Assessing the Distributional Impacts of PIT Reform in Armenia
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Summary

In early 2019, the Armenian Government drafted a tax bill simplifying the Personal Income Tax (PIT) system from the current three-tier PIT rates scheme (23, 28 and 36 percent) into a single flat PIT rate (23 percent in 2020). The proposed tax bill also stipulates that new PIT rate will be lowered gradually to 20 percent by 2023. The reform also includes an increase in the Social Payment rate paid by formal employees born after 1974 (from 2.5 percent to 5 percent), and contemplates future increases in taxes to tobacco, alcoholic beverages, beer, vehicles with high horsepower and gambling.

As a result of the PIT rates reform and only assuming that everything else is held constant (e.g. tax foregone does not translate into a reduction in public spending) households would enjoy small income windfalls; albeit these will be higher for the better off and almost negligible for the bottom 10 percent. Using the latest Commitment to Equity (CEQ) fiscal incidence analysis available for Armenia (2014), we calculate that, keeping everything else constant, the four richest deciles in the country will benefit the most from the PIT reform, with one-time gains in disposable household income above 4 percent of their existing levels by 2023. In contrast, the bottom 10 percent of the distribution will only see their incomes increase by less than 0.5 percent. Most of these gains are derived from the gradual decrease in the flat rate from 23 to 20 percent between 2020 and 2023 (between 60 and 80 percent of the gains), rather than from moving from the three-tier to the 23-percent flat rate system in 2020.

Protecting fiscal spending on the less well-off in the wake of the reform will be critical to avoid worsening their living conditions and prevent resistance to the reform from the public opinion. It is unclear whether a potential decrease in fiscal revenues may lead to the need to adjust fiscal spending in a way that could hurt more the poor. If it is the case, adjustments in pensions or direct social transfers (e.g. Family Benefit Program) may more than counter the household windfall gains. The taxes proposed to sustain tax collection (e.g. tobacco, alcoholic beverages), not included in the simulation, may also hit more than proportionally the worse off—a group that is almost not benefiting from the reform. Hence, it will be critical to avoid cuts in these fiscal expenses to avoid making the fiscal system (taxes and transfers) hurt them and cause a worsening of their living conditions that may lead to a shift on the public perception of the reform.

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1. Context

As of 2018, Armenia (ARM) had a three-tier Personal Income Tax (PIT) structure: 23% for gross income up to 150,000 AMD per month; 28% for gross income over 150,000 AMD but less than 2,000,000 AMD; and 36% for income over 2,000,000 AMD. Taxable income includes income earned (wages and salaries), passive income, donations and assistance, and other income. Passive income includes capital gains, interests, dividends, royalties, income from leasing, income from insurance. Withholdings are monthly and final, there are no personal exemptions and retirement contributions are not tax deductible. PIT collections reached 6.2% of GDP in 2015 (actual) and 6.5% of GDP in 2018 (projected).

The ARM Government has drafted a tax bill that will reform the PIT structure. This bill will go to Parliament on early 2019. The PIT reform will simplify the PIT system by establishing a single PIT rate that will be lowered gradually, starting from 23% in 2020 until reaching 20% by 2023, maintaining no personal exemption (See Table 1). At the same time, the reform will increase the Social Payment (SP) rate paid by public and private employees (born after 1974) who contribute to the new funded pensions account; the SP rate will go from 2.5% to 5.0% in 2023 (See Table 1). Until July 2018 the Social Payment of the new pensions scheme was 5%-5%, to be paid by employees and by the state (matching contribution). Since July 2018 the composition changed to 2.5%-7.5% (employees-state), with a cap on state contribution equivalent AMD 37.500 (7.5% of AMD 500,000). The tax bill stipulates that the planned decrease in the PIT rate since 2020 will be matched by social payment by employees increases from 2.5% to 5% by 2023. The cap for state contribution will also be reduced to AMD 25,000 (5% of AMD 500,000). The main objectives of the PIT Reform are simplifying the PIT system and increasing the tax base by fighting the shadow employment and hidden taxes. According to Ministry of Finance estimates, the PIT reform will have an estimated cost for the budget between 0.4% and 0.5% of GDP for year 2020.

<table>
<thead>
<tr>
<th>Year</th>
<th>PIT Rate</th>
<th>SP Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>23 %</td>
<td>2.5 %</td>
</tr>
<tr>
<td>2021</td>
<td>22 %</td>
<td>3.5 %</td>
</tr>
<tr>
<td>2022</td>
<td>21 %</td>
<td>4.5 %</td>
</tr>
<tr>
<td>2023</td>
<td>20 %</td>
<td>5.0 %</td>
</tr>
</tbody>
</table>

Source: Armenian MoF

2. Methodology and Assumptions

To understand the distributional impacts of the proposed tax reform, we conducted a simulation exercise, based on the CEQ Methodology, a systematized methodology to determine the distributional impacts of fiscal policy. The standard CEQ model covers the main fiscal interventions: direct taxes, indirect taxes, direct transfers, indirect transfers and in-kind benefits from education and health. The methodology builds different income aggregates, starting from one where no government taxes or transfers are present (market income) and adds progressively taxes and transfers (Diagram 1). The data used is based on household budget surveys, where taxes and transfers are allocated based on administrative and macroeconomic data. The CEQ Assessment was

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2 Deloitte (2018)
3 Armenia IMF Article IV, 2017
developed by the Commitment to Equity Institute and has been implemented in over 40 countries. In the case of Armenia, there are two previous CEQ assessments (2011 and 2014).

Diagram 1. CEQ Income Concepts

Some limitations of the CEQ regards to the exclusion of some taxes from the analysis (corporate and international trade taxes) and some public spending categories (e.g. infrastructure investment), where methodologies are yet not fully developed. Also, the CEQ as of today does not incorporate households’ behavioral responses to changes in fiscal policy. Nevertheless, the CEQ is an important tool to understand the distributional impacts of a country’s fiscal system in the status quo and also, for simulating ex ante distributional impacts of potential policy reforms.

The analysis of the expected impacts of the PIT reform in Armenia assume as a starting point the existing scheme in 2018. For the Assessment of the Distributional Impact of the PIT reform in Armenia, our baseline is a PIT Microsimulation Model 2018, which is an updated version of the latest CEQ available (2014). The CEQ 2014 was based on the Integrated Living Conditions Survey (ILCS) 2014.

In the PIT Microsimulation Modelling 2018-2023, we will focus on the PIT for employees and self-employed. These are subject to the same PIT rates, only differing in the estimation of taxable income. We will not assess the Social Payment reform; however, SP rates in the analysis are only considered to the extent that they are used as an input to calculate the PIT taxable base (gross wages). Lastly, we will not assess the PIT on passive income (e.g. 10% for bank interest and 5% for dividends), since it is out of the scope of the PIT reform.

Formal workers subject to PIT are identified as employees with contract; members of cooperative; employers or self-employed with registered business. Based on ILCS 2014 Household Survey, three PIT schemes were modelled for these workers, based on their type of income and obligations to pay the Social Payment:

(i) One for public and private sector workers (born after 1974), who contribute the Social Payment (individual funded pension account);
(ii) One for the rest of public and private sector workers (born before 1974); and
(iii) One for self-employed workers, the latter two are not required to pay the Social Payment.
Wages, salaries and other income components were forecasted for 2018-2023 using the GDP per capita-
household income elasticity. For the PIT Simulation exercise, we focus on income from employees and self-
employed (excluding passive income). To forecast the taxable income 2018-2023 (based on 2014 data), we make
two adjustments. First, we forecast the net values of wages and salaries using the on GDP per capita (GDPPC)
growth – household income elasticity that replicated the poverty levels observed in 2015-2017. Growth was
assumed to be uniform across the income distribution, so that the entire income distribution shifted to the right.
The GDPPC series 2014-2023 was constructed from World Bank MPO and WEO/IMF forecasts. Second, we adjust
wages and salaries to gross values (taxable income) based on the PIT and SP schedule during 2018-23. For the
prospective incidence analysis, since we updated wages and salaries 2018-23 based on the income to GDPPC
growth elasticity (numerator), we also perform the same adjustment to the CEQ Income concepts
denominator). Among the CEQ income concepts, we focus on the Disposable Income as the welfare aggregate,
which is equivalent to household total consumption in the ILCS 2014.

No increase in other taxes nor behavioral responses are assumed. The future increases in taxes to tobacco,
alcoholic beverages, beer, vehicles with high horsepower and gambling have not been considered for the
simulation. Only PIT rates and SP rates are updated based on the PIT reform, while the rest of the fiscal policies
are held constant. No households’ behavioral effects in response to changes in tax or expenditure policies are
considered either. This implies that we do not assume changes in the composition of the labor force or the
expansion of the tax base due to the PIT reform, which is one of the objectives of the reform.

For analyzing household income gains from the PIT reform for each year, we calculate the difference
between the PIT liabilities of the two scenarios (no reform vs reform scenario). To obtain the PIT liabilities
under the current system (year 2018), for each year of the period 2020-23, we calculate PIT liabilities under the
current PIT system (e.g. no reform scenario), by multiplying the 2018 three-tier PIT rates by the forecasted
taxable incomes 2020-23. Under the PIT reform scenario, we calculate PIT liabilities for each year of the period
2020-23 by multiplying the single flat PIT rates proposed in the PIT reform by the forecasted taxable incomes.
These adjustments would enable us to identify the differential income gains in the household budget coming
from the PIT reform during period 2020-23, while isolating the income effects stemming from economic growth.

3. Simulation Results

Since the PIT reform establishes a lower single PIT rate (and assuming all other taxes and transfer remain
constant) small income windfalls can be expected across almost all deciles and these will increase annually
as the PIT rate is lowered gradually under the PIT reform. We assess the net income gains due to the PIT
reform, by computing the difference between PIT liabilities (no reform vs reform). This calculation is done yearly,
at the household level, and presented as a share of household disposable income. The gains range between 0.1
and 4.5 percentage points of the household disposable income and are larger as the PIT decreases from 23 to
20 percent (See Table 3 and Figure 1).

The PIT reform increases incomes across the board but benefits more than commensurately the better-off.
While there gains in disposable income due to the PIT reform are present across the entire income distribution,
the gains are larger among the higher deciles. The positive gradient on the gains from the PIT reform with
respect to the income decile can be traced to both (i) the move from a three-tier to a single rate PIT system,
which benefits mainly the top 4 deciles of the income distribution (see Figure 2), and (ii) the lowering of the PIT
rate from 23% to 20%, which though benefits all the income distribution, but more proportionally the higher
deciles on account of their taxable labor income representing a larger share of their total income (also Figure 2).

### Table 2. Household Income Gains from the PIT reform (as percentage of Disposable Income, by Deciles)

<table>
<thead>
<tr>
<th>Decile of Disposable Income</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorest</td>
<td>0.12%</td>
<td>0.27%</td>
<td>0.41%</td>
<td>0.44%</td>
</tr>
<tr>
<td>2</td>
<td>0.32%</td>
<td>0.76%</td>
<td>0.93%</td>
<td>1.32%</td>
</tr>
<tr>
<td>3</td>
<td>0.37%</td>
<td>0.85%</td>
<td>1.47%</td>
<td>1.77%</td>
</tr>
<tr>
<td>4</td>
<td>0.39%</td>
<td>0.99%</td>
<td>1.53%</td>
<td>2.14%</td>
</tr>
<tr>
<td>5</td>
<td>0.70%</td>
<td>1.30%</td>
<td>1.82%</td>
<td>2.56%</td>
</tr>
<tr>
<td>6</td>
<td>0.86%</td>
<td>1.48%</td>
<td>2.27%</td>
<td>2.85%</td>
</tr>
<tr>
<td>7</td>
<td>1.44%</td>
<td>2.31%</td>
<td>3.20%</td>
<td>3.96%</td>
</tr>
<tr>
<td>8</td>
<td>1.55%</td>
<td>2.46%</td>
<td>3.38%</td>
<td>4.31%</td>
</tr>
<tr>
<td>9</td>
<td>1.54%</td>
<td>2.58%</td>
<td>3.46%</td>
<td>4.52%</td>
</tr>
<tr>
<td>Richest</td>
<td>1.72%</td>
<td>2.52%</td>
<td>3.48%</td>
<td>4.46%</td>
</tr>
</tbody>
</table>

**Notes:** Income Gain=Taxable Income*(PIT old rate - PIT new rate). Deciles by Disposable Income under new rates. Color scale: Red lowest gains, green highest gains. **Source:** Own elaboration.

**Figure 1:** Household Income Gains from PIT Reform (as percentage of disposable income)

**Notes:** Numbers at the right-hand side of lines represent decile. Deciles defined by Household Disposable Income under PIT rates post-reform. **Source:** Own elaboration

**Figure 2:** Source of Household Income Gains from PIT Reform in 2023 (by Deciles, as percentage of disposable income)

**Note:** Percentages inside bars represent gains due to each source. Percentage outside the end of bars represent total gain in household disposable income. Deciles defined by Household Disposable Income under PIT rates post-reform. **Source:** Own elaboration

As a result of the household income windfalls, poverty would decline but only assuming that everything else is held constant (for instance, that the tax foregone does not translate into a reduction in public spending). For 2020-23, years in which the PIT reform starts to apply, simulations show that the poverty rate
could decrease with associated income windfalls from the PIT reform (Figure 3), and that the difference with respect to the no-reform scenario would increases over time. The poverty estimate with the reform (15.6 percent in 2023) would be almost two percentage points lower than the one would be observed without reform (17.6 percent in 2023). For 2018-23 we simulate the poverty rates assuming that household disposable income grows following the GDP per capita – household disposable income elasticity observed for 2015-2017. In 2018-19, before the PIT reform applies, the poverty rates under both scenarios are the same.

**Figure 3.** Projected Poverty Headcount with and without proposed PIT reform (National Poverty Line)

![Projected Poverty Headcount with and without proposed PIT reform (National Poverty Line)](image)

**Note:** Household Disposable Income assumed to grow in 2018-2023 according to the GDP per capita – household income growth elasticity observed in 2015-2017. **Source:** Own elaboration

The small increases in household income on account of the PIT reform would translate into minimal increases in inequality, with the Gini coefficient increasing from 0.275 to 0.279 (+0.004 points) in 2023. Figure 4 presents results for the simulated inequality in Armenia, measured by the Gini Index of Disposable Income, which ranges between zero (maximum equality) and 1 (maximum inequality). For the scenario without PIT reform (red line), we find that the Gini stays constant for the complete series 2019-23, with respect to the 2018 baseline (0.2746); this happens because we assumed that the complete income distribution grows proportionally each year (equally across all households). In contrast, for the scenario with PIT reform (blue dashed line) we find that the Gini index is slightly higher with respect to the scenario without PIT reform. By 2023, we estimate that the Gini would increase from 0.2746 to 0.2787 (+0.004 points), which is consistent with the fact that net income gains of the PIT reform are higher among upper deciles.

**Figure 4.** Gini Coefficient Changes because of PIT reform (Based on Household Disposable Income)

![Gini Coefficient Changes because of PIT reform (Based on Household Disposable Income)](image)

**Note:** The Gini coefficient measures inequality with a range between 0 and 1 (0=Max equality vs 1=Max inequality). **Source:** Own elaboration

**Under the PIT reform, the Armenian PIT system will lose progressivity.** As the PIT system will change from the current three-tier to a single-flat tax rate system, there are negative distributional aspects for both the PIT on employees (which becomes more regressive) and the PIT on self-employed (which becomes less progressive)\(^5\). Assuming no other changes in the fiscal interventions (with respect to 2014), we estimate that

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4 See Notes on Poverty Impact Simulation in the Appendix for more details on the simulation methodology.

5 During the PIT reform period, 2020-23, the PIT on employees becomes slightly more regressive (KI decreases from -0.01 to -0.02 comparing 2018 vs 2023) and, the PIT on self-employed becomes less progressive (KI decreases from 0.180 to 0.163 comparing 2018 vs 2023).
under the PIT Reform, the overall tax system (PIT + indirect taxes) will become less progressive. Moreover, even after giving back transfers and in-kind health and education benefits to households, the overall fiscal system will have a redistributive loss.

The budgetary impact of the PIT Reform will be negative. The PIT revenue loss is estimated at 0.3% of GDP for year 2020. Moreover, since the PIT rate will decrease gradually under the reform, the annual PIT revenue loss is expected to increase over time until reaching 0.72% of GDP in year 2023 (Figure 5). This estimate is only 0.1 percentage points lower than the official government estimate for year 2020 (estimated between 0.4% to 0.5% of GDP).

4. Policy discussion

The success of the proposed reform relies heavily on a future expansion of the tax base. As the simulations presented here have shown, the proposed PIT reform will have negative effects on the progressivity of the tax system and on fiscal revenues. The intention of the proposed reform is that simplifying the tax system (altogether with the small businesses tax system) and lowering the tax rates (altogether with the profit tax) would remove an incentive to understate actual revenue volumes, which would lead to a higher tax base. In addition, investments in the country should increase (following a Laffer-curve-like intuition). However, these two assumptions behind the reform may need to be discussed with more detail and some simulations on expected impacts could help to get a sense of expected necessary impacts for the reform to be successful. For instance, it is unclear how firms or individuals who have successfully avoided taxation under a higher rate by under-reporting, would stop following the same strategies and start reporting more accurately their revenues under a lower rate. Or, it is also unclear whether the higher tax rates for firms is the most binding constrain for investment. It may actually be the case that it acts as a disincentive, but in absence of reforms in other sectors or improvements in regulations (e.g. competition regulation, infrastructure and connectivity, availability of skills demanded in new economy), the actual increases in investment after lowering the rates may not compensate the loss in revenues.

Increases in sin taxes are a welcome measure to substitute the foreseen losses in fiscal revenues due to the tax reform, although their distributional impacts need further analysis. The tax reform contemplates increases in taxes to tobacco, alcoholic beverages, beer, vehicles with high horsepower and gambling. These measures are welcomed to prevent a decline in fiscal revenues that could lead to increased needs for financing.

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6 Considering the fact that the Indirect Taxes were assessed as neutral in the CEQ 2014 plus the fact that the PIT will become less progressive under the PIT reform.
7 Under the PIT reform, the redistributive effect of the fiscal system (difference between the Gini of Final Income minus the Gini of Market Income) is -0.005 points lower with respect to the scenario without PIT reform. Own calculations based on CEQ 2014 and marginal effects from the Updated PIT 2018.
and macro imbalances. However, the international evidence show that increases in taxes to these products may have a regressive pattern in the very short term. More comprehensive analyses (e.g. Fuchs, Orlic and Cancho, 2019) has shown that tax increases in these goods may lead to actual improvements in the medium and long term (for instance, by decreases in consumption of those negative goods, altogether with savings in health expenses and increases in life expectancy), but the magnitude of the impact in the short term deserves further analysis. To this end, the current CEQ framework provides a solid basis for testing the distributional effects in the very short term that can help to inform policy discussion, and analyses on the specific medium- and long-term effects of those taxes increases (for instance, by using extended cost-benefit analyses) can help to obtain a sign and order of magnitude of these expected impacts.

**Protecting fiscal spending on the less well-off in the wake of the reform will be critical to avoid worsening their living conditions and prevent resistance to the reform from the public opinion.** It is unclear whether a potential decrease in fiscal revenues may lead to the need to adjust fiscal spending in a way that could hurt more the poor. If it is the case, adjustments in pensions or direct social transfers (e.g. Family Benefit Program) may more than counter the household windfall gains. The taxes proposed to sustain tax collection (e.g. tobacco, alcoholic beverages), not included in the simulation, may also hit more than proportionally the worse off—a group that is almost not benefiting from the reform. Hence, it will be critical to avoid cuts in these fiscal expenses to avoid making the fiscal system (taxes and transfers) hurt them and cause a worsening of their living conditions that may lead to a shift on the public perception of the reform.
References


APPENDIX

Market Income as Welfare Indicator

**Net Income Gains.** We assess the net income gains due to the PIT reform, by computing the difference between PIT liabilities (no reform vs reform). This calculation is done yearly, at the household level, and presented as a share of household market income (See Table A1). As expected, since the PIT reform establishes a lower single PIT rate, there are positive income gains across all the deciles. Also, the income gains increase yearly as the PIT rate is lowered gradually under the PIT reform. For instance, the income gain (as a share of household market income) increases from 0% to 0.6% for households in Decile 1 (lowest) versus an increase from 2.3% to 5.6% for households in Decile 10 (highest). However, a negative distributional aspect is that the income gains of the PIT reform are higher for the upper deciles (7 to 10), as the color scale indicates. (See Table A1 and Figure A1)

<table>
<thead>
<tr>
<th>Decile of Market Income</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>3</td>
<td>0.0%</td>
<td>0.4%</td>
<td>0.7%</td>
<td>1.0%</td>
</tr>
<tr>
<td>4</td>
<td>0.1%</td>
<td>0.5%</td>
<td>1.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>5</td>
<td>0.3%</td>
<td>0.8%</td>
<td>1.4%</td>
<td>1.9%</td>
</tr>
<tr>
<td>6</td>
<td>0.4%</td>
<td>1.1%</td>
<td>1.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>7</td>
<td>1.1%</td>
<td>1.8%</td>
<td>2.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>8</td>
<td>1.1%</td>
<td>1.9%</td>
<td>2.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td>9</td>
<td>1.5%</td>
<td>2.5%</td>
<td>3.5%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Highest</td>
<td>2.3%</td>
<td>3.4%</td>
<td>4.5%</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

**Notes:**
1/Income Gain=Taxable Income_year*(PIT rate_old - PIT rate_new).
2/Deciles by Market Income.
3/Color scale: Red lowest, green highest.

Figure A1. Change in Net Income due to PIT Reform, 2019-23 (Deciles by HH Disposable Income)

Figure A2. Income Gains, disaggregating PIT changes (Deciles by HH Market Income, year 2023)

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88 The CEQ 2014 simulations on PIT Reforms also found similar qualitative results on PIT incidence by deciles.
Notes on Poverty Impact Simulation

To simulate the impacts on poverty, we estimate poverty applying the national poverty line to the household disposable income. This results in a poverty rate of roughly one percentage point lower than the official national poverty rate in 2014 (29 percent for CEQ vs 30 percent official poverty), which is based on a different consumption aggregate. The poverty estimations for 2015-2017 based on disposable income aim to preserve this difference with respect to the official national poverty rates reported for those years, resulting in a poverty rate of 24.6 percent in 2017, against an official poverty rate of 25.7 for the same year.