



## Assessing the Potential Impacts of the Tax Reform for Acceleration and Inclusion and the Build Build Build Program

The Tax Reform for Acceleration and Inclusion (TRAIN) Act has prompted key changes in the personal income tax regime through excise taxes on most goods such as petroleum, sugar-sweetened beverages, and automobiles. The TRAIN was implemented to generate funds for the Build Build Build (BBB) program and at the same time to address income inequality and poverty. This paper aims to assess the potential growth, poverty, and distributional effects of the TRAIN Package 1 and the BBB Program using a computable general equilibrium model with poverty simulation. Results suggest that TRAIN I has prompted additional revenue in social programs and infrastructure spending. There are clear increases in the capital stock which drive economic growth with the industry sector leading the way and the services and agricultural sectors lagging behind. With regard to the inflationary effects, we can see that the additional excise taxes increase inflation in 2018 and 2019 but decelerates after that as higher growth would significantly dominate the inflationary effects. Results of the poverty and distributional microsimulation showed that the policy had reduced poverty and reduced income inequality very slightly. Assuming that the old tax regime is retained while implementing the other changes, the effect will be higher government revenue which may prompt higher spending and allocation to additional social programs and infrastructure in addition to higher economic growth and greater reductions in poverty.

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Republic Act 10963 or the Tax Reform for Acceleration and Inclusion Act (TRAIN Law) has been the centerpiece tax reform program of the Duterte administration aimed to correct serious inefficiencies in the old tax system in an effort to make it simpler, fairer, and more efficient (“The tax reform,” 2017 ). The main highlights of TRAIN include a reduction in personal income tax across all income brackets except the richest group, higher taxes on sugar-sweetened beverages, automobile, and petroleum products. Members of the population which are covered by personal income tax earning less than Php200,000 per annum will not be taxed as compared to the old tax regime in which they will be taxed from 5% to 20% (Figure 1). Conversely, the population in the highest income bracket will pay a slightly higher tax than the previous tax regime. The rationale behind this policy is quite simple which is to decrease the tax burden to people who are earning less and have low disposable incomes while increasing the tax burden on the richest of the rich. Hence, the tax spread is now more equitable and will potentially bolster additional consumption in lower-income households who would benefit from increased disposable incomes.

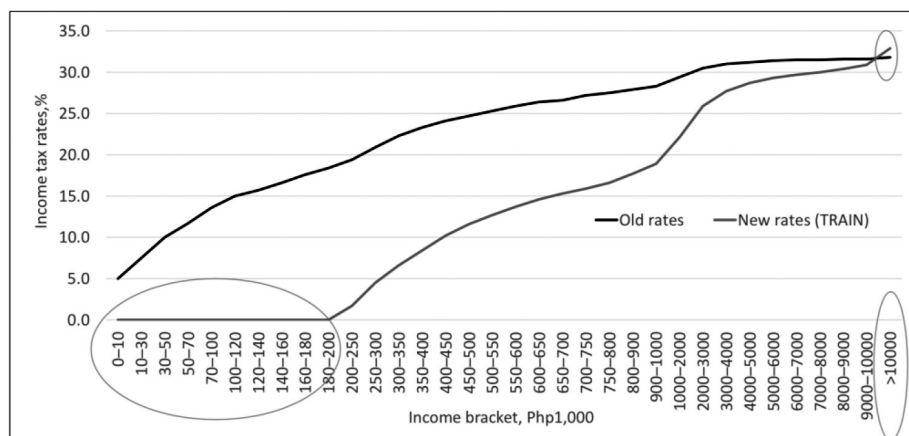
By the TRAIN law, the sugar-sweetened beverages (SSB) excise tax shall take the form of Php6.00 per liter of volume capacity using purely caloric and purely non-caloric (or mixes) of both and Php12.00 per liter of volume capacity for other SSBs using purely HFCS or in combination with any caloric or non-caloric sweeteners. The prices of petroleum products will, on average, double their old prices effective in 2018 and

will increase by Php1.00 to Php 2.50 per year. Hence, the policy is implemented in a scaling manner continuously up till a specified endpoint on preconditions set or agreed upon (Department of Finance, n.d.).

The TRAIN law was implemented to generate funds for the Build Build Build (BBB) program and, at the same time, to address income inequality and poverty. The basis of BBB was the Public Investment Program (PIP) 2017–2022, which puts priority to infrastructure projects in the National Capital Region and low-income regions such as the ARMM (Cororaton, Yu, Narvaez, & Belandres, 2017).

Furthermore, it expanded the VAT in which it would be lower in rate but broad in which everyone pays. In particular, there was a repeal of 54 out of the 61 special laws on the items with non-essential VAT exemptions. Furthermore, TRAIN I has pushed for an exemption from VAT for senior citizens and those with disabilities effective immediately, households with housing below Php2,000,000 beginning 2021, and items such as medicines for diabetes, high cholesterol, and hypertension would be exempt from VAT beginning 2019. Lastly, the TRAIN Law aims to simplify donor and estate taxes which will be compensated by higher property valuation rates to raise more funds from the local government units. All in all, the ultimate aim is to reduce poverty to 17% by 2020, 14% by 2022, and even lower further into the future from the current 22% today.

**Table 1**



**Figure 1.** Comparison between old and TRAIN I personal income tax rates.

Source: Department of Finance (2017)

The government’s expected revenue is Php786.4 billion on the first implementation, 70% of which will be allocated to the BBB Program. This program is the flagship infrastructure initiative of the administration valued at Php8.44 trillion until 2022 aimed at massively improving the infrastructure, roads, and network of all regions in the country. The remaining 30% will be allocated to social program expansions such as the Pantawid Pamilya Program, the discounts of NFA rice, in addition to other education and health projects (Table 1).

This paper contributes by assessing the potential growth, poverty, and distributional effects of the TRAIN I and the BBB Program using a Computable General Equilibrium (CGE) Model with Poverty Simulation.

### Expected Government Revenue and Allocation

| Expected Revenue (Php Billion)                            | 2018          | 2019         | 2020          | 2021         | 2022          |
|---|---------------|--------------|---------------|--------------|---------------|
| Tax Type  |               |              |               |              |               |
| Personal Income Tax                                       | <b>-146.6</b> | <b>-161</b>  | <b>-177.1</b> | <b>-195</b>  | <b>-214.4</b> |
| Tax on PCSO   | 0.5           | 0.5          | 0.6           | 0.7          | 0.7           |
| Estate Tax  | -2.1          | -2.1         | -2.1          | -2.1         | -2.1          |
| Donor's Tax   | -1.7          | -1.8         | -2            | -2.2         | -2.4          |
| VAT   | 37.2          | 46.2         | 58.2          | 58.4         | 45.9          |
| Oil Excise  | 60.2          | 101.8        | 131.9         | 134.4        | 136.6         |
| Automobile Excise   | 14.4          | 15.3         | 16.2          | 17.2         | 18.2          |
| Sugar-Sweetened Beverage Excise                           | 54.5          | 58.2         | 61.5          | 65.1         | 68.8          |
| Tax Administration Improvement                            | 26.6          | 35           | 42.3          | 50.7         | 60.4          |
| Others  | 44.9          | 49.6         | 58.2          | 59.5         | 66.3          |
| <b>Total Additional Revenue</b>                           | <b>89.9</b>   | <b>144.2</b> | <b>187.7</b>  | <b>186.8</b> | <b>177.8</b>  |
|   |               |              |               |              |               |
| <b>Allocation: Expenditure (Php Billion)</b>              |               |              |               |              |               |
| Social Programs (30% of Additional Revenue)               |               |              |               |              |               |
| Unconditional Cash Transfer                               | 18.7          | 35.0         | 36.0          |              |               |
| 10% Fare Discount for Minimum Wage Earners and Unemployed | 1.7           | 1.7          | 1.7           | 1.7          | 1.7           |
| 10% NFA Rice Discount                                     | 6.5           | 6.5          | 6.5           | 6.5          | 6.5           |
| Fuel Vouchers to 100,000 Public Utility Jeeps/Units       | 0.1           | 0.1          | 0.1           | 0.1          | 0.1           |
| Education and Health Projects                             | 0.0           | 0.0          | 12.0          | 47.8         | 45.1          |
| Infrastructure Spending (70% of Additional Revenue)       | 62.9          | 100.9        | 131.4         | 130.8        | 124.5         |

Sources: NEDA National Planning and Policy Staff, Personal communication (April 1, 2018).

## Model Structure

A key metric that needs to be manipulated properly in a CGE simulation when it comes to a policy like TRAIN and BBB is infrastructure. As mentioned earlier, the majority of the earnings from TRAIN shall be used to fund the BBB program and the social development programs, which affects both private and public capital stocks. If the government collects a lower revenue, then there shall be a lower allocation to the BBB. Figure 2 summarizes the infrastructure in the CGE model to account for the effects of TRAIN and BBB properly.

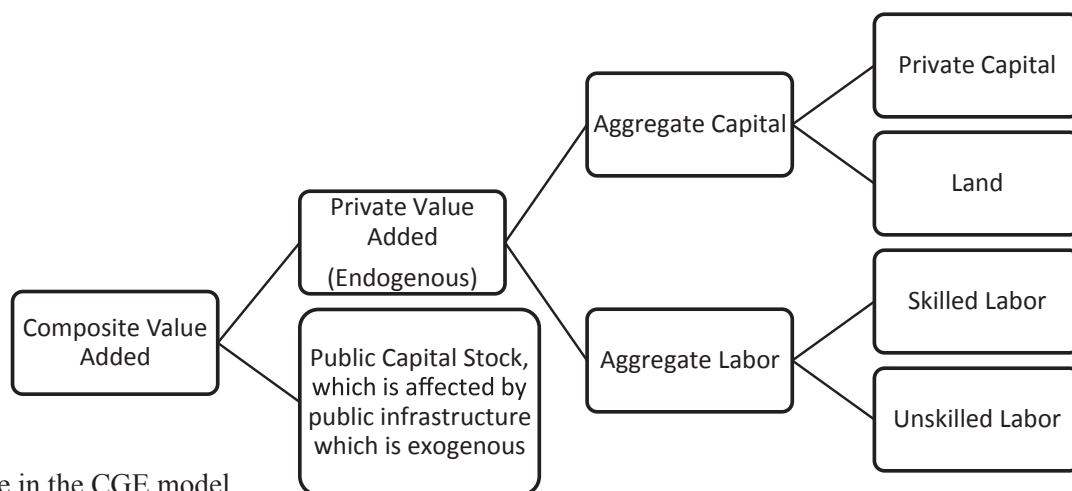


Figure 2. Infrastructure in the CGE model.

The model used in the analysis differs from standard CGE models because of the public infrastructure component, in particular, the public capital stock which is increased through investment in public infrastructure (Table 2). This part of the model captures the interaction between TRAIN I and the BBB initiatives. The main shock will come from public investment, which has been heavily affected by the TRAIN, and will be exogenous, while private value added, which is the potential gains, shall be endogenous in the model.

**Table 2**  
*Structure of the Production Function and Capital Accumulation Equations*

|                                     | <i>Traditional CGE</i>   | <i>CGE with Public Infrastructure</i>   |
|-------------------------------------|--|---|
| <b>Production Function</b>          | $Y = f(L, K, Lnd)$<br>Where $Y$ is output, and the primary factors of production are $L$ labor, $K$ capital, and $Lnd$ land.   | $Y = A(K_{pub}) \cdot f(L, K_{pri}, K_{pub}, Lnd)$<br>Where $Y$ is output, and the primary factors of production are $L$ labor, $K_{pri}$ private capital, $K_{pub}$ infrastructure, and $Lnd$ land.<br><br>A total factor productivity scale parameter $A$ is incorporated in the model. Public infrastructure affects the profits of the private sector through the scale parameter $A(K_{pub})$ as well as the factor inputs $f(L, K_{pri}, K_{pub}, Lnd)$ .<br><br>Note: The private sector has control over the supply of $K_{pri}$ but only the government has control over the supply of $K_{pub}$ . |
| <b>Private Capital Accumulation</b> | $K_{pri,t+1} = (1 - \delta_{pri,i})K_{pri,t} + indd_{pri,t}$<br>Where $K_{pri,t+1}$ is private capital, $\delta_{pri,i}$ is private sectoral depreciation, and $indd_{pri,t}$ is private sectoral investment demand. |   |
| <b>Public Capital Accumulation</b>  | Not captured by the traditional Computable General Equilibrium models  | $K_{pub,t+1} = (1 - \delta_g)K_{pub,t} + infra_t$<br>Where $K_{pub,t+1}$ is public capital, $\delta_g$ is public sectoral depreciation and $infra_t$ is public infrastructure spending.   |

Hence, the main interactions lie between public capital accumulation and its effect on private capital accumulation. If the BBB goes as planned, then this will increase public infrastructure spending which increases public capital accumulation which could potentially increase private capital accumulation through spillovers, particularly, in private sectoral investment demand.

In addition to the simulations in the CGE model, a poverty microsimulation using the 2015 Family Income and Expenditure Survey was also conducted to generate the GINI coefficient and the Foster-Greer-Thorbecke (FGT) Poverty Indices in national, urban-rural, and regional respects. This process shall be repeated 30 times to compute for the average and confidence intervals of the estimates for the poverty indices and the GINI Coefficient.

In this CGE model, baseline conditions for 2018–2022 shall be “business as usual” without TRAIN I and BBB. Hence, there will be no manipulations to account for the policies stated. The model closure shall render the Deficit/GDP ratio as an endogenous variable in the model. Two simulations were conducted as shown in Table 3.

**Table 3**  
*Simulation Details*

| <b>Simulation 1</b>   | <b>Simulation 2</b>  |
|---|--|
| <b>Modify income tax rates to achieve the expected changes in the personal income tax revenue.</b>                                    | No change in Personal Income Taxes (i.e., the old tax regime is assumed).  |
| <b>Modify tax rate to achieve the expected changes in revenue from various commodity taxes (VAT, petroleum, SSB, and automobile).</b> | Modify tax rate to achieve the expected changes in revenue from various commodity taxes (VAT, petroleum, SSB, and automobile). |
| <b>Modify all other indirect taxes to achieve the expected changes in revenue from all other sources.</b>                             | Modify all other indirect taxes to achieve the expected changes in revenue from all other sources.                             |
| <b>Allocation of the expected increase in government revenue would be 30% for social programs and 70% for infrastructure.</b>         | Allocation of the expected increase in government revenue would be 30% for social programs and 70% for infrastructure.         |
| <b>The model closure shall fix Deficit/GDP ratio at 3%.</b>   | The model closure shall fix Deficit/GDP ratio at 3%.   |

Table 4 shows the change in tax revenues, government capital stock, government deficit to GDP ratio, Real GDP growth, and inflation as a deviation from baseline. The poverty microsimulation is detailed in Table 5.

Results of simulation 1 showed that TRAIN I has prompted additional revenue in social programs and infrastructure spending. There are clear increases in the capital stock which drive economic growth with the industry sector leading the way and the services and agricultural sectors lagging behind. As regards to the inflationary effects, we can see that the additional excise taxes increase inflation in 2018 and 2019, but inflation

decelerates after that as higher growth significantly dominates the inflationary effects. On the poverty and distributional microsimulation, it can be seen that the policy has reduced poverty and income inequality very slightly.

Simulation 2 generated very similar results to simulation 1 with respect to the poverty microsimulation and inflationary effects. However, the increase in public capital stock is twice as much as in simulation 1 which leads to higher economic growth with the industry sector once again leading the growth. The poverty incidence decreases much more compared to the first simulation because of the higher spending on additional social programs as well as greater losses in the poverty gap and

severity as well as on income inequality. We also noticed that it seems as though retaining the old personal income tax structure may lead to higher government revenue which may prompt higher spending and allocation to additional social programs and infrastructure in addition to higher economic growth and a greater reduction in poverty.

Therefore, it may be better to retain the structure of the personal income tax in the pre-TRAIN period while implementing the other changes as it will induce greater reductions in poverty incidence, poverty gap, and the poverty severity. This is in addition to more increases in other key economic indicators.

**Table 4**  
*CGE Simulation Results*

|   | Simulation 1 |        |        |        |        | Simulation 2 |       |       |       |       |
|---|--------------|--------|--------|--------|--------|--------------|-------|-------|-------|-------|
|   | 2018         | 2019   | 2020   | 2021   | 2022   | 2018         | 2019  | 2020  | 2021  | 2022  |
| <b>Change, Php Billion (Simulation Less Baseline)</b>       |              |        |        |        |        |              |       |       |       |       |
| <b>Total Government Revenue</b>                             | 84.9         | 136.2  | 184.7  | 185.6  | 183.9  | 225.5        | 291.8 | 361.4 | 389.4 | 419.7 |
| <b>Direct Income Tax</b>                                    | -146.6       | -161.0 | -177.4 | -195.0 | -214.4 | -1.2         | -4.8  | -6.9  | -6.8  | -5.0  |
| <b>Value Added Tax Revenue</b>                              | 37.3         | 46.1   | 58.0   | 58.1   | 45.8   | 37.4         | 46.4  | 58.6  | 58.9  | 46.7  |
| <b>Total Indirect Tax</b>                                   | 197.8        | 257.1  | 309.8  | 324.2  | 346.8  | 194.5        | 256.2 | 312.8 | 332.9 | 362.2 |
| <b>Automobile Tax Revenue</b>                               | 14.5         | 15.4   | 16.4   | 17.5   | 18.4   | 14.4         | 15.4  | 16.5  | 17.7  | 18.7  |
| <b>Petroleum Tax Revenue</b>                                | 60.3         | 102.2  | 134.6  | 134.9  | 136.9  | 60.0         | 102.0 | 134.9 | 135.9 | 138.6 |
| <b>SSB Tax Revenue</b>                                      | 54.6         | 58.4   | 61.7   | 65.4   | 69.0   | 54.3         | 58.2  | 61.7  | 65.7  | 69.5  |
| <b>Other Indirect Tax Revenue</b>                           | 68.3         | 81.1   | 97.0   | 106.3  | 122.7  | 65.8         | 80.6  | 99.6  | 113.6 | 135.4 |
| <b>Total Tariff Revenue</b>                                 | 0.0          | -0.3   | 0.4    | 2.5    | 5.8    | -1.2         | -0.7  | 1.1   | 4.4   | 9.4   |
| <b>Total Corporate Tax Revenue</b>                          | -3.4         | -5.6   | -6.1   | -4.2   | -0.3   | -4.1         | -5.3  | -4.2  | 0.0   | 6.5   |
| <b>Change in Public Capital Stock (Php, Billion)</b>        |              |        |        |        |        |              |       |       |       |       |
| <b>Government Capital Stock</b>                             | 0.0          | 59.5   | 153.6  | 279.9  | 404.2  | 0.0          | 157.9 | 358.9 | 604.7 | 865.2 |
| <b>Government Deficit to GDP (Percentage)</b>               |              |        |        |        |        |              |       |       |       |       |
| <b>Base</b>   | -3.1         | -3.6   | -4.3   | -5.1   | -6.0   | -3.1         | -3.6  | -4.3  | -5.1  | -6.0  |
| <b>Simulation</b>   | -3.0         | -3.0   | -3.0   | -3.0   | -3.0   | -3.0         | -3.0  | -3.0  | -3.0  | -3.0  |
| <b>Real GDP Growth (Percentage Deviation from Baseline)</b> |              |        |        |        |        |              |       |       |       |       |
| <b>Economy</b>  | 1.35         | 1.63   | 2.04   | 2.45   | 3.05   | 1.27         | 1.86  | 2.67  | 3.55  | 4.72  |
| <b>Agriculture</b>  | 0.39         | 0.85   | 1.72   | 2.92   | 4.40   | -0.07        | 0.68  | 1.94  | 3.60  | 5.63  |
| <b>Industry</b>   | 2.61         | 3.37   | 4.46   | 5.43   | 6.89   | 2.10         | 3.18  | 4.74  | 6.25  | 8.38  |
| <b>Services</b>   | 0.92         | 0.92   | 0.91   | 0.87   | 0.89   | 1.16         | 1.46  | 1.81  | 2.21  | 2.74  |
| <b>Inflation (Percentage Deviation from Baseline)</b>       |              |        |        |        |        |              |       |       |       |       |
|   | 0.69         | 0.54   | 0.36   | -0.04  | -0.48  | 0.86         | 0.66  | 0.44  | 0.01  | -0.47 |

**Table 5**  
*Poverty and Distributional Effects Microsimulation*

|                                      | Baseline     | Simulation 1 |                         | Simulation 2 |                         |
|--------------------------------------|--------------|--------------|-------------------------|--------------|-------------------------|
|                                      | Level Values | Level        | Deviation from Baseline | Level        | Deviation from Baseline |
| <b>Gini Coefficient</b>              | 0.45297      | 0.44809      | -0.005                  | 0.44462      | -0.008                  |
| <b>Poverty Incidence<sup>1</sup></b> | 21.503       | 21.053       | -0.450                  | 19.439       | -2.064                  |
| <b>Poverty Gap<sup>2</sup></b>       | 5.578        | 5.226        | -0.352                  | 4.516        | -1.062                  |
| <b>Poverty Severity<sup>3</sup></b>  | 2.080        | 1.868        | -0.212                  | 1.523        | -0.557                  |

(FGT indices can have 1 decimal place only)

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<sup>1</sup> Poverty incidence is the proportion of families or individuals with a per capita income or expenditure less than the per capita poverty threshold to the total number of families or individuals

<sup>2</sup> Poverty gap measures the extent to which individuals fall below the poverty line. This is the total income or expenditure shortfall (expressed in proportion to the poverty threshold) of families or individuals with income below the threshold divided by the total number of families or individuals.

<sup>3</sup> Poverty severity is the income or expenditure distribution among the poor. The worse this distribution is, the more severe the poverty. It is computed by the total of the squared income/expenditure shortfall (expressed as a proportion to the poverty threshold) of families or individuals with an income or expenditure below the threshold divided by the total number of families.

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