stock of deferred earnings and various workarounds, foreign tax rates, and U.S. residual tax rates. A higher discount rate would imply that companies ought to just repatriate and pay U.S. residual tax; a lower discount rate would imply that U.S. companies and investors do not much desire a participation exemption. Note how foreign investors also are affected by the discount, and their post-tax income benefits will be tracked in the section below that presents results for U.S. capital income tax prototypes.

<sup>36</sup> As with the BEPS and labor's share of corporate tax burden adjustments, at least theoretically the distributional model should reflect that shareholder benefits from ending lock-out could be achieved either by less or more corporate taxation.

<sup>37</sup> See below for a preliminary estimate of the wealth effect of U.S. adoption of territoriality.

### C.3 Baseline distributions under Cash-plus, DINA, and Adjusted DINA

Table 2 describes the baseline distributions under the Cash-plus method (based on the Congressional Budget Office's model),<sup>38</sup> DINA, and Adjusted DINA methods, at 2013 income levels, on a pre- and post-tax basis and by groupings. This baseline for the three methods will be the starting point for analyzing the capital income tax proposals described in the next section. The pre- and post-tax income differences between the Cash-plus and DINA methods (with pre- and post-tax overall income levels the same within each DINA-based approach) are quite large for the overall income levels and relatively pronounced in differences in group income shares.<sup>39</sup> In contrast, the Adjusted DINA approach differs from the DINA method by relatively small amounts of pre-tax and post-tax income.<sup>40</sup>

Among the important differences for the evaluation of policy proposals in this paper, the DINA models include all government outlays and reflect the effect of the government budget deficit. Attention will also be paid to the impact of proposals on foreign investors, whose gain or loss will be tracked even though foreign investors are not formally integrated into distributions.

## D. Topical U.S. Capital Income Tax Ideas

U.S. capital income tax policy proposals vary on many dimensions. Some plans would raise revenue, others aim to eliminate or reduce the corporate income tax with and without formal integration of business and individual level capital income taxes, others focus on changing the taxation of foreign source income, and some plans do some or all of this and more. This section describes two themes of recent U.S. capital income proposals before eight prototypical proposals are offered in Section E that will be examined distributionally using Cash-plus, DINA, and Adjusted DINA methods.

Two broad themes in recent U.S. capital income tax proposals emphasized in this paper are corporate integration (implicit or explicit) and the treatment of foreign source income. Of course there are other themes largely left unexamined here.<sup>41</sup> This paper's limited focus on integration and treatment of cross-border activity illustrates the comparative value of the DINA method, although it is likely that the DINA or Adjusted DINA approach would also stand up well in other capital income tax areas (as well as nonbusiness individual income tax areas including direct labor taxation).

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<sup>38</sup> CBO (2016).

<sup>39</sup> See Driessen (2017a) for more details. The CBO (2016) results covering select federal taxes only and limited federal outlays showed much more progressivity than Piketty et al. (2017) even though somewhat coincidentally the two reports found a similar 35% tax rate for the Top 1% in 2013 (the denominators and fractions for computing the 35% are quite different, as is the unit of observation, although the post-Great-Recession trend findings were similar in the two reports).

<sup>40</sup> Table 2 shows the 2013 net pre- and post-tax differences between the (unadjusted) DINA baseline and the Adjusted DINA baseline is \$140 billion, composed of \$100 billion of BEPS effects and \$40 billion for the discount of deferred foreign earnings (both of these on a flow basis). These adjustments cause modest differences between the DINA and Adjusted DINA baselines in pre- and post-tax income shares as Table 2 displays.

<sup>41</sup> Among capital income tax themes omitted here: expensing for currently depreciable or amortizable business assets, linked to a desire by some for more of a consumption-based tax system in effect if not in name; and conformity in the taxation of sundry business entity types (e.g., subchapter C corporations and pass-throughs).

## D.1 Integration

Integration proposals come in multiple forms and with varied motives, having been part of business tax policy discussions (and the experience of other countries) for many decades. Some integration proposals are formal with income and tax imputations,<sup>42</sup> others indirect as when in the United States integration serves as one rationale for a lower individual income tax rate on capital gains and dividends<sup>43</sup> because of concern about double taxation (even though the U.S. lower rate on capital gains extends to sales of non-corporate assets). In the same regard, simply reducing the corporate tax rate itself may be rationalized as a form of integration motivated by a concern about double taxation.

A number of recent U.S. proposals would reduce the corporate tax rate while increasing recognition and taxation of capital income at the individual level.<sup>44</sup> Often intended to be revenue neutral, these plans emphasize the capital mobility of corporations and the relative immobility of individuals. For distributional purposes, integration ideas often make use of an assumption that labor is more likely to bear corporate income tax than individual income tax. The method for raising individual income taxes to replace corporate taxes may involve marking assets to market, or a form of interest charge, or dividend withholding with and without dividend franking and whatnot.

There is no reason one could not employ integration to raise revenue, with or without supplementary changes.<sup>45</sup> Nevertheless, in practice it can be difficult to tell integration from simple corporate tax “disintegration” proposals.

## D.2 Foreign source income

Since a rather harsh form of worldwide taxation (albeit while still providing deferral for active foreign income) was enacted in the Tax Reform Act of 1986, the United States has been besieged by the question of how to tax foreign source income. Buffeted by competition from foreign-headquartered companies and inbound and outbound BEPS as well over the last 15 years corporate inversion, and seeing its days as a capital exporter long gone while stylistically preferring an arm’s length if not hostile relationship between USMNEs and the U.S. fisc (perhaps different from what seems like more cooperative if not exactly cozy business-government relationships elsewhere), the U.S. treatment of foreign source income has played a central role in tax policy debates for many years.

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<sup>42</sup> See discussion of integration in Zucman (2014).

<sup>43</sup> The U.S. 2003 dividend tax rate cut was a form of integration. See also Committee on Finance, United States Senate (2017), for a dividends paid deduction proposal.

<sup>44</sup> Grubert and Altshuler (2016) would reduce the corporate income tax rate to 15% and impose an interest charge on accrued capital gains of individual taxpayers. Toder and Viard (2016) would reduce the corporate income tax rate to 15%, partially financed with individual income taxes by treating capital gain as ordinary income requiring corporate equities to be marked to market. The Committee on Finance, United States Senate (2017) would create a dividends-paid-deduction at the corporate level and a withholding tax applied to shareholders. The House Republican blueprint (2016) would replace the corporate tax with 20% destination-based-cash-flow-tax described in Auerbach et al. (2017), along with lower individual income tax rates, a maximum individual tax rate of 25% on active business income, and territoriality. Kleinbard (2016, 2017) offers a dual business enterprise income tax using a capital allowance deductible at the business entity level and includible in the individual income tax base.

<sup>45</sup> Of special note are justifications of integration as an attempt to preserve a role for capital taxation. The Dual BEIT idea of Kleinbard (2016, 2017) merits attention in this regard, especially its attempt to retain worldwide taxation without deferral, thus effectively targeting outbound BEPS.

What seems like an exceptional U.S. level of inequality has evolved even though the United States taxes income on a worldwide basis (right now another way in which the United States is exceptional). The Adjusted DINA model is suited to explore the effects on inequality of U.S. adoption of territoriality, in contrast to the Cash-plus model which during the consideration of the pending U.S. tax bill has presented U.S. adoption of a participation exemption as essentially a non-event for revenue and distributional purposes. A distributional model that cannot get U.S. adoption of territoriality right likely is inadequate for analyzing U.S. capital income tax policy changes.

### **D.3 Omissions from current U.S. capital tax policy dialogue**

Many current U.S. capital income tax proposals do not aim beyond revenue or inequality neutrality.<sup>46</sup> Further, there is little discussion of international cooperation along the lines that Zucman (2014) advocates for increasing tax compliance. While anti-BEPS ideas are starting to find their way into proposals (and the pending U.S. legislation), it may be that political, mercantilist, and scorekeeping calculations have motivated this newfound BEPS consciousness more than any principled concern about inequality or fairness.<sup>47</sup>

There has also been only limited U.S. discussion of the wealth effects of various tax proposals,<sup>48</sup> and the role of foreign investors is just now being quantified with respect to U.S. tax effects. An additional complication is the continuing absence of coordination of tax and trade policies (especially some appropriate level of taxation of gains from international trade, whether levied on businesses or consumers), even though that interaction would seem to be vital to ameliorating inequality.

## **E. Distributional results for capital income tax policy prototypes**

Eight separate stylized capital income tax proposals, all chosen to emphasize corporate tax reduction and changes in the treatment of foreign source income, are considered below in a comparison of distributional results produced by Cash-plus, DINA, and Adjusted DINA techniques:

1. Corporate income tax repeal
2. 20% corporate tax rate
3. Lax territoriality
4. Corporate integration shifting liability to individuals
5. Harsher worldwide taxation with corporate rate reduction
6. Harsher worldwide taxation with deficit reduction
7. Simplified version of pending (Dec. 2017) U.S. tax legislation
8. Pending (Dec. 2017) U.S. legislation with repeal of healthcare mandate

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<sup>46</sup> Miller (2012) is an exception.

<sup>47</sup> With regard to the anti-BEPS provisions in the pending U.S. tax legislation, a cynic might believe that the anti-BEPS cause has been coopted for U.S. internal reasons to raise revenue (scorekeepers generally have to accept Congress's sovereignty and therefore do not question whether proposals would violate international rules), and deal with intra-business and national politics. Under that view, authors of anti-BEPS provisions may not care much (other than having their legislative/national egos bruised) if the World Trade Organization rejects some provisions as long as initial revenue and political needs in enacting the legislation are fulfilled.

<sup>48</sup> Alan Auerbach, Alan Viard and others have been looking at the wealth effects of cash flow taxes for some time and recently applied that focus to the destination-based-cash-flow-tax, but wealth effects are not a routine part of information provided in U.S. tax policymaking.

Without being able to test these methods using a baseline that characterizes a future period,<sup>49</sup> these proposals are compared using 2013 economic activity and income levels, with revenue estimates either as stipulated here or provided elsewhere and adjusted to conform to 2013 levels.

In every case, a breakdown of the distributional results for the Top 1% and the Low 99% is included, with supplemental 10/90%, 50/50%, and 60/40% comparisons offered selectively.<sup>50</sup> The effects of the proposals on foreign investors<sup>51</sup> (who are presumed to absorb 20% of any general corporate tax change throughout this exercise) will be presented (even on behalf of approaches that do not explicitly currently track distributional effects on foreign investors) along with the results for familiar income groupings.<sup>52</sup> Where economic growth (i.e., macroeconomic effects also sometimes loosely referred to as “dynamic scoring”) is deemed (either by the author or when possible by U.S. agencies) to be a byproduct of a proposal, those effects are incorporated into the distributions.

Also of note are observational differences between the Cash-plus and the other two approaches in addition to income comprehensiveness: the Cash-plus model follows the Congressional Budget Office approach of using households, while the DINA and Adjusted DINA methods focus on adults older than 19. For this undertaking, this unit difference is unlikely to affect the overall comparative results.

The wealth effect of adopting a participation regime for exempting foreign source dividends received from related parties (i.e., territoriality), consistent with the discounting of foreign deferred earnings in the Adjusted DINA model, also is noted below. While the distribution of budget deficit effects is standard for the DINA and Adjusted DINA approaches, for the first prototype, repeal of the corporate income tax, additional incremental pictures of the DINA and Adjusted DINA results are provided to illuminate the modeling steps.

There are five models for which 1/99, 10/90, and 60/40 (Cash-plus) or 50/50 (DINA-based)<sup>53</sup> breakdowns are provided:

- **Cash-plus** including labor’s 25% corporate tax burden. To represent standard of U.S. agency distributional models, deficit impacts are not shown for the Cash-plus model, nor is any growth. Supplemental information is provided on foreign investors
- **DINA except for deficit allocation** (in order to show the separate effect of deficit allocation)
- **DINA** (which by construction accounts for deficits, federal outlays, state and local taxes and outlays, foreign taxes, cross-border flows on national income basis, etc.)

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<sup>49</sup> Although with some effort and assistance from available national income forecasts produced by public agencies like CBO or private forecasters, and attention to specific DINA variables, such a model is in reach.

<sup>50</sup> The Cash-plus method is based on the framework described in CBO (2016). A 60/40 income breakdown, but not 50/50 like is available for DINA, is presented by CBO. As a result, those two breakdowns are offered in this exercise for illustration with the caveat that even though they likely offer similar results they are not the same.

<sup>51</sup> Including both tax liability and any unlocking effect on foreign deferred earnings associated with how the proposals affect the shares of USMNEs held by foreign investors.

<sup>52</sup> For simplification, when it comes to allocating any budget deficit associated with a proposal, it is assumed that foreign investors, in their capacities as beneficiaries of outlays and as payers of (or those burdened by) U.S. taxes such as the corporate tax, bear 2.5% of any deficit or surplus change caused by a proposal.

<sup>53</sup> As noted, CBO only provides 60/40, DINA only has 50/50, so both are presented here.

- **Adjusted DINA pre-growth** (includes BEPS/labor adjustment that compares to what is done in Cash-plus for labor’s corporate tax burden, and applies foreign earnings lockout discount, but before any broad economic growth assumption if applicable)
- **Adjusted DINA with growth** (if growth projection applicable to the proposal)

When a growth assumption is integrated into the Adjusted DINA model, additional Charts are offered by income groups showing what is referred to as a proposal’s post-tax benefit risk dependent on the growth happening as predicted. This growth risk allocation will be part of the story for six of the eight prototypes so there are 14 separate chart pages in all (8 pages each of which shows all three breakouts by income grouping, and six risk range charts). The “lax” territoriality Prototype 3 and the integration/tax base shifting Prototype 4, described below, are deemed not to have growth effects.

A Chart identifier refers to the capital income tax prototype, followed by a letter indicating that the chart addresses how a specific distributional grouping is affected (with “A” being 1/99, “B” 10/90, and “C” being 60/40 or 50/60 depending upon the distributional method) or whether the chart presents the post-tax benefit risk associated with the proposal’s deemed growth (charts with second element designation of “R”) which is measured strictly looking at the Adjusted DINA method. For example, Chart 2B presents distribution of post-tax income results for the Top 10% and Low 90% of units (classified on the basis of pre-tax income) across models for a deficit-financed proposal to reduce the U.S. corporate income tax rate 20 percent (Prototype 2), with Charts 2A and 2C covering the other income groupings, while Chart 2R presents data on the post-tax benefit risks linked to the growth assumption for Prototype 2 (+.4% of income) for all the income groupings examined here. Charts 2A, 2B, and 2C are all presented on one page, Chart 2R on a separate page.

More details on the distributional calculations (including associated revenue estimates as well as a walk-through of the results for some of the prototypes) are in the Appendix. The prototypes and associated distributional results are as follows:

**1. Corporate income tax repeal (Charts 1A, 1B, 1C, and 1R).** Repeal is assumed to lose \$400 billion (before accounting for growth, see below) at 2013 economic levels, financed by a deficit increase. Labor is assumed to benefit (presumably from wage increases stemming from more domestic investment) from 25% of the repeal’s revenue loss (i.e., \$100 billion) in the Cash-plus approach and the Adjusted DINA approaches (the latter because BEPS incentives disappear),<sup>54</sup> but not under the DINA method which assumes no corporate tax burden for labor. Foreign investors under each distributional approach are assumed to receive 20 percent of the corporate tax reduction benefiting owners of capital.<sup>55</sup> Repealing the corporate income tax also ends “lockout” of deferred foreign earnings thereby removing

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<sup>54</sup> As noted above, with a difference in the mechanics for how the two approaches get to the same result for labor, with the Cash-plus method treating repeal as reducing corporate taxes borne by labor while the Adjusted DINA approach treats the event as an increase in pre- and post-tax income stemming from eliminating BEPS and thus with no specific tax effect per se. This distinction matters for other prototypes in this exercise as it is possible that corporate taxes can be reduced, short of full repeal, and be seen as having a salutary effect on labor under the Cash-plus approach but no, or even a negative, effect on labor under the Adjusted DINA model depending upon how other legislative changes affect overall BEPS (and real investment locational) incentives.

<sup>55</sup> It is assumed that a foreign investor is not taxed on worldwide basis so does not pay any more home country tax in the event a U.S. proposal causes the foreign investor to bear less U.S. tax.

current law's 12.5% discount described above applied to the allocation of the annual foreign deferred earnings under the Adjusted DINA approach, thereby benefiting both U.S. (+40 billion because of ending lock-out) and foreign (+10 billion) investors. Repeal of the corporate income tax is assumed to increase general economic growth by 0.8% of national income (again, this is not necessarily the author's view but offered for illustration of comprehensive distributional modeling).<sup>56</sup>

For this first prototype, a full set of distributions and breakdowns of the DINA and Adjusted DINA methods are provided for context, with five separate distributional measures in Charts 1A, 1B, and 1C showing separately the impact of allocating deficits and growth (so for DINA, the intermediate result before allocating the deficit is shown, and for the Adjusted DINA approach both pre-growth and after-growth results are presented.)

Chart 1A offers the 1/99 breakdown, with the Cash-plus approach showing about 40% (\$157 billion out of \$400 billion revenue loss) of all post-tax benefit going to the Top 1%, 46% (\$183 billion) to the Low 99%, and 15% (\$60 billion) benefiting foreign investors. The DINA intermediate step (i.e., before deficit allocation) looks similar to the Cash-plus result (with modest differences in benefits going to the top 1% and foreign investors), while the regular DINA result (that is, with allocation of budget deficit caused by revenue loss from repeal of the corporate income tax) shows the regressive impact of deficit allocation, decidedly harming the Low 99% but also reducing the net take of the Top 1% (while also affecting foreign investors). The Adjusted DINA results include the benefits to owners of capital from the unlocking of foreign deferred income as well as benefits to labor from extinguishment of BEPS incentives.<sup>57</sup> These additional benefits of corporate repeal reflected in the Adjusted DINA model help all the groups tracked in Chart 1A (that is, the Top 1%, the Low 99%, and foreign investors) across the board only when deficit effects are ignored (i.e., in the Cash-plus approach or the intermediate DINA result before allocation of deficit effects) or when there is deemed economic growth (as in the Adjusted DINA approach with income growth caused by the proposal assumed to be +0.8%).

The results for the 10/90, 60/40 and 50/50 groupings in Charts 1B and 1C echo the 1/99 distributional result pattern but also show that low income groups would not benefit from corporate tax repeal even were the stipulated growth of 0.8% to occur. The presentations in Charts 1B and 1C show that it is not just the Top 1%, but also the Top 10% and Top 60% (under Cash-plus method) and Top 50% (under DINA models) who do well with corporate tax repeal across all the models and regardless of framework or whether the \$400 billion deficit is distributed (and the converse is that the Low 90% and Low 50% do worse across the board). Chart 1C shows that the Low 50% lose \$87 billion in post-tax benefits even if the stipulated growth occurs because lower income groups receive such modest labor and capital income that economic growth does little to offset the deficit harm they absorb with corporate tax repeal's revenue loss.

It appears that for the models that take account of deficits, the "crossover percentile" (the highest percentile under which corporate tax repeal causes a post-tax income loss) in the Adjusted DINA occurs

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<sup>56</sup> This +.8% projection is consistent with a finding by JCT (2017).

<sup>57</sup> It is assumed that a zero corporate tax rate would end BEPS activity, a simplification adopted here for illustration that would add \$50 billion and \$100 billion, respectively, to the \$400 billion of the corporate tax reduction itself, for a gross total of \$550 billion allocable under the Adjusted DINA model (before taking account of deficit effects) to U.S. persons and foreign investors. After taking account of deficits and before applying the +0.8% growth assumption, this means that a net +\$150 billion is allocable under the Adjusted DINA pre-growth step (the fourth column in Charts 1A, 1B, and 1C).

at a lower income level than for the DINA method, perhaps because the former includes labor compensation at lower income levels owing to the corporate tax repeal's disincentives for BEPS (a comparative result that would reverse were a proposal, such as is assumed for the Lax Territoriality Prototype 3 below, to increase BEPS incentives, *ceteris paribus*).

The DINA and Adjusted DINA (pre-growth) results that reflect the deficit created by corporate tax repeal compress the benefits received by the Top 1% shown under the Cash-plus approach while turning the positive post-tax results found in the Cash-plus and pre-deficit DINA models for the lower income groups significantly negative (thus in Chart 1A the Low 99% go from appearing to have \$183 billion benefit under the Cash-plus approach to a -\$143 billion income loss under DINA). This effect from deficit allocation, whether applied under the DINA method or the Adjusted DINA approach, will be a familiar result in this paper for the capital income tax prototypes that reduce corporate taxes: deficit effects at a minimum reduce overall benefits from tax reductions for all income groups and often cause the lowest income groups to experience negative post-tax income results (this type of result is robust as to assumptions about how deficits are distributed as long as government outlays play a nontrivial role in that allocation.)<sup>58</sup> The regressive impact of deficit allocation can be blunted or occasionally reversed with growth effects, but any absolute effects for the lower income groups even after growth remain relatively modest if not negative and are "risky" in the sense that high income groups generally would receive an absolute and relative benefit from corporate tax repeal regardless of whether any projected growth occurs, while the absolute and relative fates for low income groups under general corporate income tax reductions are very much dependent on the deemed growth effects occurring.

This burden of growth risk can be compared to the allocation of deficit impacts that are not conditional (assuming no future legislative change and fiscal pro-rata allocation of deficits) and fall heavily on the lower income groups, and the risk of the corporate tax repeal's not producing the deemed growth rate is borne disproportionately and in a benefit sign-changing way by low income groups. Chart 1R shows the range of outcomes associated with the growth assumption of +0.8%, focusing strictly on the Adjusted DINA model. For example, the Low 99% would experience a \$34 billion post-tax income loss if the stipulated economic growth does not materialize, while the Top 1% would still get a \$104 billion benefit without growth. This is equivalent to a guaranteed positive outcome for the Top 1% coupled with a risky growth-conditioned gain or loss outcome for the Low 99% that even if the growth happens does not do much to improve overall inequality (because in general capital income tax reductions are one-sided growth wagers favoring high income groups). This shows the limits of capital income tax policies by themselves to effect redistribution, which of course is not a surprising result but merits representation in a systematic way in distributions.

**2. 20% corporate tax rate (Charts 2A, 2B, 2C, and 2R).** To give the sense of a more likely limited tax reduction and also to test out the nonlinearity of the BEPS adjustment laid in above, the reduction from a 35% to a 20% corporate tax rate under the second prototype (assuming no explicit change to the current U.S. worldwide tax with deferral for active foreign source income still permitted) is assumed to lose \$140 billion at 2013 economic levels, financed by a deficit increase.<sup>59</sup> Labor is assumed to benefit from none of the corporate tax reduction under the DINA approach, 25 percent of the revenue loss (or \$35 billion) in the Cash-plus model, and \$12 billion under the Adjusted DINA approach that accounts for

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<sup>58</sup> That is, how, say, defense or police protection or other non-individualized government outlays get allocated does not affect the general results found for the allocation of deficits in this exercise.

<sup>59</sup> Recent JCT and TPC revenue estimates for this type of proposal represented about a \$10 billion revenue loss for each percentage point reduction in the 35% corporate rate.

the inelasticity of profit shifting (and inbound investment) to U.S. corporate tax changes.<sup>60</sup> Similarly, this proposal is assumed to diminish the lockout of foreign earnings but in a nonlinear manner because of the same kind of nonlinearity used in modeling the BEPS effect on labor. The tax rate decrease is assumed to be financed by an increased deficit and, as is standard across all approaches, tax reductions are allocated to foreign investors using the 20% foreign investor assumption after accounting for variations in the models' allocation of corporate tax to labor. The proposal is assumed to cause a +0.4% increase in national income in the Adjusted DINA model allowing for growth.

For the Cash-plus and DINA models, this 20% corporate rate looks like a scaled down version of full corporate tax repeal examined under Prototype 1, losing \$140 billion rather than \$400 billion. The nonlinearities in modeling BEPS and the foreign deferral discount prevent the result for the Adjusted DINA model from being a simple scale-down of corporate tax repeal.

Taking account of deficits but not growth in the Adjusted DINA approach, the Low 99% actually do worse in moving to a corporate tax rate of 20% (which is shown in Chart 2A to reduce the post-tax income of the Low 99% by \$37 billion) than for outright corporate tax repeal (which is shown in Chart 1A for the Adjusted DINA pre-growth model to reduce post-tax income for the Low 99% by \$34 billion). This is a result of the Adjusted DINA's corporate-tax-rate-inelastic reflection of the effect of BEPS on labor as well as the impact of lockout of foreign deferred earnings, and does not hold for the Low 90% or Low 50% income classes, implying that much of that action occurs at very top income levels with the margins so slim that presenting results as 1/99 rather than 10/90 can make a difference in group outcomes across proposals and distributions. This suggests that policy analysis may be more sensitive than historical analysis with respect to even minor grouping differences when looking for winners and losers (\$100 billion of a policy change may not seem small in practice but is not much compared to the \$15 trillion in play for a U.S. DINA historical analysis of recent years).

Comparing Adjusted DINA results, Table 2R shows that for the Low 99%, 90% and 50%, even with the full +0.4% growth none of these income groups obtains the absolute level of benefits from a 20% corporate as the corresponding higher income groups would receive *without* growth.<sup>61</sup>

**3. Tax territoriality (Charts 3A, 3B, and 3C, with no deemed growth).** As prologue, the separate consideration of the distributional effects of a participation exemption for dividends received from foreign related parties is relevant both because U.S. adoption is pending and likely (if it has not already happened) and also as a systemic stress test of distributional methods. The adoption of territoriality, while not the sort of change that happens very often, is the kind capital income tax structural change that has tested the credibility of Cash-plus models in the past and can make or break a distributional approach, not unlike capital gains rate changes in the domestic context (where the driving distributional issue is how to show as an unquestioned benefit to investors a tax rate cut that induces more capital

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<sup>60</sup> Following Dowd et al. (2014), it is assumed that overseas income being taxed at 5% and any underlying real investment would not be very responsive to a 20% U.S. corporate tax rate. Over the range of this change (from 35 to 20 percent), the unlocking and BEPS responses are assumed to be 1/3 of what a linear application consistent with the revenue loss would produce. Thus the \$100 billion labor reward shown for corporate tax repeal that lost \$400 of revenue overall in Prototype 1 would, if linear, translate into a \$35 billion labor benefit for this proposal that loses \$140 billion, but instead the Adjusted DINA result taking account of nonlinearity carries only a \$12 billion wage benefit, and ditto in pro rata fashion for the foreign deferral unlocking effect for shareholders.

<sup>61</sup> Table 2R shows that the Low 99%, 90%, and 50% with full growth garner respectively +\$8, -\$17, and -\$31 billion in after-tax income results from the 20% rate, whereas their counterparts the Top 1%, 10%, and 50% would receive +\$29, +\$42, and +\$33 billion respectively, *even if the proposal were to generate no growth*.

gains realizations) or the kind of structural changes caused by the Tax Reform Act of 1986 that reset business entity preferences.<sup>62</sup>

For this policy exercise, “lax” means adoption of a participation exemption with minimal U.S. tax base protection, causing a net revenue loss of \$100 billion a year (including a “static” loss of \$30 billion offset by transition toll charge of +\$30 billion),<sup>63</sup> of which foreign investors garner anywhere from \$15 to \$28 billion in 2013 levels depending upon the distributional model. It is stressed that this version of territoriality is a conceptual presentation – this is not an attempt to characterize what is currently being considered (or has just been enacted) in the United States. The strength of tax base protection in pending U.S. legislation is likely to become clear only after looking at results for a few years because there are many issues complicating the effect of adopting a participation exemption.<sup>64</sup> Because the proposal examined here is assumed to lack anti-BEPS provisions, under the Adjusted DINA approach U.S. workers would actually bear a wage/income penalty of 25% of the revenue loss, which is the opposite of how the Cash-plus model treats workers as receiving a \$25 billion premium linked pro rata to the reduction in corporate taxes assumed to accompany this proposal.

As Charts 3A, 3B, and 3C show, under the Cash-plus approach territoriality seems to be a winner across all income classes, with the assumption of labor receiving an extra \$25 billion in wages because of the corporate tax reduction playing a role (along, of course, with the absence of allocating deficit effects under the Cash-plus method). One could make the argument that a forward-looking Cash-plus analysis of territoriality would go even further and reflect the huge dividend payouts and stock redemptions that individuals are likely to receive stemming from both the transition and prospective effects of territoriality, thereby making territorial adoption appear under the Cash-plus method to be even more of a winner (although less progressive looking) than what is shown in the charts. The 2004 U.S. experiment with territoriality<sup>65</sup> along with the statements by companies and investors in support of adoption, as well as at least part of the recent U.S. equity market run-up, suggest that there will be a surge in income payouts to individuals with the enactment of territoriality. However, U.S. agencies have instead modeled territorial adoption as pretty much a revenue-neutral non-event,<sup>66</sup> likely leaving it to Cash-plus historical analysis undertaken a few years from now to sort out all the realized income changes at the individual level that Cash-plus policy models did not reflect at the time of territoriality’s enactment.

In contrast to both the Cash-Plus and the Adjusted DINA approaches, the (unadjusted) DINA method would treat lax territoriality as simply a \$100 billion revenue loss, with the deficit effects harming the lower income classes and the tax cut helping the upper income classes and foreign investors.<sup>67</sup>

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<sup>62</sup> See Alstadsæter, et al. (2016).

<sup>63</sup> Ways in which a participation exemption could contribute to BEPS and revenue problems could involve, say, the absence of denial of expenses related to exempt income or nonconformity in the treatment of U.S. overseas branches and subsidiaries. The static revenue loss and transition effects used for this prototype seem in the vicinity of recent JCT and TPC estimates.

<sup>64</sup> See Liu, et al. (2017), for potential compliance issues in the United Kingdom’s adoption of territoriality.

<sup>65</sup> The 2004 U.S. repatriation tax holiday experience suggests that \$1 trillion of new dividends and stock buybacks in next few years may be triggered by U.S. adoption of territoriality.

<sup>66</sup> Then why have U.S.-headquartered MNEs and investors chased after a participation exemption for so long and so much?

<sup>67</sup> The absence of an assumption about labor bearing corporate tax, either as a simple function of corporate revenue as in the Cash-plus approach or conditioned on BEPS as in the Adjusted DINA approach, contributes to the simplicity of the DINA results for this prototype.

The combination of a labor penalty, investor gain from unlocking, and deficit increase make stand-alone lax territoriality a particularly polarizing policy from an inequality perspective,<sup>68</sup> producing an unrelenting set of negative results in the Adjusted DINA model across groupings for lower income persons in contrast to large gains for the upper income classes as well as foreign investors (for example, in Chart 3B the Top 10% gain \$44 billion in after-tax income while the Low 90% lose \$46 billion).

Although there is remarkably little discussion of wealth effects in U.S. tax policy circles (even with proposals to eliminate the estate and gift tax),<sup>69</sup> it is worth mulling the wealth effect of adoption of territoriality. Between the transition and prospective flows, the wealth effect of U.S. adoption of a participation exemption is probably in excess of a \$1 trillion,<sup>70</sup> which is perhaps not much in comparison to the \$100 trillion of U.S. wealth shown in the WID.world data base but not something to ignore either.

This conceptual exercise offers a scenario in which tax reductions, and particularly an unguarded shift to a participation exemption, will not necessarily alleviate BEPS concerns, and even when combined with a traditional corporate rate cut may produce surprising results with respect to BEPS. The revenue and distribution issues associated with adoption of territoriality are tricky: a Cash-plus approach with its dependence on realization for measuring income as a proxy for welfare does not have the tools to model territoriality right, especially if the Cash-plus modelers have decided to ignore stock buybacks and dividend increases that will come with territoriality. DINA-based models at least have the capacity because they already have the foreign earnings that will become exempt in the distribution, but there is a need for the kind of adjustments laid in above to reflect the investor welfare gains (and perhaps the labor losses without anti-BEPS provisions). As the United States moves to territoriality, more effort should be expended to document the distributional effects of this changeover.

**4. Corporate integration shifting liability to individuals (Charts 4A, 4B, and 4C, with no deemed growth).** There have been many recent U.S. proposals that would shift corporate tax liability to the individual level for a variety of seemingly well-intentioned reasons (though none of the integration plans seems to have as a primary goal addressing income inequality), ranging from competitiveness to an effort to preserve some form of capital income taxation.<sup>71</sup> Diverse as these proposals are, three common threads of these tax-liability-shifting proposals are a desire for revenue neutrality, reliance for distributional juice on labor's corporate tax burden embedded in Cash-plus models making the corporate tax seem more regressive than capital income taxes levied on individuals, and not a lot of concern about whether foreign (and sometimes domestic tax-exempt or tax-favored) investors effectively end up paying less overall tax as a result of U.S. corporate income tax reductions coupled with individual income tax increases (which do not affect tax-exempt persons).

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<sup>68</sup> One could try to find out whether U.S. labor's loss may be a gain somewhere else in the world where it might be needed, but that line, perhaps for another day, takes us in a global rather than national welfare direction.

<sup>69</sup> Again, with the exception of the cash flow tax explorations by the two Alans, Auerbach and Viard.

<sup>70</sup> If there is \$3 trillion of foreign deferred earnings overseas, applying the discount rate of 12.5% yields a \$300 billion wealth effect for the old stuff alone (after taking out 20% for foreign investors). Then if one considers something like a \$40 billion benefit for U.S. investors every year with perhaps some upside for growth, the present value of that stream at a reasonable social discount rate plus the \$300 billion for old deferral would get the wealth effect of territoriality for U.S. investors in the vicinity of +\$1 trillion – the kind of number that explains the craving of U.S. investors for a participation exemption.

<sup>71</sup> In particular, Kleinbard (2016, 2017) promotes a dual BEIT as a way “save” capital income taxation. The dual BEIT with its integration coupled with a stout defense of worldwide taxation is more than just an integration proposal: in the parlance of this exercise, the dual BEIT is a combination of Prototypes 4, 5, and 6.

This integration/tax liability shifting prototype is revenue neutral, forcing \$800 billion of income to be recognized on U.S. individual income tax returns (via capital gains, corporate imputation, interest charges, etc., assumed in this exercise to be taxable at 25 percent) in order to finance a \$200 billion corporate income tax reduction. Because of interaction with whether and how labor is considered to bear some corporate tax, the shifting results in respective foreign shareholder benefits of \$30, \$40, and \$40 billion under the Cash-plus, DINA, and Adjusted DINA methods, respectively. Even though the Adjusted DINA model makes a provision for labor bearing some corporate tax related to BEPS and associated investment flows, unlike the Cash-plus approach the Adjusted DINA method assumes there would be no labor benefit from this tax base shifting because there would be no effective change in the assignment of tax burdens other than the reduction of taxes borne by foreign investors. It is assumed that this proposal would not cause any increase in the growth of national income.

The way this prototype has been set up, there is very little going on in the DINA and Adjusted DINA presentations other than the shifting of the corporate tax cut to foreign investors which consequently is financed by U.S. persons. Instead, the biggest overall modeling questions about this proposal are how a Cash-plus approach would deal with the surge in income recognized at the individual level and whether the assumption that labor bears 25 percent of any change in corporate tax liability would really be interpreted as applying in this case in which there is only nominal statutory tax liability shifting but no change in burden location in any real economic sense.

Cash-plus distributional modelers are put in a quandary by integration/liability shifting proposals like Prototype 4. If realization is abandoned or weakened as a tax recognition event under a Cash-plus approach, a wedge is driven between taxable income, which is highly prized by Cash-plus modelers for its administrative data feature as well as political understandability, and the income concept used for distribution. On the other hand, if income passed through from the corporate level is accepted as an income increase in the distributional model, post-tax income will be driven up enormously as a result of a proposal that simply assigns nominal tax liability in a way that is already largely assigned in an economic manner, yielding a non-intuitive result for post-tax income that conflicts with the emerging notion that post-tax income is the best measure available (better than taxes paid, better than tax rates, etc.) of a proposal's impact.

One could also imagine that Cash-plus modelers might redefine what income realization means, perhaps making an exception for income that is forcibly assigned through the individual income tax, although of course the same kind of issue can arise when taxpayers voluntarily speed up or delay recognition of, say, capital gains in response to legislation as happened with the Tax Reform Act of 1986.

Following the intent and letter of the Cash-plus approach, the \$800 billion of mandated taxable individual income is treated as a capital income increase. For the Cash-plus method 25% of the corporate tax reduction, or a \$50 billion wage bonus, is added to labor income (and leaves \$150 billion of the corporate tax reduction to be distributed to capital owners). As Charts 4A, 4B, and 4C show, under the Cash-flow method this means the proposal looks like a tremendous boon across the board (although the benefits are still quite tilted in favor of high income groups as reflects capital ownership). In the meantime, as noted above Prototype 4 looks in these Charts mostly like a non-event under the DINA and Adjusted DINA approaches. Unless Cash-plus modelers have a clever response that makes their results for this type of proposal (or for that matter historical analysis were it to come to that) more intuitive, including the possibility that Cash-plus modelers would abandon tax and post-tax income

analysis for this kind of integration proposal, the capacities of the Cash-plus and DINA-based models to handle an integration proposal seem quite different.

**5. Harsher worldwide taxation with corporate rate reduction (Charts 5A, 5B, 5C, 5R).** Prototype 5 has four components: worldwide taxation would be retained while outbound BEPS incentives would be curbed via methods such as expense deduction suspension and foreign tax credit blending;<sup>72</sup> inbound BEPS would be addressed with something like a minimum or excise tax;<sup>73</sup> the definition of headquarters in characterizing what is a USMNE would be tightened to reflect economic activity and financial links and thus discourage corporate inversion; and revenue gained from the first three components would be poured back into corporate tax reductions (e.g., a rate reduction).

This is an illustration of how BEPS issues could be targeted comprehensively not with exemption (i.e., territoriality) or tax rate reductions but instead with a more comprehensive form of taxation. While implementing this prototype would be no mean technical feat and a good outcome requires that there be some inelasticity of investment supplied to the United States (an inelasticity for which there is some evidence),<sup>74</sup> if properly crafted this prototype could help U.S. labor by curbing BEPS, and raise corporate revenue to be plowed back in the form a broad corporate rate reduction. It is assumed that this prototype would generate a +.25% increase in national income from simultaneously restraining BEPS and lowering taxes on non-BEPS corporate activity.

There would be no budget deficit increase under Prototype 5 which would be a distributional boon for low income groups. As Charts 5A, 5B, and 5C signify for the Adjusted DINA method, labor is assumed to gain back the entirety of the \$100 billion of the wage penalty it bears under current law because of BEPS, while the owners of capital are effectively held harmless.

Charts 5A, 5B, and 5C show that Prototype 5 would not register in any capacity for either the Cash-plus or (unadjusted) DINA methods. The Cash-plus approach links its labor outcome strictly to a corporate tax change, of which there is none in this revenue neutral proposal, and does not recognize BEPS per se, while without adjustment the DINA model does not link labor outcomes to BEPS.

As could be expected from a modeling technique that essentially treats this prototype as a labor subsidy promulgated as a revenue-neutral corporate income tax proposal, Table 5R shows that because the labor benefit at the heart of this prototype is distributed more progressively than the benefits of something like a stand-alone deficit-financed corporate tax cut, the growth risk identified using the Adjusted DINA method is not distributed that regressively although the Low 50% still lack the labor income to share very much in the proposal's benefits.

While it may seem surprising that more taxation could be used to address BEPS, the border tax adjustment in the destination based cash flow tax recently considered for U.S. adoption<sup>75</sup> is a distant cousin of this idea of taxing BEPS away. Whether such a proposal meets World Trade Organization or

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<sup>72</sup> For example, as identified in the Obama administration fiscal year 2010 budget proposal.

<sup>73</sup> This idea has also found its way into pending U.S. legislation, though the devil is in the details.

<sup>74</sup> Through thick and thin, foreign investors continue to provide the United States with inbound FDI as well as purchasing U.S. public debt and other portfolio investments. Sometimes it seems as though the powerful lure of the U.S. current account deficit is left out of conversations about why or how much foreign investors want U.S. assets.

<sup>75</sup> Described in Auerbach, et al. (2017).

other international neutrality standards, one can understand the (distributional) appeal of such ideas in reaction to the pervasiveness of BEPS and other compliance issues.

**6. Harsher worldwide taxation with deficit reduction (Charts 6A, 6B, 6C, 6R).** This prototype is the same as the prior proposal except the \$100 billion in revenue gained from curbing corporate inversion as well as inbound and outbound BEPS would be used to trim the current budget deficit. Because the revenue is not refunded in a general way to corporations like the prior proposal, the economic growth here is assumed to be only half as much at +0.125 percent of national income.<sup>76</sup> This also is the only plan considered in this exercise that takes a post-tax income toll on foreign investors.

Because the Cash-plus approach does not take account of deficits or surpluses, Charts 6A, 6B, and 6C show everyone harmed under the Cash-plus method and the damage extends to labor absorbing \$25 billion of penalty in wages and salaries as result of the rote Cash-plus inverse linkage of wages and corporate taxes (capital owners including foreign investors absorb the remaining \$75 billion of additional taxes). The (unadjusted) DINA model would show a net benefit to U.S. persons and a net post-tax loss for foreign investors, with the reduced deficit benefiting lower income groups.

It is assumed with the Adjusted DINA approach that labor has more of a BEPS problem than a corporate tax rate problem. The proposal's targeting of BEPS helps labor even though it raises corporate taxes, a result opposite of the simple corporate-tax-level-driven method of allocating corporate tax to labor under the Cash-Plus method.

**7. Simplified version of pending U.S. tax legislation (Charts 7A, 7B, 7C, and 7R).** As a very preliminary and simplified exercise, the pending (if not already enacted) 2017 U.S. legislation is examined.

A reduced form of the pending legislation blending the two different bills now being "conferenced" by the U.S. Senate and the U.S. House of Representatives,<sup>77</sup> highlighting certain elements of the legislation for illustration, includes a deficit-financed \$115 billion annual revenue loss analyzed using the same 2013 baseline year as used for the other prototypes in this paper. Included in this conceptual identification is adoption of corporate tax reductions and a territorial system, with different ramifications for labor under the Cash-plus and DINA-based approaches, an individual income tax rate reduction for pass-through businesses, a reduction in estate and gift taxation, and other features which are simplified in modeling effects on the broad income classes examined in this paper (with a large number of provisions that are revenue neutral en bloc assumed to have no net distributional effect).<sup>78</sup> Prototype 7 does not include the repeal of the ACA health care mandate from the Senate bill: that provision is included in Prototype 8. Prototype 7's projected national income growth is +0.8%.<sup>79</sup>

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<sup>76</sup> It seems plausible that a plan that curbs BEPS, corporate inversion, and devotes revenues gained thereby to deficit reduction would lead to modest growth.

<sup>77</sup> Descriptions of the bills as well as revenue estimates, distributions, and macroeconomic analysis can be found at JCT.gov, taxpolicycenter.org, as well as at the Tax Foundation website.

<sup>78</sup> This prototype, at 2013 levels, reduces the estate and gift tax \$15 billion, pass-through taxes by \$40 billion, corporate taxes by \$60 billion, and \$10 billion of revenue loss in the form of credits and whatnot is targeted at the lower income groups, for gross revenue loss of -\$155 billion. Balanced against that, \$10 billion of revenue is raised from labor income. So the net deficit-financed revenue loss is \$115 billion. The proposal also includes adoption of a territorial system but without BEPS curbs, and all other provisions are assumed to be revenue and distribution neutral. The proposal is projected to raise national income by .8% (or \$114 billion at 2013 levels).

<sup>79</sup> This is consistent with JCT's macro growth estimate for a variation of the Senate bill, JCT (2017). TPC came out with less optimistic growth, Tax Foundation more optimistic, and so on.

Notwithstanding some of the anti-BEPS components in the pending U.S. legislation,<sup>80</sup> it is assumed that Prototype 7 contains tax territoriality so that with the Adjusted DINA approach labor takes a \$25 billion income hit, in contrast to how the Cash-Plus approach treats labor as reaping a 25% wage and salary premium from the net corporate revenue loss in the prototype.

As is the pattern among the capital income tax reductions considered in this paper, Charts 7A, 7B, and 7C show that everyone (including foreign investors) receives some post-tax income benefits under the Cash-Plus approach although benefits are very slim in the lower income classes. The absence of the distribution of the estate and gift tax reduction in the Cash-plus method (mirroring what the U.S. congressional agencies, CBO and JCT, do, though the estate and gift tax reduction is distributed under the DINA-based methods here) prevents the lopsided benefit pattern from looking even worse under the Cash-plus method. Once deficits are allocated under the DINA and Adjusted DINA approaches, growth becomes the promised lifejacket for the lower income classes but even then the lowest income classes (as signified by the Low 50% in Table 7C) never get a positive post-tax income result while foreign investors and the upper income classes always stay benefitted and dry (the differences in exposure to growth risk in Table 7R illustrate that the upper income groups are in no peril of sustaining post-tax income losses even if the deemed growth under this proposal does not eventuate).

**8. Pending U.S. legislation with repeal of healthcare mandate (Charts 8A, 8B, 8C, and 8R).** Prototype 8 is the same as 7 except it includes the repeal of the penalties and subsidies associated with healthcare mandate of the Affordable Care Act. Based on distributional information provided by JCT and CBO,<sup>81</sup> \$30 billion of after-tax loss is allocated to the Low 50% income group (as well as lesser after-tax income reductions to the Low 90% and Low 99% groups) with the corresponding amount provided to upper income groups in a prorated regressive manner (which is essentially what happened in U.S. agency distributions when repeal of the ACA mandate was adopted by the U.S. Senate). The growth rate assumed is the same as for Prototype 7, +0.8% of national income.

Adding the repeal of the ACA mandate into the mix takes a plan (Prototype 7) that was already not particularly favorable to low income groups and moves tens of billions of dollars to double down on general regressivity (the \$30 or so billion transfer can be seen graphically by looking at the Adjusted DINA model results for the Top and Low 50% in Tables 7C and 8C). While the published data on the distribution of the healthcare mandate repeal was a first for U.S. agencies and an innovation in Cash-plus modeling, perhaps the real question is how many other outlay and deficit changes have had similar effects over the years but were simply undocumented in a rigorous way in Cash-plus models.

In a twist, ACA mandate repeal might be less objectionable on inequality grounds if there at least was some reasonable chance that it could contribute somehow via growth to improving the lot of low income groups. But the ranges of growth risk in Chart 8R, both on their own and in comparison to the growth risk results in Chart 7R for the same proposal without ACA mandate repeal, do not suggest any positive payout to the lowest income group (i.e., the Low 50%) to compensate for mandate repeal or for that matter the rest of the bill.

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<sup>80</sup> It is difficult to predict how effective the anti-BEPS provisions in the pending U.S. legislation will be.

<sup>81</sup> JCT (2017b) and CBO (2017).

## F. Lessons and Summary

In the spirit of this initial 2017 WID.world Conference, this demonstration project employed a DINA-based method to evaluate capital income tax proposals. A fair criticism of some of the substantive results found here is that the degree of stylization and assumptions required for making assessments should be improved upon in order to inform policymaking. How much and what kind of anti-BEPS provisions are needed to accompany territoriality in order to protect rather than harm U.S. labor? When would a gain for U.S. labor because of an anti-BEPS proposal lead to a loss for rest-of-the-world labor? How robust is the deficit allocation mechanism used here? This is just the beginning of a reasonable set of questions about the economic basis for this paper's distributional analysis of the eight capital income tax prototypes.

The methodology used here by using 2013 as a back-cast instrument for the purpose of analyzing a proposal also finessed what a full-fledged forward-looking policy analysis would require. Certainly the distributional conclusions reached here were influenced by prototype design, stylized assumptions, and choices made in creating the Adjusted DINA approach and applying the other approaches. Nevertheless, because this is primarily a demonstration and process project, no apologies are offered for any of the conclusions themselves (and perhaps many of conclusions would stand up well with more empirical detail).

One goal of this paper was to test the suitability of, say, one of the official or unofficial U.S. analytical agencies adopting a DINA method for assessing policy proposals (something that at least the U.S. Treasury started toward decades ago but then backtracked on).<sup>82</sup> Observations gleaned from this experiment can be grouped as to how they concern: (1) Specific aspects of the prototypes; (2) Robustness of the DINA method; and (3) Broader comments on distributional modeling.

### F.1 Lessons from the Prototypes

This exercise with the eight U.S. policy prototypes tested the distributional comprehensiveness of Cash-plus and DINA-based approaches with respect to budget deficits, government outlays, labor's potential burden with respect to corporate taxation and/or BEPS, and growth projections for proposals. In regard to the latter, an attempt was made to quantify "growth risk" as it relates to policy proposals.

The idea of routinely tracking policy benefits that would flow to foreign investors, even while a model cannot formally incorporate these investors into national-based distributions, was offered here not so much as an insular nationalist political tool (though some might take it that way)<sup>83</sup> as a step in documenting the cross-border inequality effects of national tax policy proposals. It is probably no surprise that foreign investors, who offer what so many countries crave, generally were clear cut winners in all of the prototypes above except when revenue raised from "harsher" worldwide taxation was employed to pay down federal debt in Prototype 6.<sup>84</sup>

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<sup>82</sup> Driessen (2017a).

<sup>83</sup> Complaints about foreign investors' tax benefits contrast with how much inbound FDI is courted and the established role of the United States as a net capital importer, but the supply of inbound investment may be more inelastic than thought.

<sup>84</sup> As a fallback, even if foreign investors are not explicitly tracked in distributions, the allocation of deficits to U.S. persons indirectly reflects whatever portion of a policy change flows to foreign investors. A reason to track how foreign investors fare is to contribute to information about how much investors from all countries are being taxed

The Adjusted DINA method that incorporates deficit and growth effects illustrates the intuition that capital income tax policy, short of causing extraordinary growth, is an insufficient means to address inequality experienced by low income groups.<sup>85</sup> In the prototypes looked at here, it is the allocation of deficit effects that most affect low income groups, not the capital income tax proposals themselves. For sure it is difficult for low income persons who lack capital assets and are perhaps only precariously connected to the labor force to benefit from lower capital income taxes. Further, as the risk charts show, projected growth effects of various proposals often seemed to especially put low income groups at sign-changing risk with regard to whether a plan causes an income increase or loss, with growth needed to push them into any kind of even meagre absolute or relative income gains.<sup>86</sup> All in all, unsporting wagers these.

Linking pre-tax labor income to BEPS is a way of adding a specific policy handle to counter the frankly blunt U.S. agency practice of simply assigning a fixed portion of corporate tax to labor. The lax territoriality prototype in particular showed how different the outcomes can be for a revenue-losing participation exemption that encourage BEPS, with the results for the Cash-plus approach (which makes the standard U.S. agency assumption that in the long run 25 percent of a net corporate tax change is borne by labor) in Chart series 3 going in the opposite direction of the Adjusted DINA model (which in the relevant range of corporate tax levels specifically links labor outcomes to BEPS incentives and associated investment location rather than changes in, or absolute levels of, corporate taxes).<sup>87</sup> The discount applied to deferred foreign earnings also permitted the Adjusted DINA approach to reflect distributionally at least part of the reason why U.S. investors and companies have been so desirous of a participation exemption.

The Chart 4 series showed that corporate integration, whatever other merits it may have, could cause a Cash-plus approach to overstate overall benefits. Some corporate integration proponents seem to be chasing what U.S. agency distributional models show as \$100 billion (~ at current corporate income tax levels) in corporate tax borne by labor under current law. The granularity that comes with specifically linking labor outcomes to specific corporate tax policies (e.g., BEPS) in the Adjusted DINA model rather than the tax level *per se* of the Cash-flow approach performs a service, in the author's view, in removing progressivity from the integration discussion. In any event, the revenue-neutral integration proposals offered leading up to 2017 U.S. bill tax consideration and so much a part of tax policy discussions during recent years largely have been mooted because the pending U.S. tax legislation has adopted one part of these integration proposals, the reduction in corporate taxes, while eschewing the individual income tax part that was supposed to ensure revenue neutrality. Without compensating

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in this increasingly source tax (and low source tax at that) world. In that regard, a worldwide estimate of what the adoption of territoriality in so many countries has done to global inequality might be of interest. While it has been happening one country at a time and the attention has been on the perceived competitive necessity for countries to do so, dropping business residence taxation eliminates one of the tools for addressing inequality.

<sup>85</sup> In the U.S. context, low income groups can be targeted more closely with policies such as trade adjustment assistance, the earned income tax credit, family assistance benefits, and jobs credits.

<sup>86</sup> Deficit reduction should not be interpreted as helping low income groups *per se* (and after all, some programs that are deficit-financed may on net serve low income groups well) as much as deficit reduction keeps the U.S. fisc healthy and flexible enough to meet continuing needs that often involve low income groups.

<sup>87</sup> More generally, in keeping with U.S. exceptionalism, other countries adopting territoriality did not start with the exceptional level of U.S. (income or wealth) inequality, or the huge domestic economy, or perhaps the level of enmity between the U.S. government and resident headquartered multinational companies.

changes, corporate tax cuts effectively reward domestic tax-exempt or tax-favored investors as well as foreign investors, raising national and global inequality.

## F.2 How DINA Fared

Some of the capital income tax prototypes used in this paper were picked explicitly to highlight perceived deficiencies in the Cash-plus method, specifically changing the treatment of deferred foreign earnings, integration, the capacity for BEPS, and of course more generally any proposal that uses deficits or outlays not part of a model's distributions to finance capital income tax reductions. But these are all core capital income tax ideas central to policy discussion. Cash-plus proponents are welcome to offer counter-examples of capital or labor policy proposals that show the superiority of Cash-plus over DINA methods.

With DINA-based policy evaluation, in contrast to historical analysis, technically there may be a need for more grouping sensitivity analysis when looking at forward looking policy (see discussion in Prototype 2). Proposals that have oversized impacts in selective ranges, say for example the lower inner quartile (units in the lower 25 to 50% income range), may require greater breakouts (not unlike what is already done in the DINA framework for the "middle 40%"). For policy analysis it also may be fruitful to identify a policy's crossover percentile if it exists: for example, a certain capital income tax proposal might begin generating post-tax income losses in the 68<sup>th</sup> percentile and below, while units above that crossover percentile receive post-tax income gains.

## F.3 General State of Distributions

U.S. distributional modeling needs to become as essential and modernized as revenue estimating and dynamic scoring information provided to policymakers, and DINA can help. The 2017 pending tax legislation tested U.S. agencies and the distributional results have been mixed. Particularly helpful was CBO/JCT combined (though still disjointed for institutional reasons) distribution of the tax and outlay effects of ACA mandate repeal (the incremental subject of Prototype 8 above). However, the \$1.5 trillion budget deficit associated with the legislation has not been distributed, a crucial omission; the welfare benefits of capital income tax changes such as territoriality have not been captured in distributional tables, instead presented as non-events,<sup>88</sup> and the corporate tax distribution to labor has been allocated on a primitive basis leading to 25% of the long-run corporate tax reduction being sprinkled as wage benefits among lower income groups.<sup>89</sup> The Cash-plus issues in modeling territoriality and other capital income tax changes will, with enactment of pending U.S. legislation, now plague Cash-plus historical evaluations.

Cash-plus models are open (hit-and-miss because of exclusions of much government spending and deficits) and therefore misleading for many tax and outlay proposals (as well as historical analysis).<sup>90</sup> While initially there may be set-up difficulties in evaluating capital income tax changes with

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<sup>88</sup> Including the absence of dividend payouts or stock buybacks which are sure to happen and are crucial to a Cash-plus model which is totally dependent on realization to tell its story (and in this case it seems no realizations were anticipated even though the 2004 experience provides strong evidence.)

<sup>89</sup> The way U.S. agencies distribute a share of the corporate tax to labor generally presupposes a macroeconomic story in a distribution of conventional estimates (and the macroeconomic story may not end up being confirmed in subsequent reports).

<sup>90</sup> Driessen (2017b).

closed DINA models (closed in the sense that, other than foreign investors, everything in a policy change is accounted for), some of those complexities also afflict the Cash-plus approach but do not prevent the modeling of policy proposals.

Administrative data will always have a role in any kind of distributional model, but policymaking needs to be informed by more than just the tax and other administrative data. There are also routine policy needs for information on immediate, transitional, and long-term wealth effects, as well as some form of standard modeling of policy impacts on economic mobility.

What is coming next after enactment of the pending U.S. legislation is likely a huge shift in taxable income recognition along with changes in business entity preference not unlike those that caused issues for Cash-Plus analysis before and after the Tax Reform Act of 1986. The pending legislation's likely long phase-ins and phase-outs, as well as big effects on taxable income and wealth, will not affect DINA-based analyses nearly as much Cash-plus methods. One likely consequence is a greater historical diversion of Cash-plus results from DINA- or accrual-based modeling outcomes.

What are needed both for historical evaluation as well as forward-looking policy analysis are comprehensive models that are impervious to policy-induced changes in taxable income that are not reflective of the amount or necessarily the sign of actual changes in economic well-being. A DINA model that includes outlays and deficits as well as tracks foreign investors (and for policy purposes includes macroeconomic growth in the distributions) meets this challenge.<sup>91</sup>

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<sup>91</sup> As much emphasis as possible should also be put on post-tax income results and not tax rates or taxes paid, and a DINA synthetic/virtual micro data base to aid in sorting out policy winners and losers.

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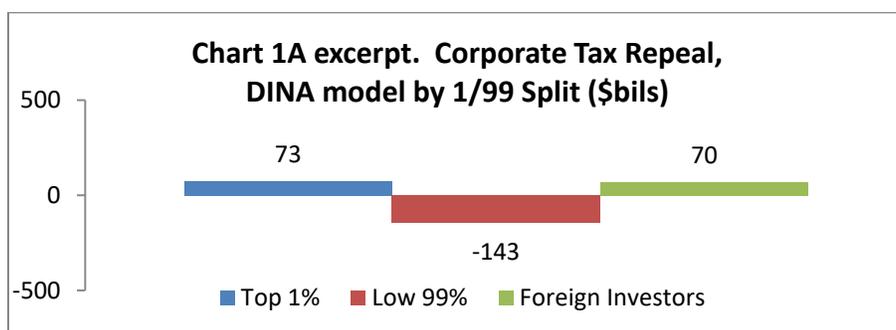
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## Appendix – Description of Sample Calculations

Perhaps the best way to explain the technique employed for this exercise is to walk through three examples, using excerpts from the capital income tax policy prototypes and charts. Below information from the WID.world data base is referred to as (*wid*), from CBO including supplemental data tables (*cbo*).

### 1. Repeal of the Corporate Income Tax, DINA model for the 1/99 groups (excerpt from Chart 1A)

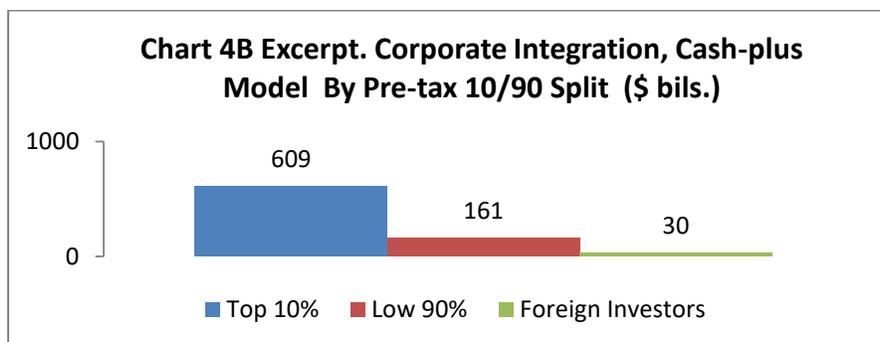


Under the DINA approach, \$320 billion of the revenue reduction is allocated to U.S. investors and \$80 billion to foreign investors (according to the 20% foreign investor share of capital ownership assumed throughout the exercise.) Of the \$320 billion, 41.08% is allocated to the Top 1%, the rest to the Low 99% (*wid for 2013*). Thus before the deficit is allocated, the Top 1% has a post-tax benefit of \$131 billion, the Low 99% \$189 billion. The first step in the deficit allocation involves the modeling assumption that foreign investors bear 2.5% of any deficit change, so foreign investors after accounting for their share of deficit allocation end up with  $\$80 - (.025 * \$400) = \$70$  billion of post-tax income benefit.

Next, the Top 1%'s share of the deficit is calculated using the DINA data. The percentages that follow (except for the income groupings themselves which are as a percentage of all adults over 19 years old, and the result of the deficit share calculation) are given as percentages of the entire amount of national income which in 2013 was \$14.45 trillion. The Top 1% in 2013 had 19.6% of pre-tax income, 15.3% of post-tax income, benefited by 3.0% from government outlays, and paid 7.2% in taxes (*wid*) (with allowance for rounding). The Top 1%'s deficit share, calculated 50/50 according to government benefits and taxes, is  $[(.5) * (3.0\%) + (.5) * (7.2\%)] / (34.1\%)$ , with 34.1% being the share of national income taken up by government spending. Hence the Top 1% is deemed to absorb  $(5.1\% / 34.1\%)$  or 15% of the \$390 billion deficit (after netting out the \$10 billion that foreign investors are deemed responsible for), making the after-tax-and-after-deficit result for the Top 1%  $[\$131 - \$58.5 = +\$73 \text{ billion}]$  and the Low 99% end up with  $[\$189 - \$332 = -\$143 \text{ billion}]$ . [There may be some fudging here because of the role of state and local (as well as modest foreign) taxes.] Also, this example does not involve potential economic growth because that is calculated only under the Adjusted DINA model.

## Appendix – Description of Sample Calculations (continued)

### 2. Corporate Integration/Base Shifting, Cash-Plus model for the 10/90 groups (excerpt from Chart 4B)



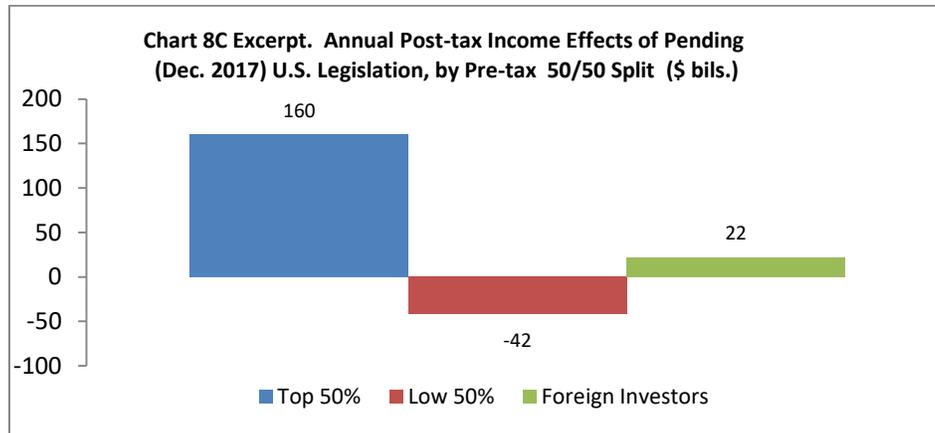
For this proposal, to reduce corporate income taxes by \$200 billion, individuals are required to recognize \$800 billion of capital gains (assuming these gains are taxed at individual rate of 25%). The Cash-plus model, because it is based primarily on taxable income unlike the DINA-based models, likely will present the \$800 billion as an increase in pre-tax income. The Top 10% will recognize 82% of the \$800 billion (*cbo for 2013*), the Low 90% the rest. With respect to the corporate tax liability change, under the Cash-plus model 25% will be allocated as a wage bonus to labor, with 20% of what is left for capital owners assumed for this exercise to go to foreign investors. So foreign investors are set: their post-tax benefit from this proposal is \$30 billion (that is,  $.2 * (\$200 \text{ billion} * .75)$  under the Cash-plus approach

The 10/90 results for U.S. individuals are a little trickier to compute because the labor benefit from the corporate tax cut under the Cash-plus method has to be sorted out. The Top 10%, when taking account of both their capital and labor share of corporate taxes, receives almost 70% (*cbo*) of the corporate tax benefit (after backing out the \$30 billion for foreign investors), and pay a 25% tax rate on their share of mandated individual capital gains realizations. So the Cash-Plus approach would have the Top 10% looking like its pre-tax income increases \$656 billion on which it pays a 25% individual income tax of \$165 billion, while receiving a net corporate tax reduction (including the portion shifted to labor as a wage and salary bonus) of \$117 billion [ $.6961 * (200-30)$ ]. The post-tax result for the Top 10% is thus ( $\$656 - \$165 + \$118 = \$609$  billion); the Low 99% get \$161 billion; and foreign investors \$30 billion.

[In contrast, the DINA-based models would regard this proposal to be of less post-tax consequence, with no labor bonus and no after-tax boost from forced capital gains realizations; instead, a simple transfer of \$40 billion from U.S. persons to foreign investors (\$40 billion rather than \$30 billion because under the DINA-based approaches there would be no labor boost stacked before determining the corporate tax benefit for foreign investors).]

## Appendix – Description of Sample Calculations (continued)

### 3. Pending U.S Legislation with ACA Mandate Repeal, Adjusted DINA model for the 50/50 groups (excerpt from Chart 8C)



This reduced form version of pending U.S. tax legislation, at 2013 levels, cuts the estate and gift tax \$15 billion, pass-through taxes by \$40 billion, corporate taxes by \$60 billion, individual income taxes by \$30 billion, with \$10 billion of revenue loss in the form of credits and whatnot targeted at the lower income groups, for gross revenue loss of -\$155 billion. Balanced against that, \$10 billion of revenue is raised from labor income, and \$30 billion is raised from ACA healthcare mandate repeal. So the net deficit-financed revenue loss is \$115 billion. The proposal also includes adoption of a territorial system but without BEPS curbs, and all other provisions are assumed to be revenue- and distribution- neutral. The proposal is projected to raise national income by .8% (or \$114 billion at 2013 levels).

With the Adjusted DINA approach, territoriality with its end to lockout of foreign earnings helps investors by \$50 billion on a flow basis (with \$10 billion going to foreign investors in accord with the standing assumption). Countering this is a \$25 billion penalty for labor income attributable to the proposal's tax territoriality. Before deficit and growth effects, under the Adjusted DINA model the Low 50% experience a net \$3 billion loss in pre-tax income by absorbing 15.22% of the \$25 billion labor penalty balanced against gaining 1.61% of the \$40 billion investor windfall from territoriality (*wid*). As a result of the \$30 billion loss associated with repeal of the ACA mandate netted against \$7 billion of tax benefits provided by the pending tax legislation, the Low 50% experience a -\$26 billion post-tax loss before deficits and growth are accounted for, with the same post-tax results for the Top 50% and foreign investors being +\$148 and +\$18 billion, respectively.

The allocation of the \$115 billion deficit is along the lines discussed above for Example 1 in this Appendix, with foreign investors absorbing 2.5% of the deficit while the Top 50% absorb (2/3) (*wid*) of what's left after the foreign investor piece and the Low 50% absorb the rest. This puts the Low 50% at (-\$26 -\$37) or a post-tax income loss of \$63 billion, with the similar respective amounts for the Top 50% and foreign investors +\$73 billion and +\$15 billion, respectively.

Finally, the +0.8% growth would benefit the Low 50% by \$21 billion, putting their net income loss at -\$42 billion (groups are assumed to share in growth in proportion to their post-tax shares of income) (*wid*). Comparable end totals for the Top 50% and foreign investors are +\$160 and +\$22 billion, respectively.

Model	2012		2013		2014		2015	
	\$Trillions	As a % of PSZ						
CBO b/			\$12.3	85.3%				
JCT c/			\$11.7	81.1%	\$12.7	84.1%	\$13.3	84.8%
LBAA/d	\$12.5	88.8%	\$15.4	106.9%				
OTA e/							\$13.9	88.8%
TPC f/					\$13.9	91.7%		
PSZ g/	\$14.1		\$14.5		\$15.2		\$15.7	

- a. Details may not add due to rounding. Nominal income. Some income assignments (JCT, OTA, and TPC) occurred within the years in question; others were calculated *ex post* (e.g., CBO, LBAA, and PSZ). There also may be some differences in fiscal and calendar year attribution - it is expected that none of these timing differences cause substantial variations among the income presentations. Models vary by coverage of transfers and other government spending, deficits, capital income and other items.
- b. Congressional Budget Office, [The Distribution of Household Income and Federal Taxes, 2013](#), 51361, (June 2016), before-tax income, p.2, and supplementary tables (multiply 123.1 million households by average of \$100,200 of pre-tax income).
- c. Expanded income. For 2013, see Joint Committee on Taxation, JCX-14-13, Table 9, p.25; for 2014, see JCX-21-14; for 2015, see JCX-70-15, Table A-6, p. 28.
- d. LBAA is Jeff Larrimore, Richard V. Burkhauser, Gerald Auten, and Philip Armour, "Recent Trends in U.S. Top Income Shares in Tax Record Data Using More Comprehensive Measures of Income Including Accrued Capital Gains," NBER Working Paper 23007, (Dec. 2016), Appendix Table A2, p. 44.
- e. Office of Tax Analysis, U.S. Department of the Treasury, [Distribution-of-Tax-Burden-Current-Law-2015-Revised.pdf](#), (July 24, 2015), family cash income.
- f. Tax Policy Center, [Tax Policy Center Table T16-0135](#), "Baseline Distribution of Income and Federal Taxes by Expanded Cash Income Level, 2014," (July 25, 2016), p.1 (multiply 169.73 million tax units by \$81,950).
- g. Set as table numeraire for percentage comparisons. Bureau of Economic Analysis, Table 1.13, and Thomas Piketty, Emmanuel Saez, and Gabriel Zucman, "Distributional National Accounts: Methods and Estimates for the United States," NBER Working Paper 22945, (Dec. 2016) (with details at [www.WID.world](#)).

	Cash-plus a/	DINA b/	Adjusted DINA c/
Total Income:			
Pre-tax	\$12,330	\$14,450	\$14,310
Post-tax	\$9,860	\$14,450	\$14,310
Pre-tax and post-tax changes to DINA to create Adjusted DINA:			
Deferral discount			-\$40
Profit shifting			-\$100
Top 1% shares:			
Of pre-tax income	15.00%	19.60%	19.58%
Of post-tax income	12.40%	15.34%	15.28%
Top 10% shares:			
Of pre-tax income	37.98%	46.32%	46.31%
Of post-tax income	33.97%	38.75%	38.67%
Top 60% shares d/:			
Of pre-tax income	85.51%		
Of post-tax income	83.09%		
Top 50% shares d/:			
Of pre-tax income		87.23%	87.22%
Of post-tax income		80.68%	80.60%

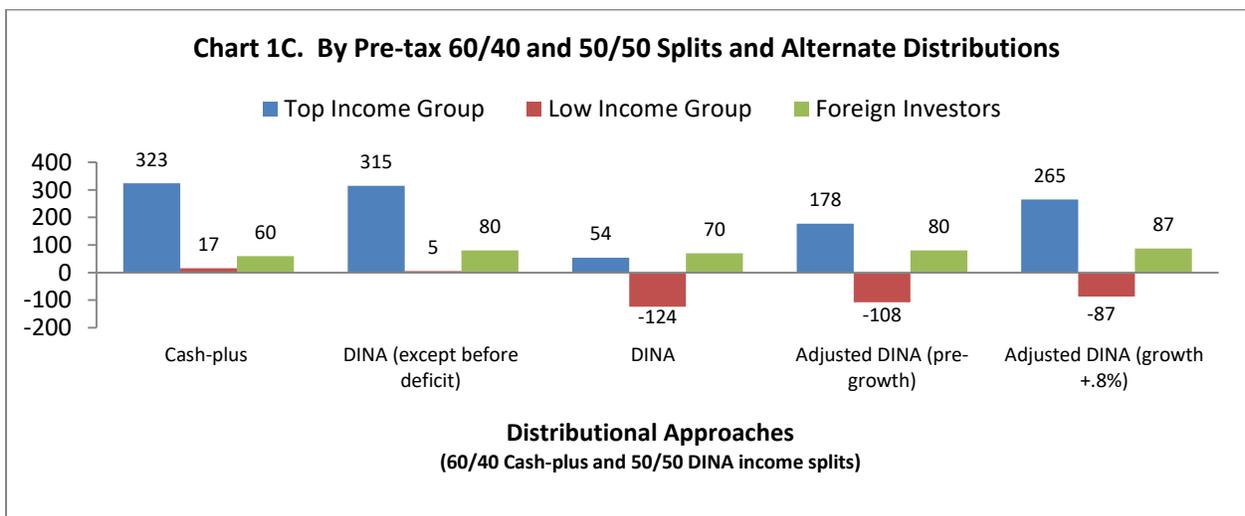
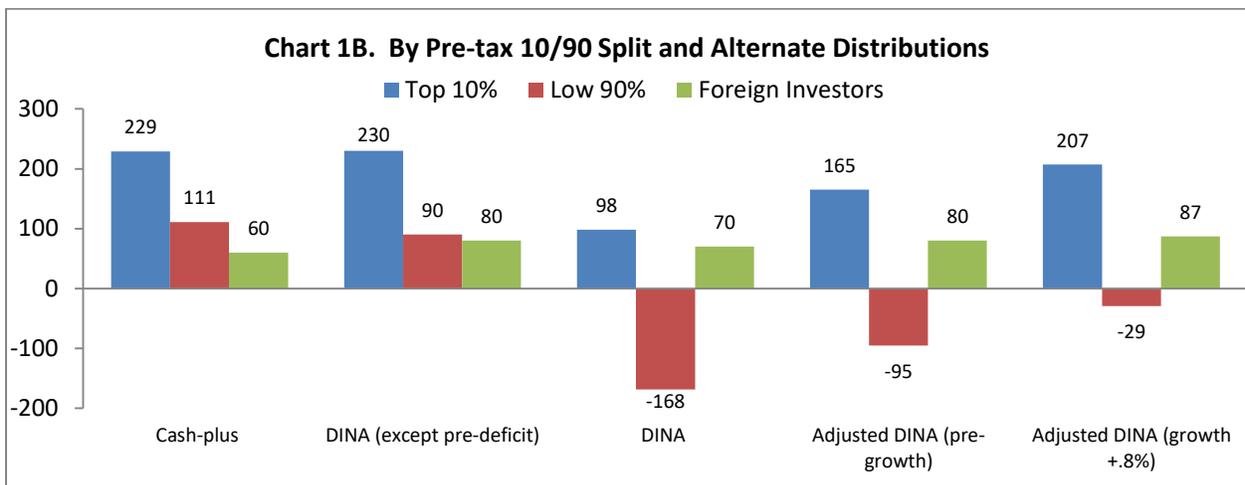
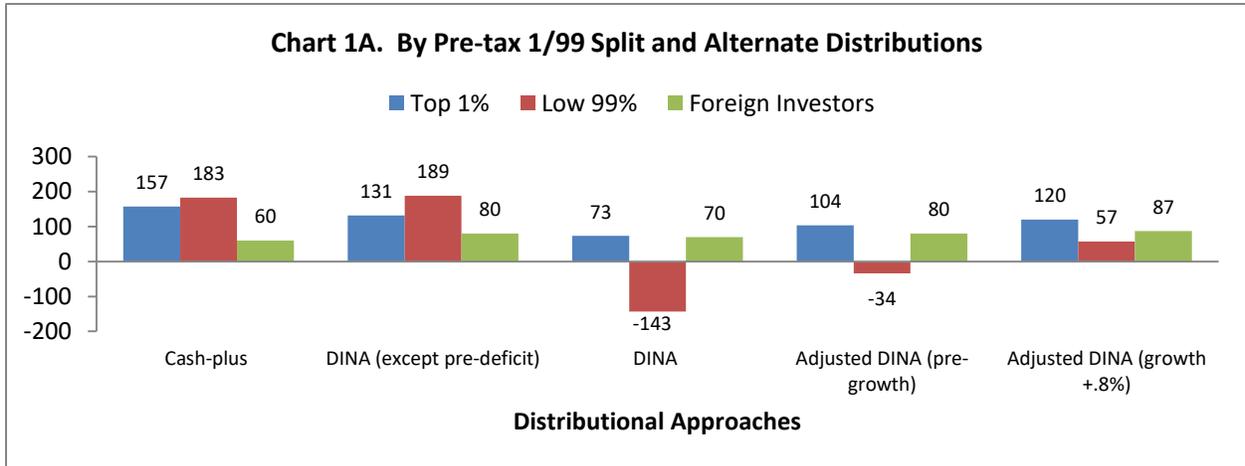
a/ Draws from Congressional Budget Office, [The Distribution of Household Income and Federal Taxes, 2013](#), 51361, (June 2016), including supplemental tables. It is assumed that CBO's non-distribution of Federal Reserve earnings (i.e., "miscellaneous receipts") and CBO's non-allocation of corporate taxes to foreign investors offset.

b/ Draws from WID.world for 2013. DINA is a more comprehensive model than Cash-plus, including all levels of government taxes and outlays (plus foreign taxes) and allocation of budget deficits. The pre-tax concept (not the factor presentation) is used for the DINA-based models. The choice of unit of observation also differs between the Cash-plus and DINA-based models: for 2013 the Cash-plus model covers 123.1 million households while the DINA-based models apply to 232 million adults over age 19. Sources: CBO, (2016), supplemental data; and Thomas Piketty, Emmanuel Saez, and Gabriel Zucman, "Distributional national accounts: Methods and estimates for the United States," (September 25, 2017) with details at [www.wid.world](http://www.wid.world), and particularly tax data from Tables II-TG1, II-TB1, II-TC1.

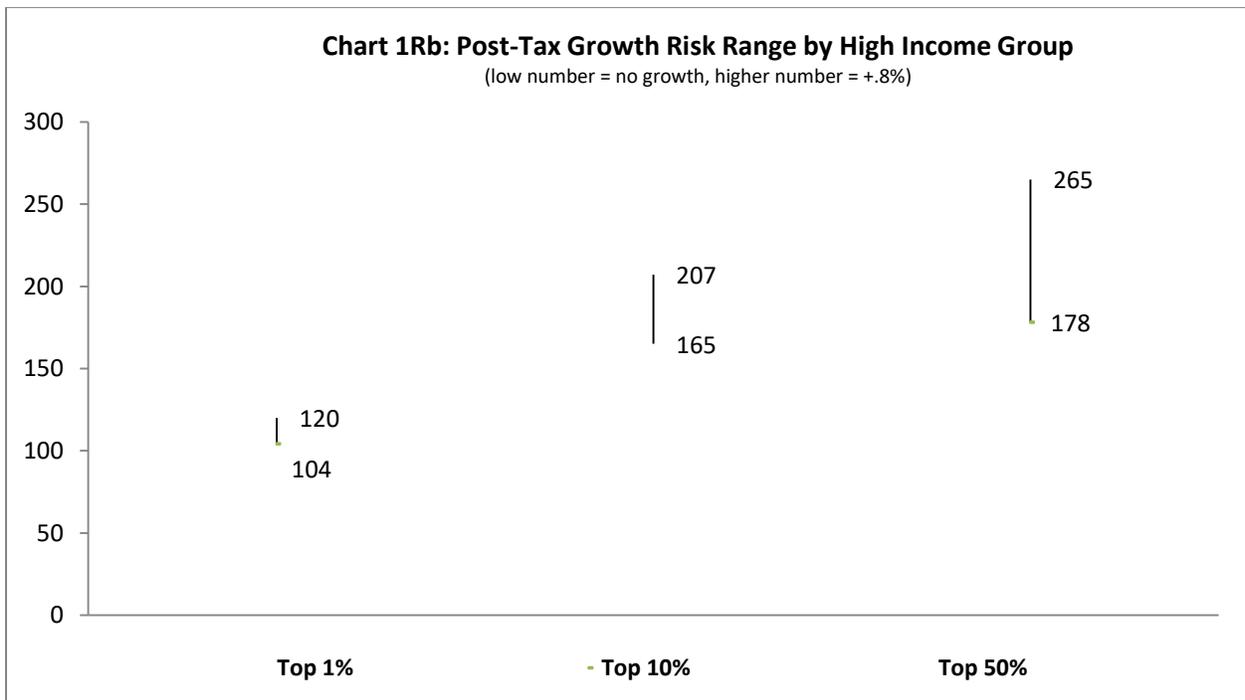
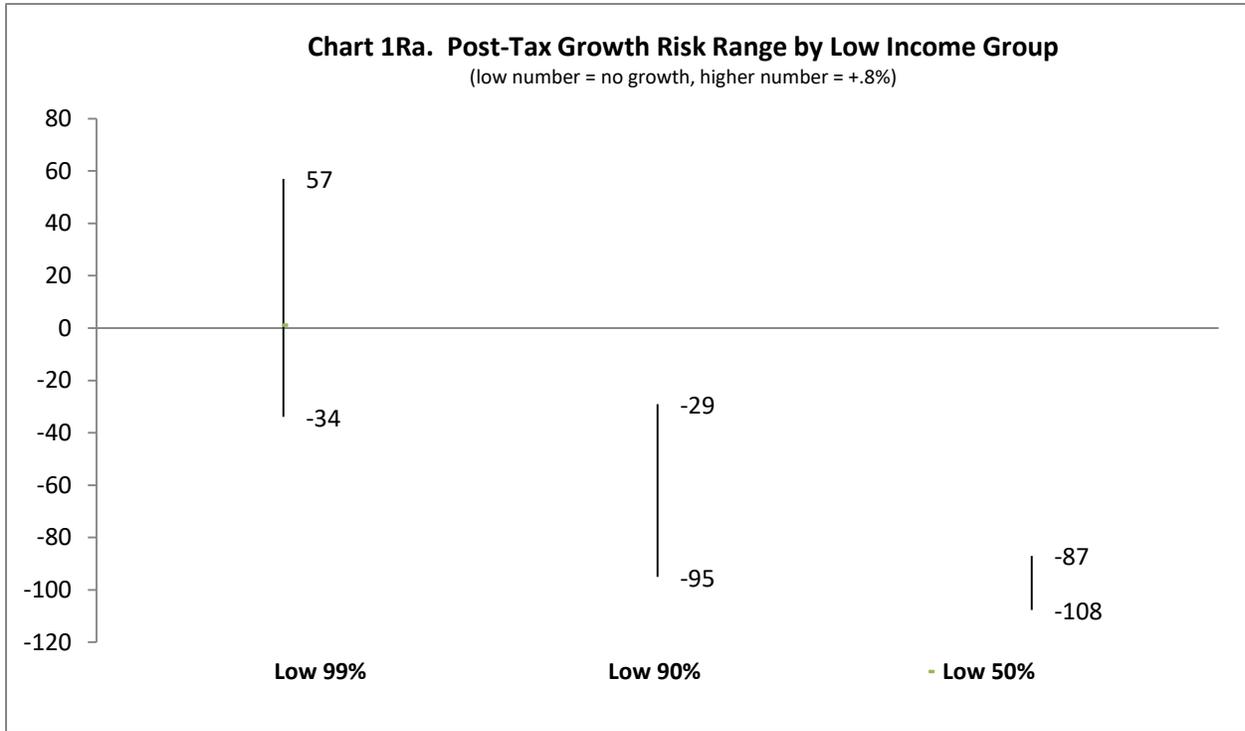
c/ Adjustments as described in text include a base erosion and profit shifting link to labor compensation that causes the baseline to show labor losing \$100 billion, pre- and post-tax. In addition, a foreign deferral discount of -12.5% applied to \$400B of incremental/flow of deferred foreign earnings and profits in 2013, resulting in \$40 billion income loss for U.S. owners of capital (the other \$10 billion is allocated to foreign investors in accord with the assumption that foreign investors bear 20% of the incidence).

d/ Because CBO (2016) does not provide a 50/50 breakdown and WID.world does not provide a 60/40 breakdown, both will be offered throughout this exercise (though they are not perfectly comparable, they serve the purpose).

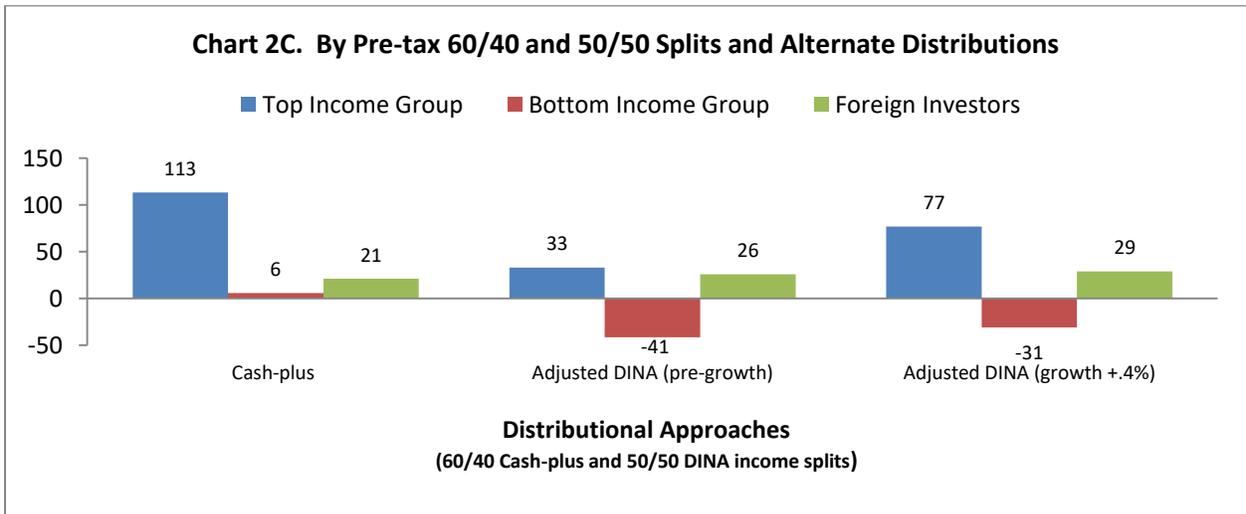
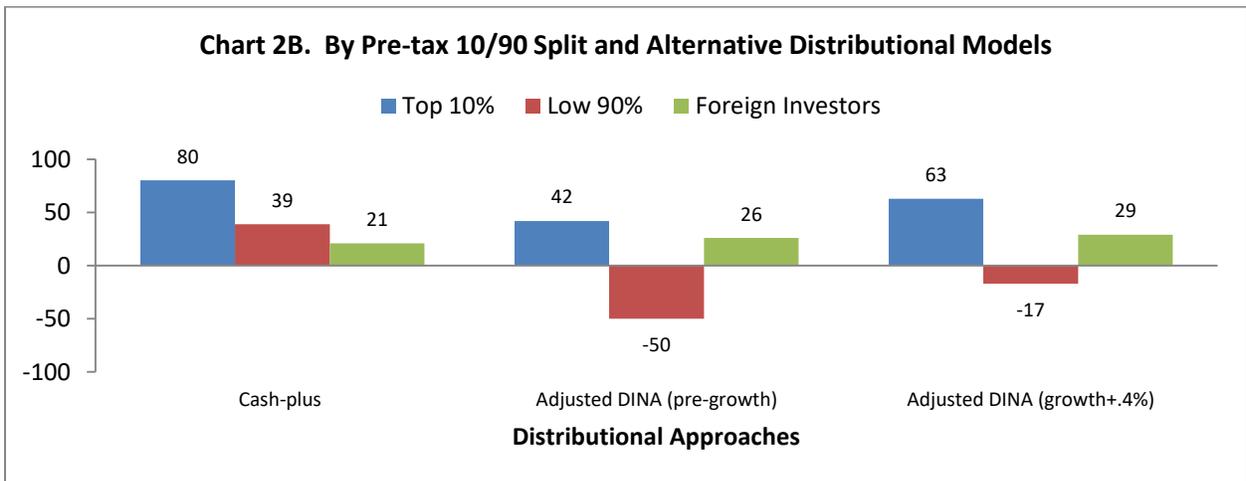
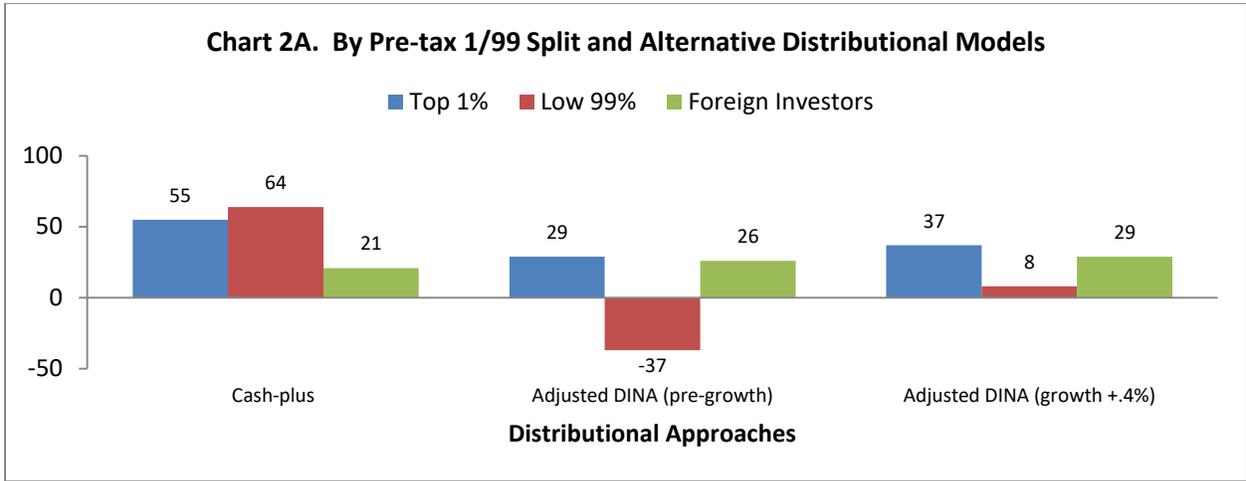
**Charts 1A, 1B, 1C: Annual Post-tax Income Effects of Repealing Corporate Tax, by Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



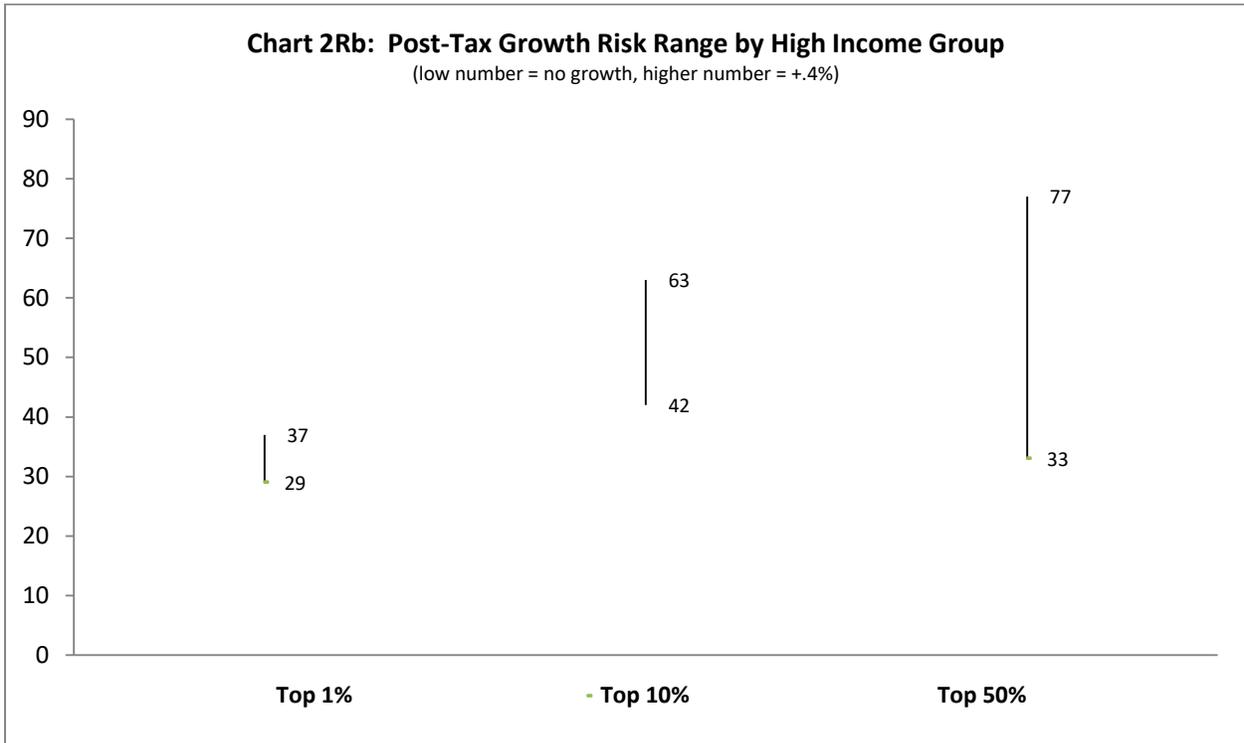
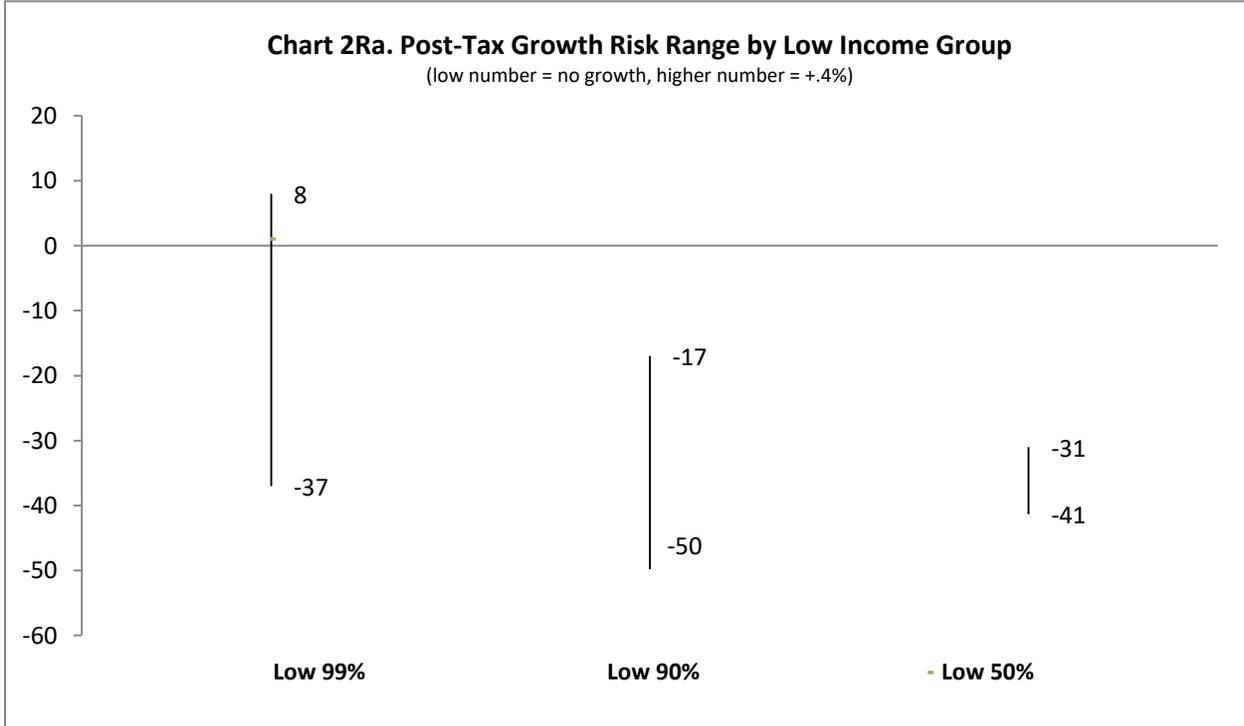
**Chart 1R: Corporate Tax Repeal - Annual Post-tax Income Growth Range Risk by Pre-tax Income Splits for Adjusted DINA (2013 levels, \$ billions)**



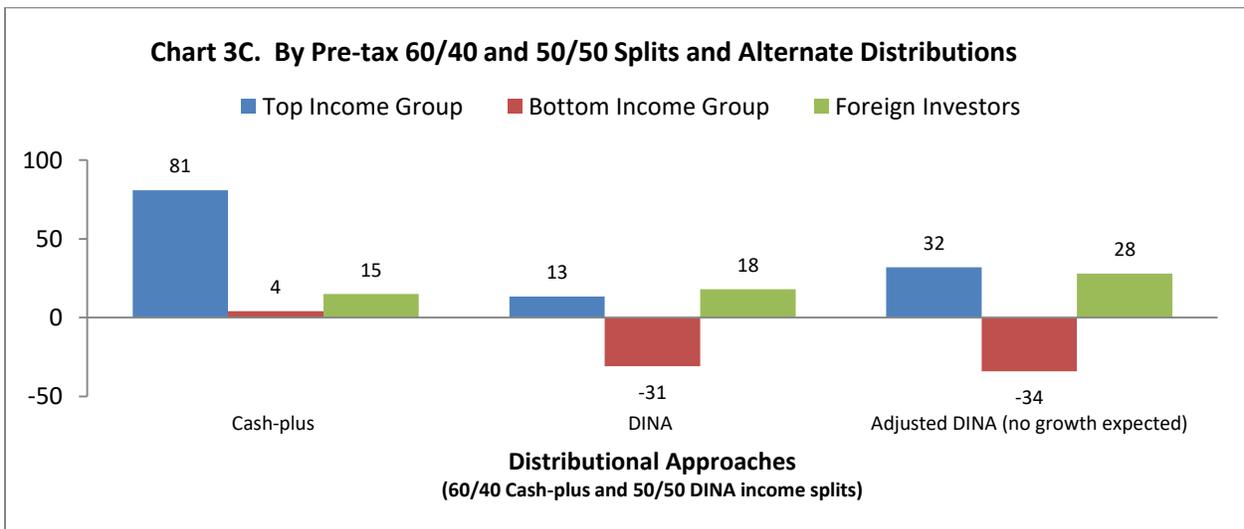
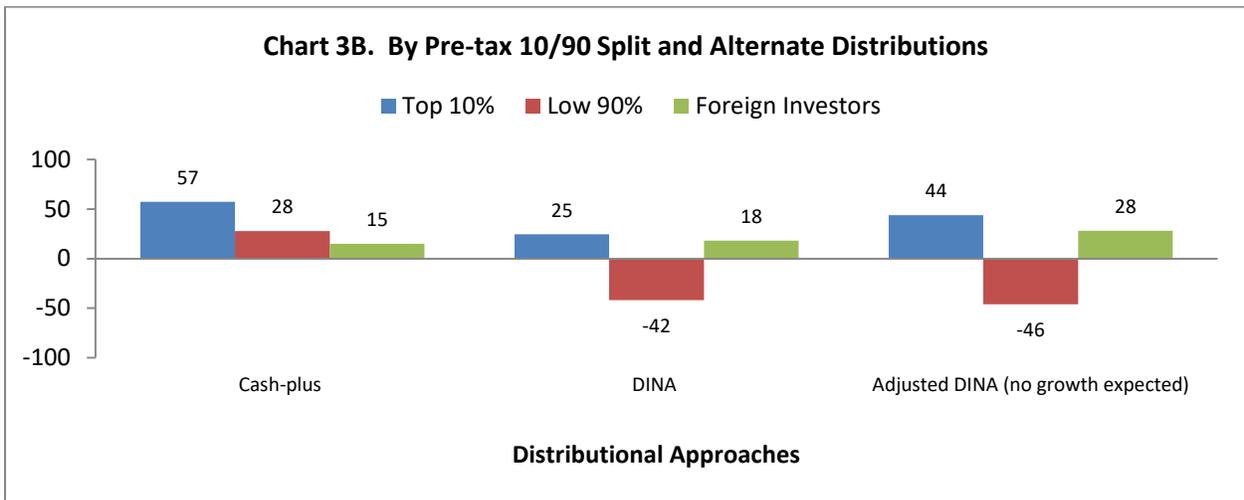
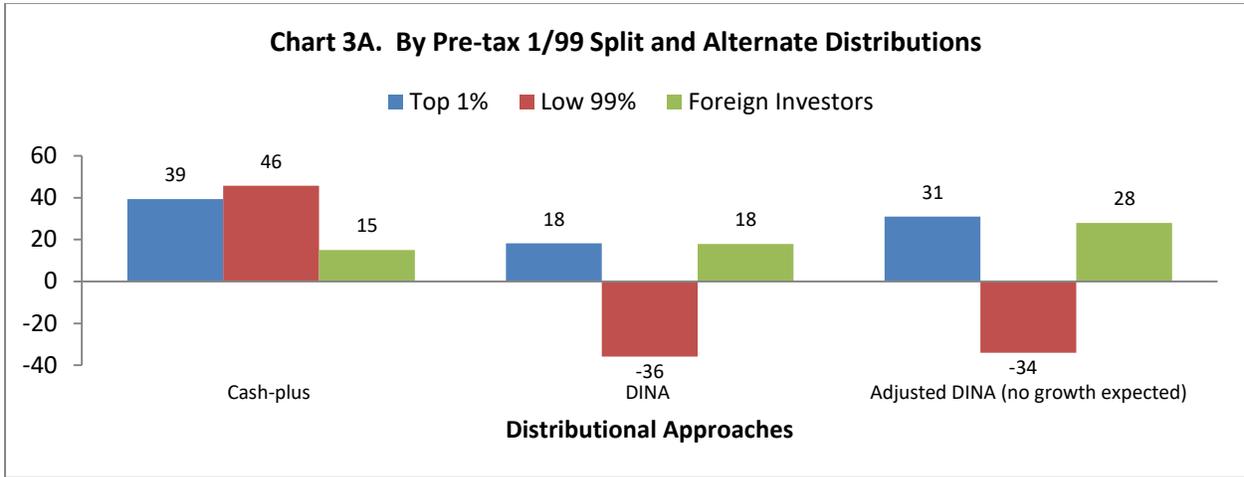
**Charts 2A, 2B, 2C: Annual Post-tax Income Effects of Reducing Corporate Tax to 20%, by Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



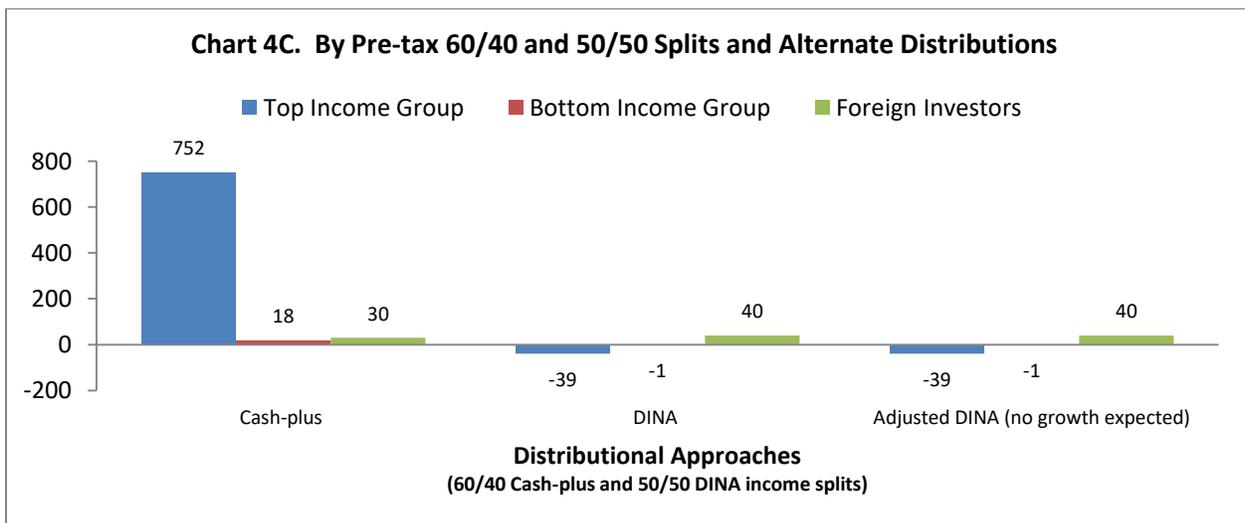
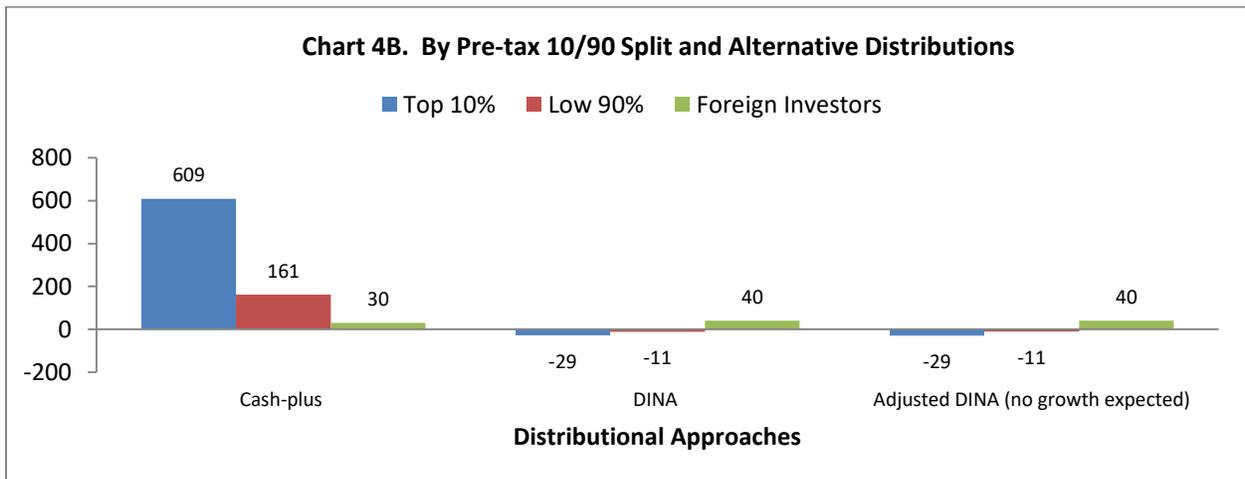
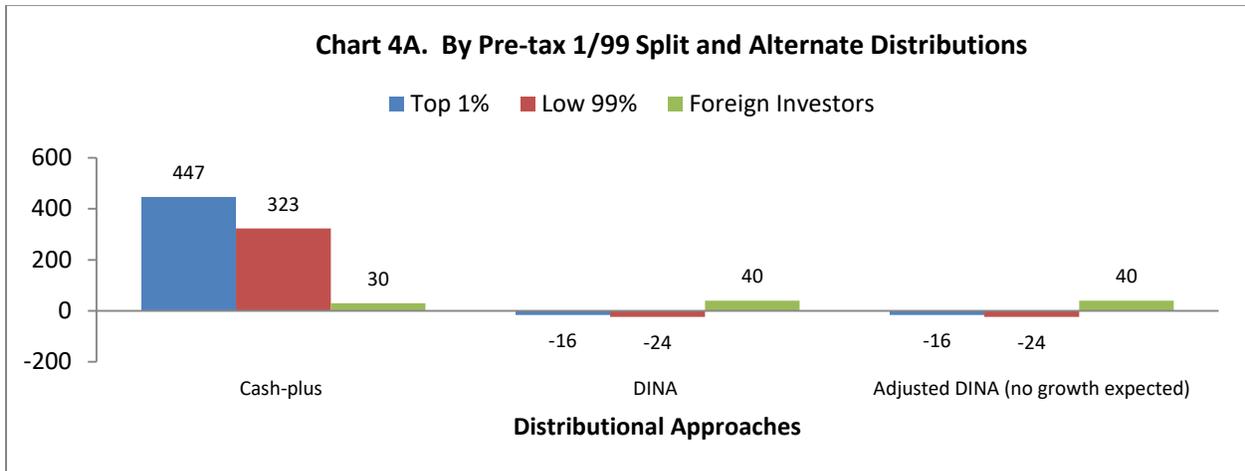
**Chart 2R: Move to 20% Corporate Rate - Annual Post-tax Income Growth Range Risk by Pre-tax Income Splits for Adjusted DINA (2013 levels, \$ billions)**



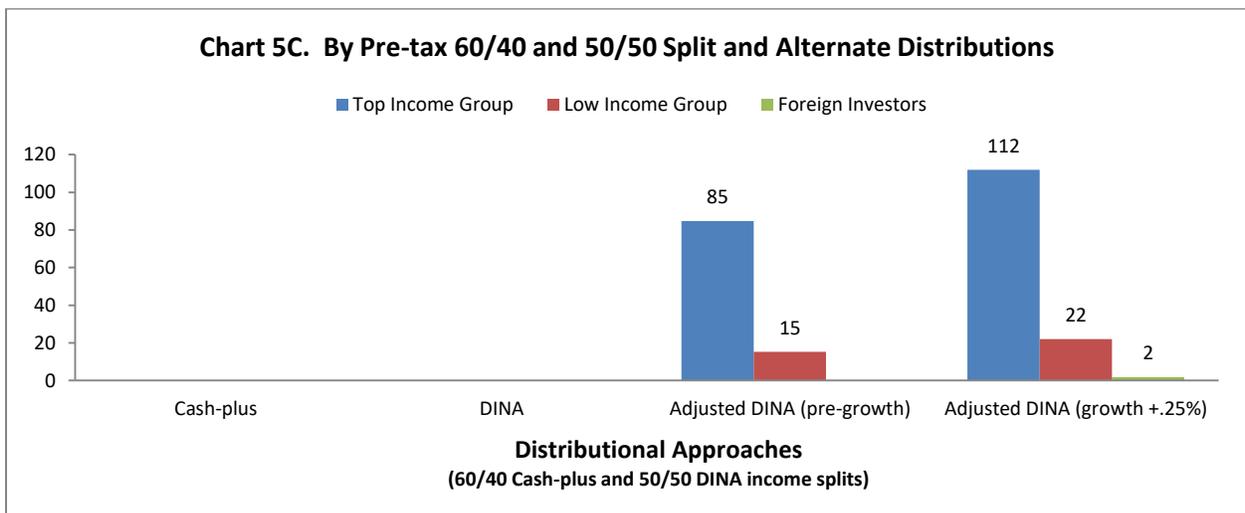
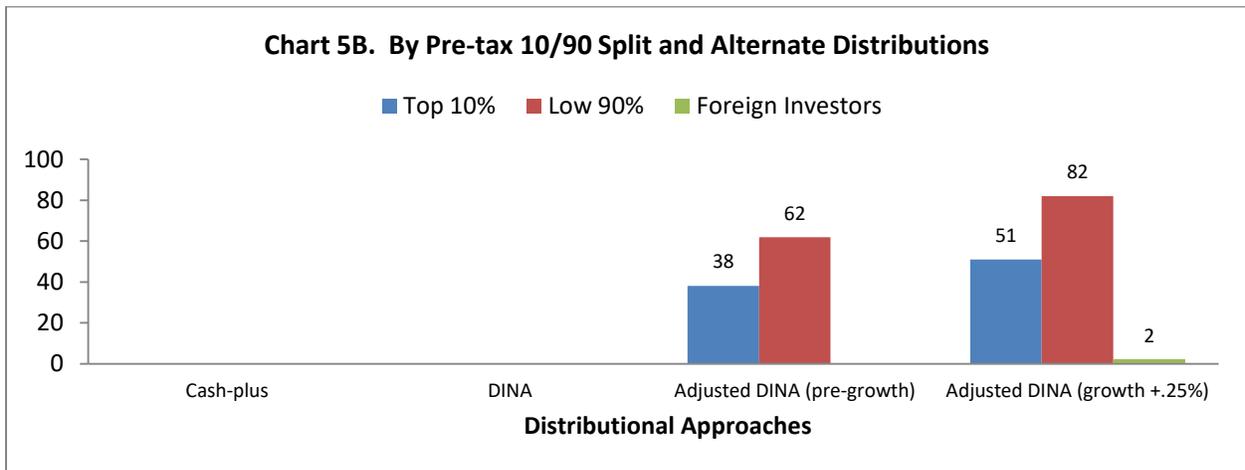
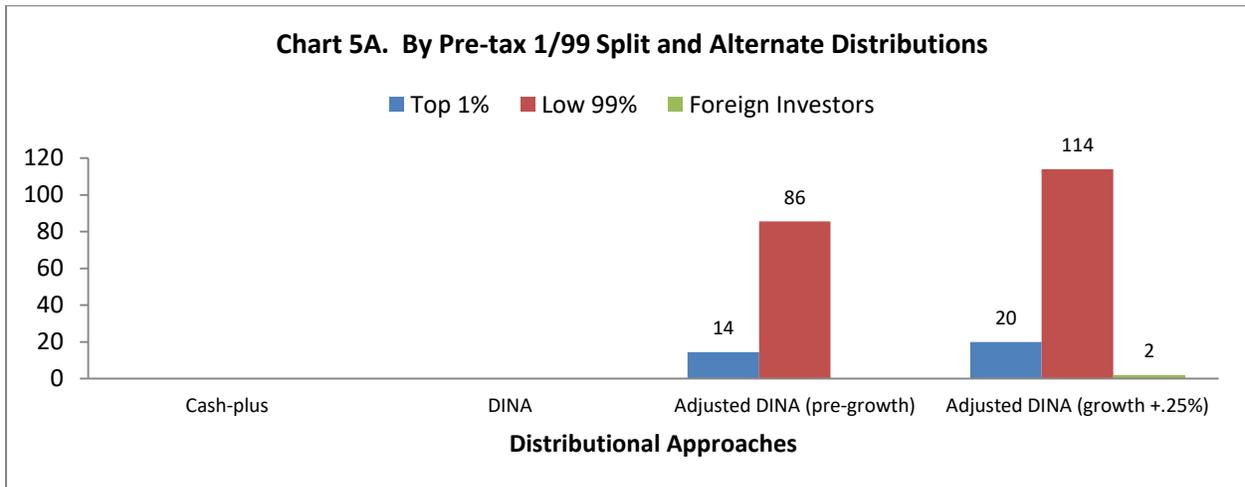
**Charts 3A, 3B, 3C: Annual Post-tax Income Effects of Adopting Lax Territoriality, by Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



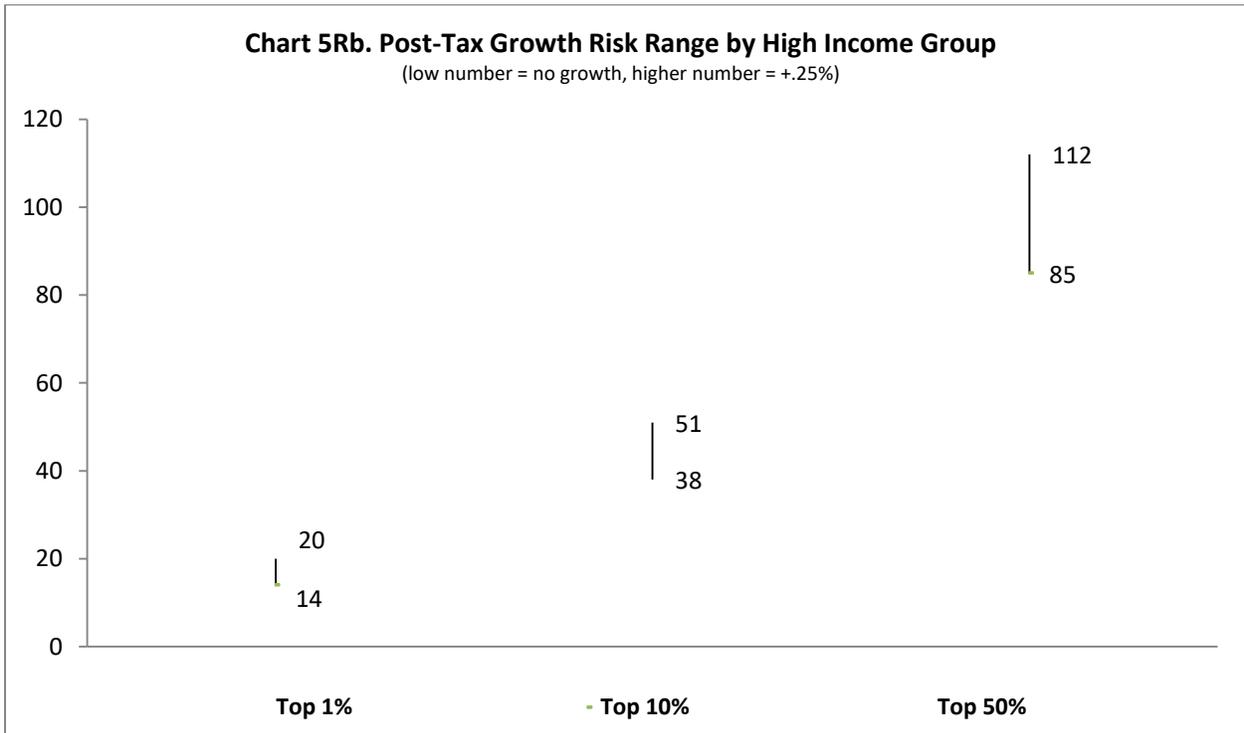
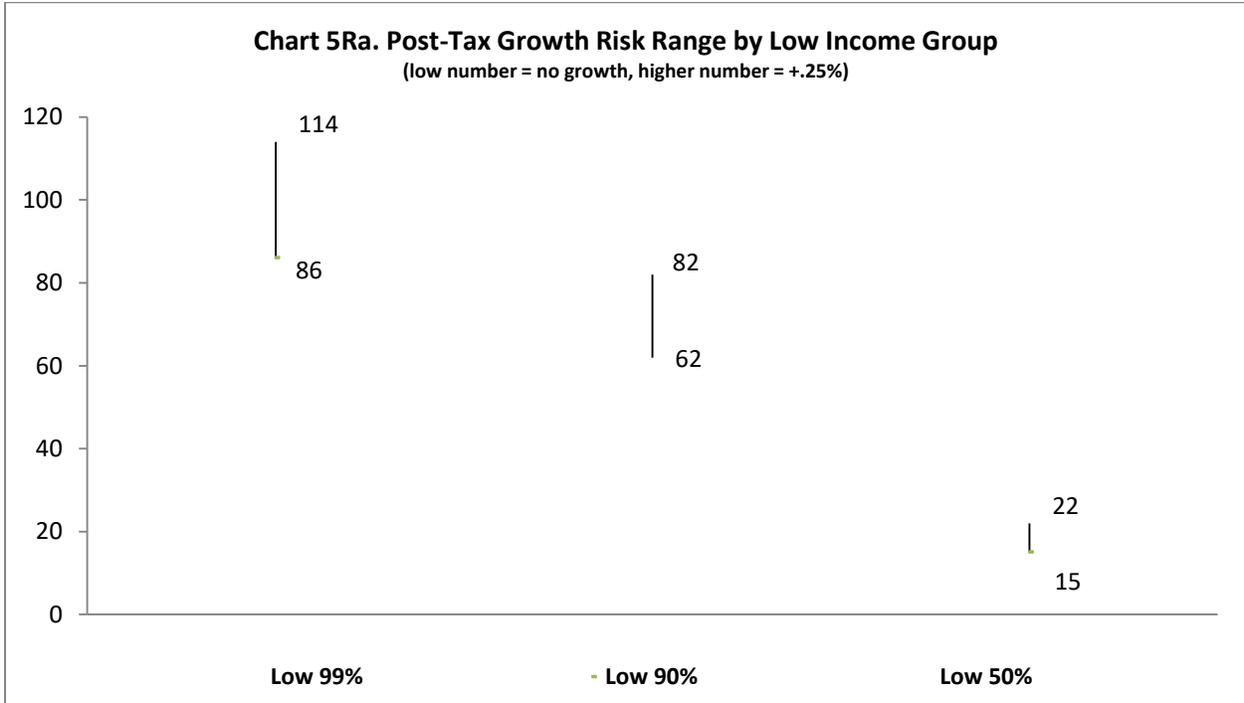
**Charts 4A, 4B, 4C: Annual Post-tax Income Effects of \$200 Bils. Shift of Corporate Tax, by Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



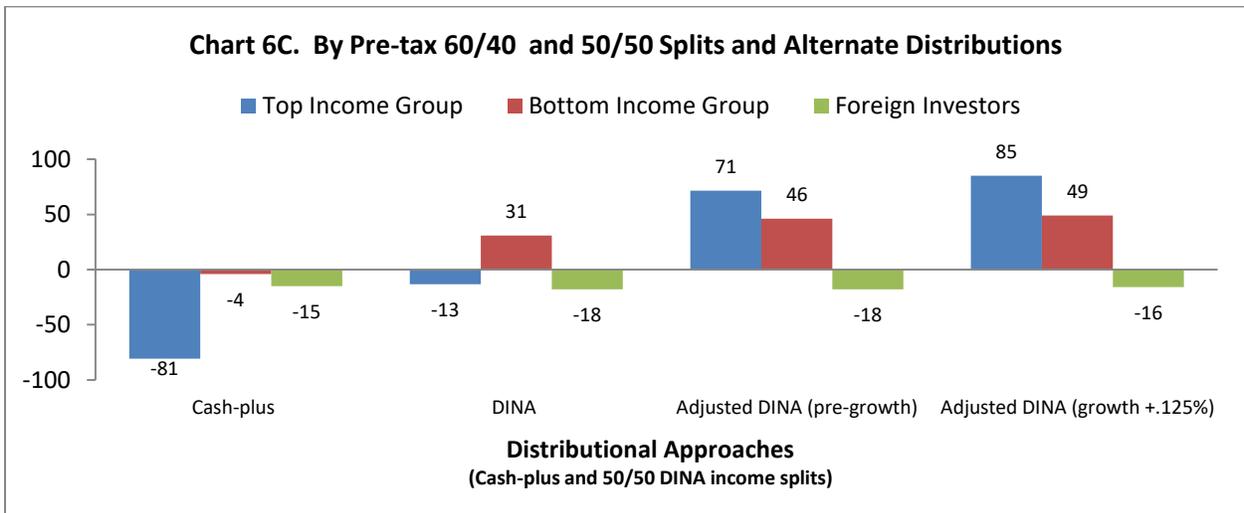
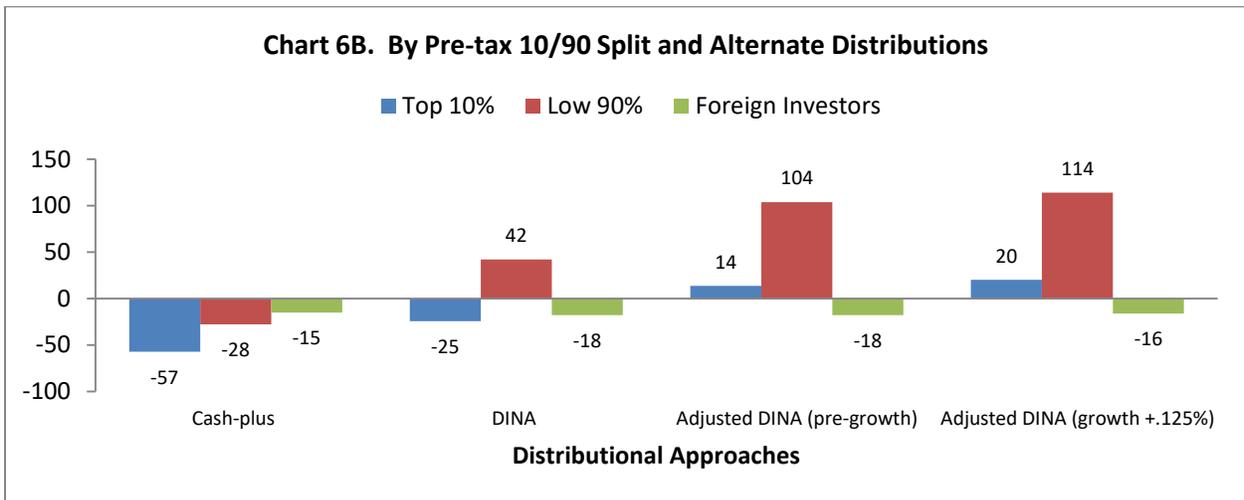
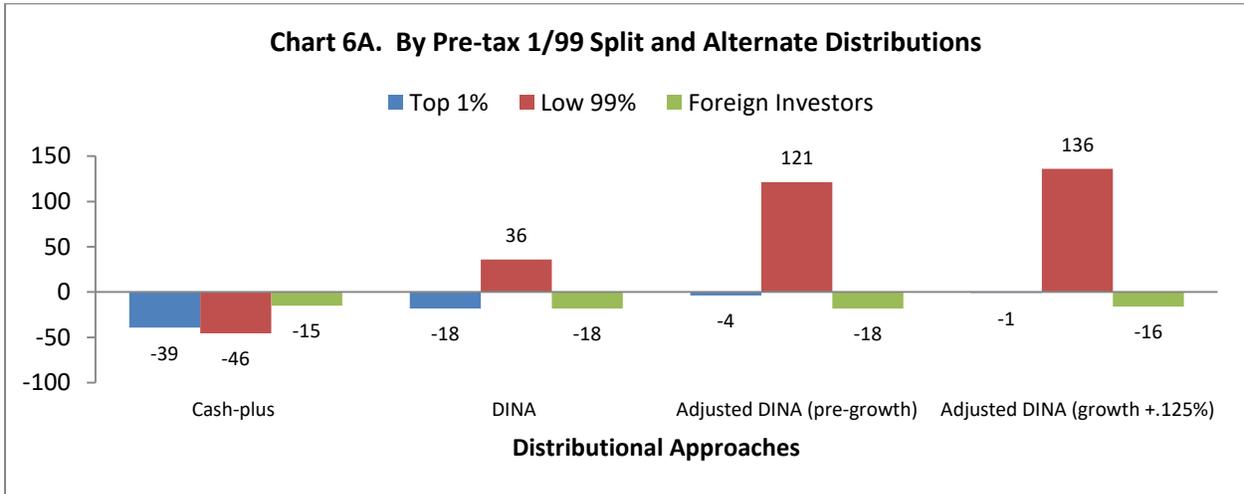
**Charts 5A, 5B, 5C: Annual Post-tax Income Effects of Harsh Worldwide with Corp Tax Cut, by Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



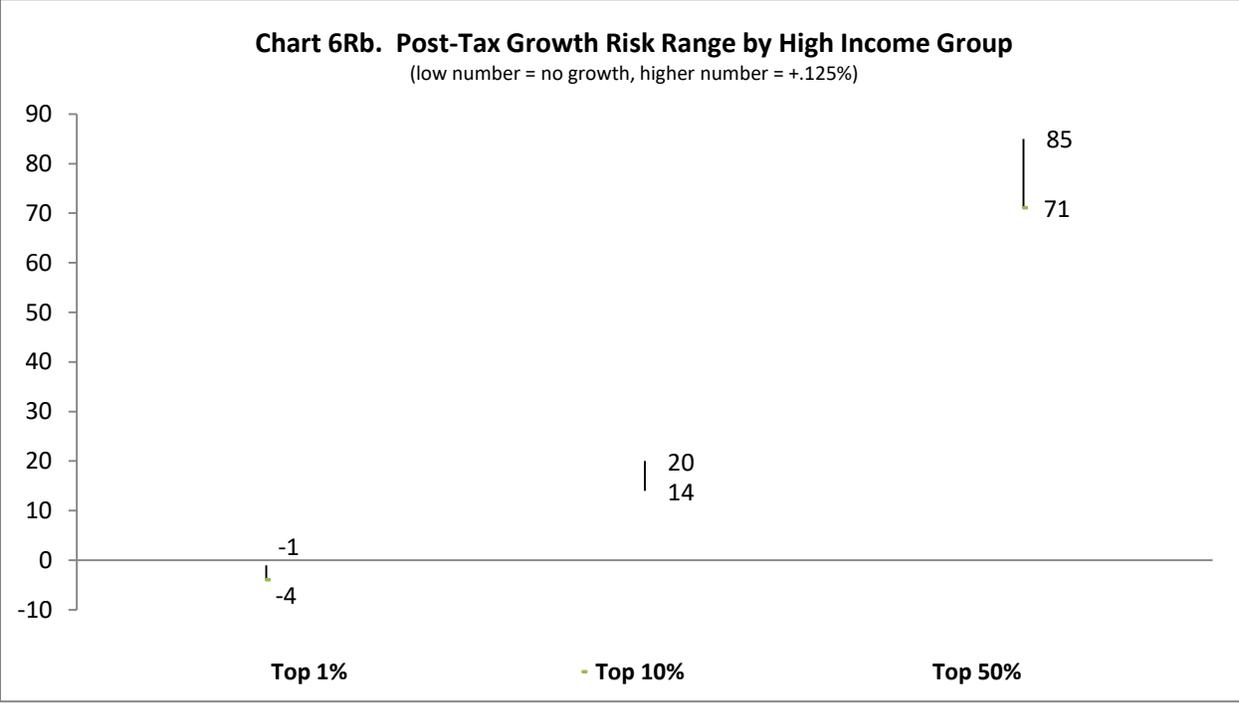
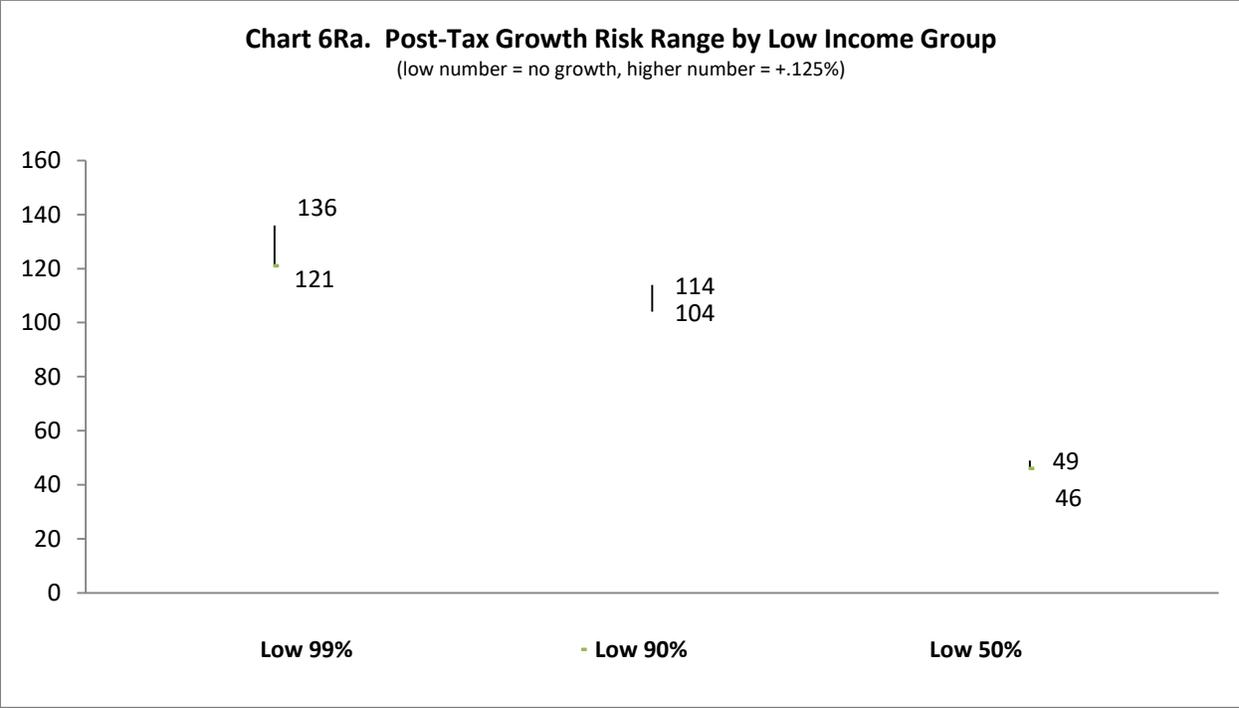
**Chart 5R: Harsh Worldwide and Corp Rate Cut - Annual Post-tax Income Growth Range Risk by Pre-tax Income Splits for Adjusted DINA (2013 levels, \$ bil.)**



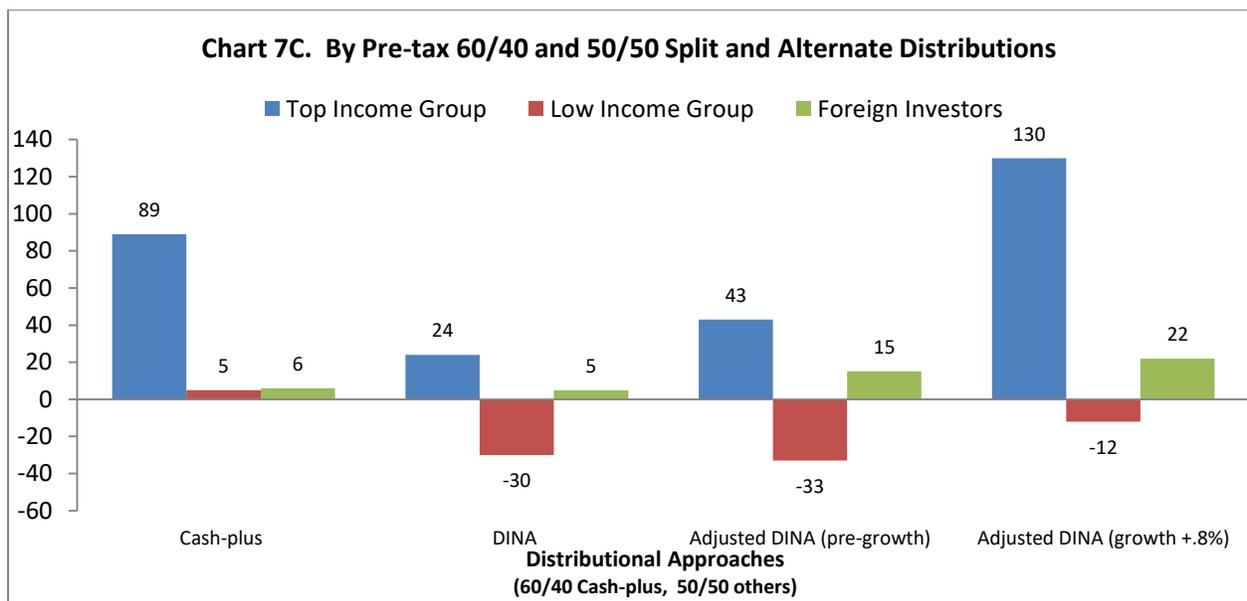
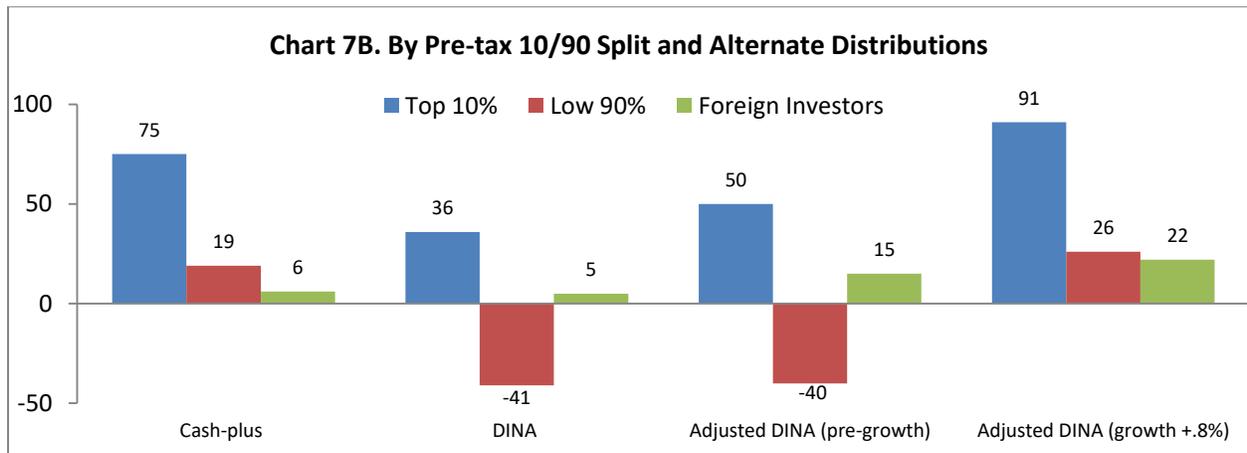
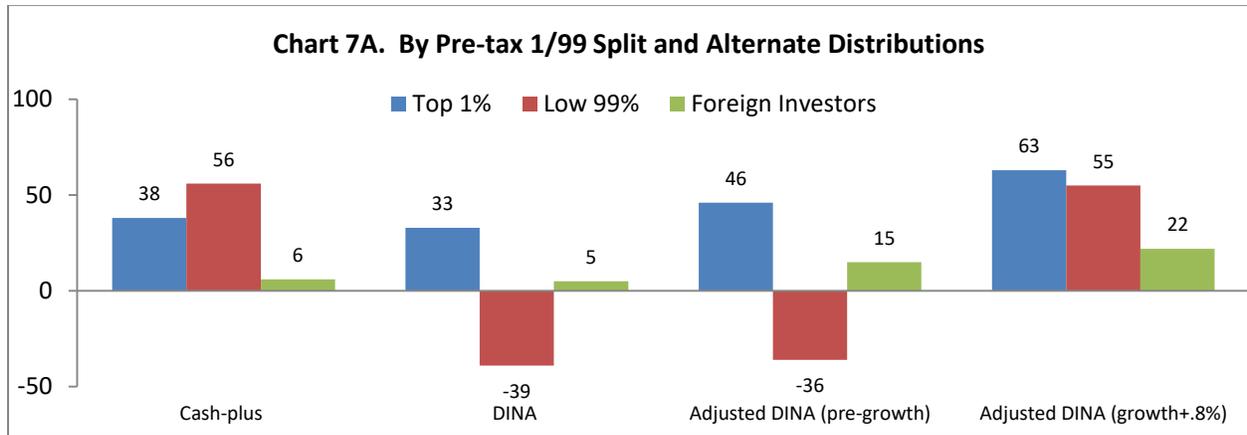
**Charts 6A, 6B, 6C: Annual Post-tax Income Effects of Harsh Worldwide to Pay Down Debt, By Pre-tax Income Splits and Distributions (2013 levels, \$ billions)**



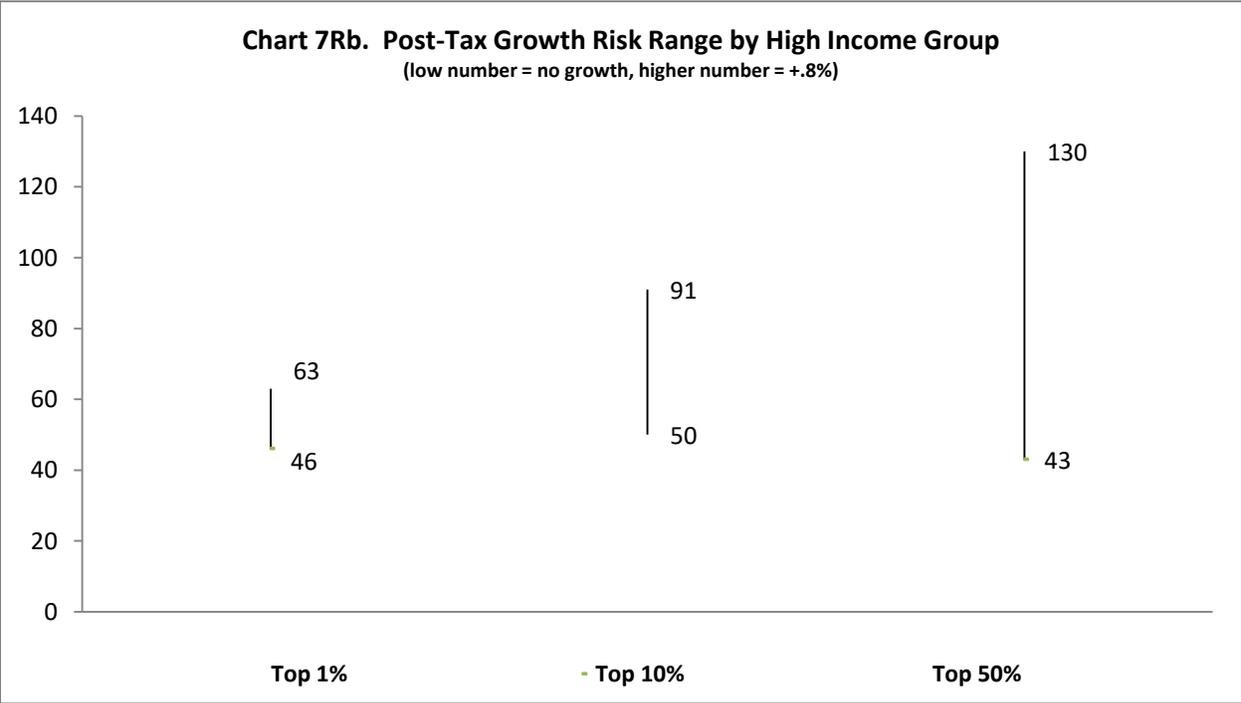
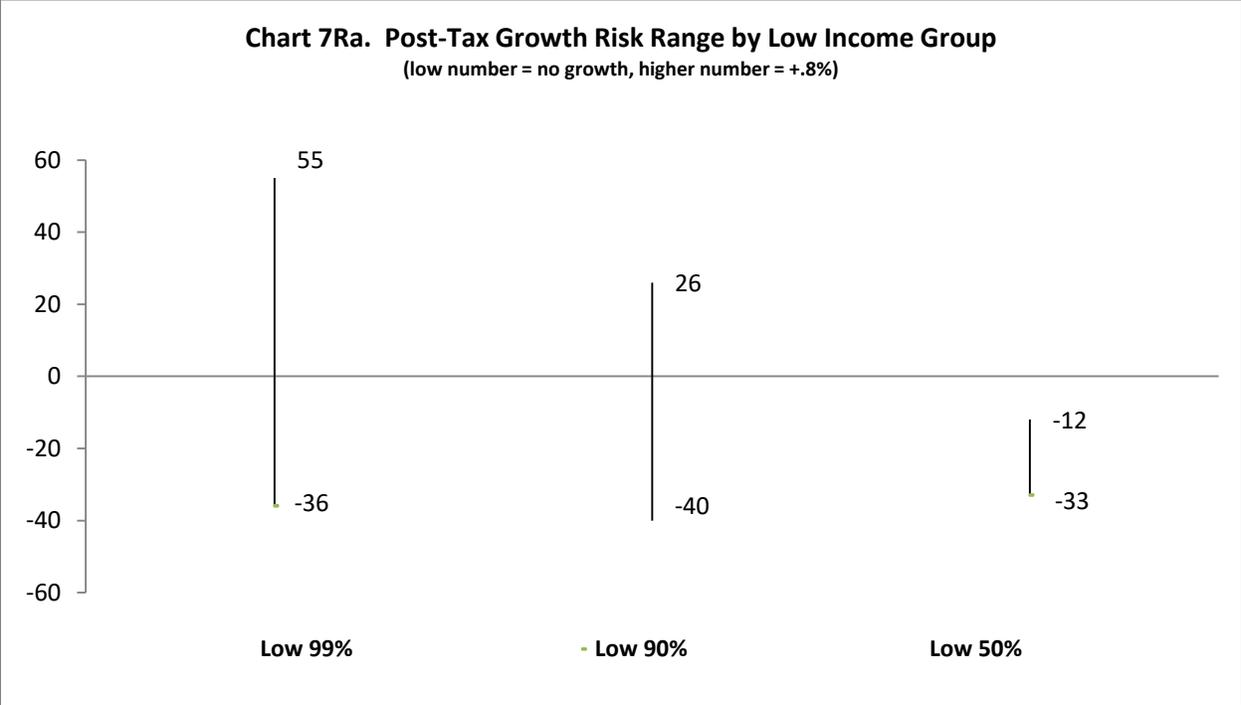
**Chart 6R: Harsh Worldwide & Debt Pay Down - Annual Post-tax Income Growth Range Risk by Pre-tax Income Split for Adjusted DINA (2013 levels, \$ bil.)**



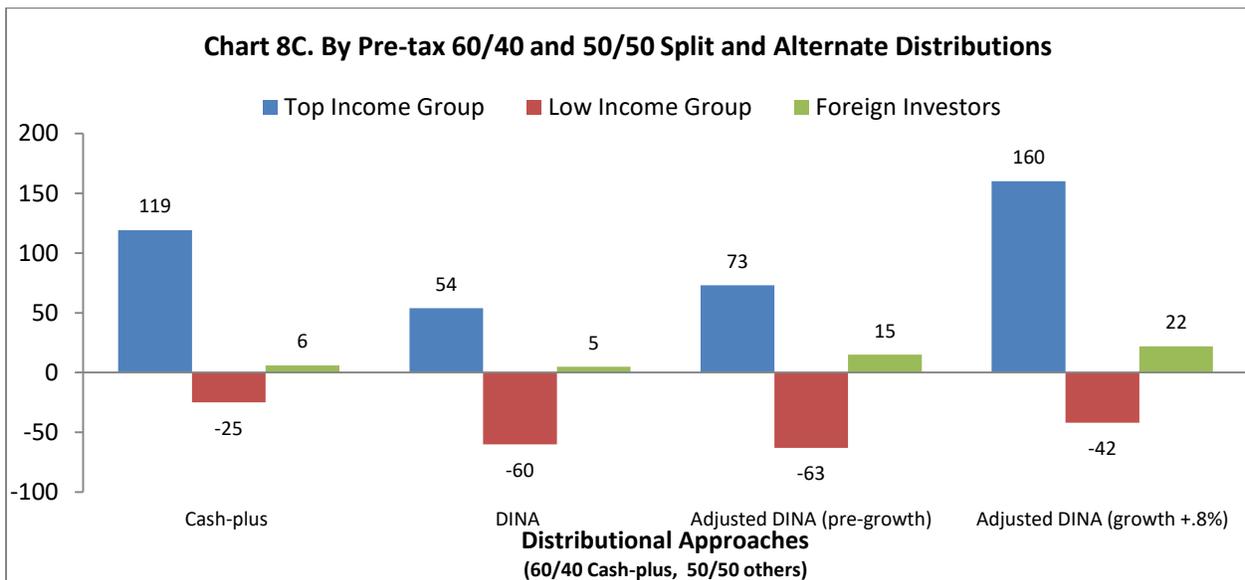
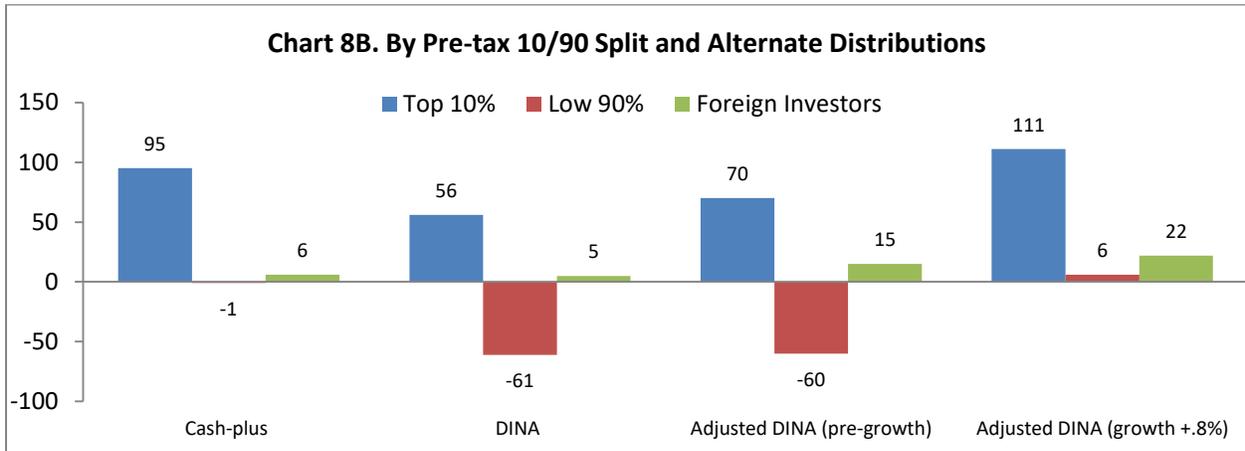
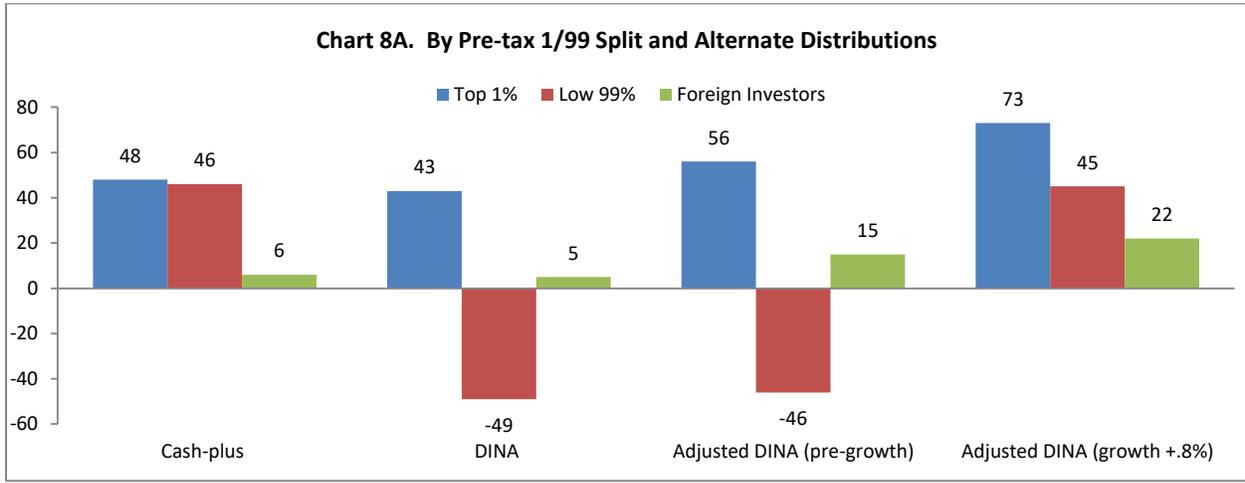
**Charts 7A, 7B, 7C: Annual Post-tax Income Effects of Pending (Dec. 2017) U.S. Legislation (with no ACA mandate repeal) by Pre-tax Income Splits and Distributions (2013 levels, \$ bil.)**



**Chart 7R: Pending (Dec.2017) U.S. Legislation (with no ACA mandate repeal) - Annual Post-tax Income Growth Range Risk by Pre-tax Income Splits for Adjusted DINA (2013 levels, \$ bil.)**



**Charts 8A, 8B, 8C: Annual Post-tax Income Effects of Pending (Dec. 2017) U.S. Legislation (with ACA mandate repeal) by Pre-tax Income Splits and Distributions (2013 levels, \$ bil.)**



**Chart 8R: Pending (Dec.2017) U.S. Legislation (with ACA mandate repeal) - Annual Post-tax Income Growth Range Risk by Pre-tax Income Splits for Adjusted DINA (2013 levels, \$ bil.)**

