

2024 DINA UPDATE FOR MENA

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Technical Note – 2024 DINA regional update for the Middle East

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This note presents the latest changes made in the construction of Distributional National Accounts (DINA) for Middle East countries, detailing each step of the method, in the direct continuity of Bajard and Moshrif (2021), Moshrif (2020) and El Hariri and Moshrif (2022). Combining household surveys, national accounts, and income tax data, we have updated the constructed income distribution for the period 1980-2023 using recently published survey data and tabulations. The first attempt at creating distributional accounts for the Middle East was done by Alvaredo et al. (2017).

We still face limitations in measuring income inequality as data in the region is scarce: fiscal data is almost impossible to get and survey data still suffers from low quality. However, there has been an increase in the availability in micro survey data, as is in the case of Egypt for example. For countries with no data available, we impute income regionally as explained in this note.

Step 1: Preparing tabulated and micro survey data

Most of our income series are computed using income and expenditure surveys. We are able to access the micro data of these surveys for some countries (Syria, Yemen, Egypt, Iraq, Jordan, and Iran), and for other countries we could only access the tabulations of the survey data results (see Table 1 for details). We have not been able to get access to any fiscal data this year, in the past, we were able to get hold of Lebanese tax data for the years 2005 to 2014. For some countries, we have used micro data when it was available, and for the years it was not, we have used tabulated data in order to cover as many years as possible for the 1980-2023 period.

In the 2024 update, we have corrected and updated Iranian data using the Household Income and Expenditure Survey micro-data from 1997 to 2014. We have also updated the Turkish tabulated data on income from the national survey on Income and expenditure for the years 2022 and 2023. Moreover, we have included the micro-data of the Egyptian survey on Household Income and Expenditure for 2019 and the Tunisian National Survey on Household Budget, Consumption and Standard of Living for the years 2005 and 2010. For the first time, we have used the Arab Barometer income data provided in some waves of the

survey for countries and years for which we lack other data sources (Algeria, Morocco, Saudi Arabia, Yemen, Jordan, Palestine, Iraq, Bahrain, Kuwait) as detailed in the table below.

a. Household and individual micro survey data

Using Household and individual micro survey data, we first estimated the full income distribution. However, to avoid having negative income values at the bottom of the distribution or missing income at the top of the distribution (the smaller percentiles within the top 1%), we trimmed the top 0.01% and the bottom of the distribution. Then, we used generalized Pareto interpolation¹ to estimate the distribution shapes and output them in the form of 127 generalized percentiles distributions. This correction yields the same income share for the top 1% and does not alter the income shares for the rest of the distribution. Also, for years when both micro and tabulated survey data were available, we used micro survey data to estimate the income distribution.

b. From consumption to income tabulated surveys

Some surveys only have information in consumption and none on income, like Qatar and UAE. After having harmonized the income concepts for all countries and years, we compute income-consumption ratios from series where both income and expenditure data is available. We then apply this ratio to consumption series to recover the income distribution. The ratio is applied to countries from the same region and with similar characteristics (e.g. Gulf countries ratios were used to derive Qatar's income distribution).

c. Integrating PovcalNet-PIP data

PovcalNet-PIP estimates is combined with survey tabulation/microdata to extend the inequality series. PovcalNet-PIP is tabulated survey data, mostly measured in terms of consumption. To integrate this data with the existent inequality series, we derive the ratio between the two sources on common years and rescaled the PovcalNet-PIP series to match the estimates based on survey data. When no common years were available, we compute the ratio of the two closest years (e.g. for UAE, the ratio was computed from the 2009 imputed income and the 2013 PovcalNet-PIP survey consumption).

For Iran, inequality estimates using PovcalNet data overlapped with inequality estimates using micro survey data. For that reason, we combined directly both datasets to produce the full income distribution, without rescaling the former.

¹ For generalized Pareto interpolation the online tool [gpinter](https://wid.world/gpinter/) can be used (<https://wid.world/gpinter/>) or the eponymous R package. For details on the procedure see Blanchet et al. (2021).

Step 2: Top fiscal correction using Lebanese tax data

We take advantage of the availability of fiscal data from Lebanon (Assouad, 2017) to account for the underestimation of top incomes that is inherent to survey data, because of its self-reporting nature. Correction factors are computed for every g-percentile, ranging from 1 below the 80th percentile to around 2.5 at the very top. We then multiply bracket averages and thresholds by these coefficients.

Step 3: Missing capital income

The distribution of missing capital income follows the latest recommendations of the DINA Guidelines. Retained earnings of corporations are distributed following the quantile ratio method, using a finer quantile function (hyperbolic) relative to previous years, which avoids extreme values near the bottom of the distribution. This method links the labor income distribution to the capital income distribution, which we estimate externally using wealth data from France because this type of data is not available for most countries in our sample.

Step 4: Imputation of missing years

As the data suffers from huge gaps between conducted surveys, we linearly interpolate the bracket averages and thresholds for the years we have no data for. Second, we extrapolate both backward and forwards to cover the whole period from 1980 to 2023 for each country assuming constant inequality levels. This implies we have the same inequality levels for countries that have only one year of survey data (like Oman and Saudi Arabia).

Step 5: Rescaling to match national income

In the distribution of retained earnings, we use aggregate variables to rescale the average income to match national income and wealth. National wealth is derived from a globally computed wealth-income ratio.

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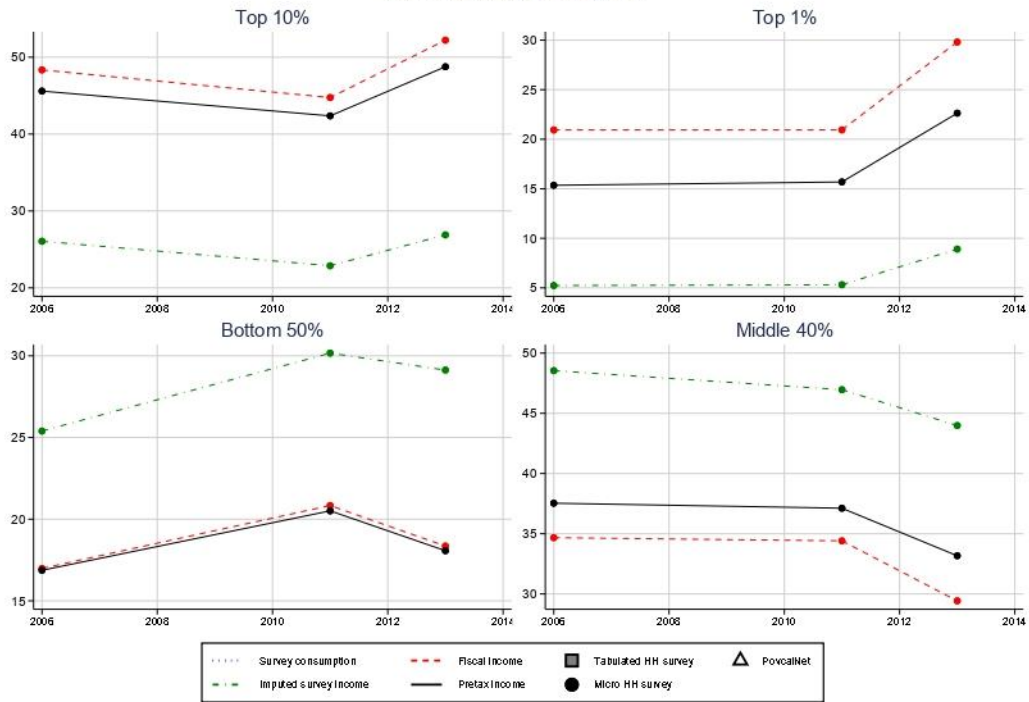
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Table 1: List of survey availability in the Middle East

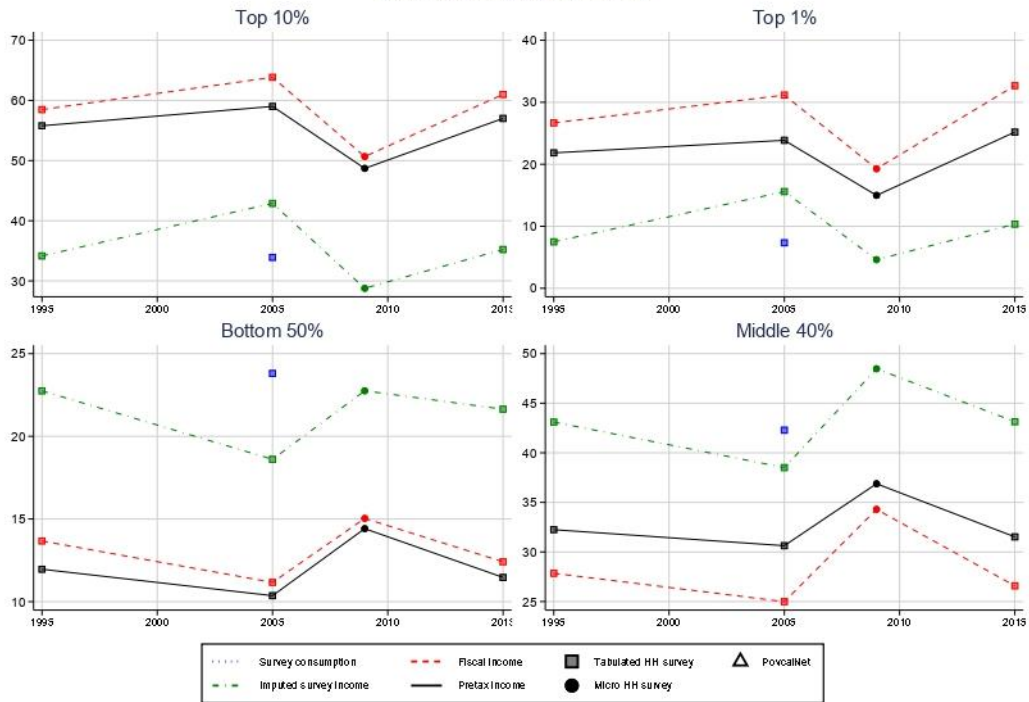
| Country | Survey years | Format | New data (2024's update) |
|----------------|--|--|---|
| Algeria | 2006, 2011, 2013 | Arab Barometer | Arab Barometer: 2006, 2011, 2013 |
| Bahrain | 1995, 2005, 2015 | Tabulation, Arab Barometer | Arab Barometer: 2009 |
| Egypt | 1990, 1995, 1999, 2004, 2008, 2010, 2012, 2015, 2017, 2019 | Micro-data and tabulation Micro- | Survey micro- data 2019 |
| Iran | 1984 -2018 | data and tabulation | Survey micro- data 1997-2014 |
| Iraq | 2007, 2011, 2012, 2013 | Micro-data, Arab Barometer | Arab Barometer: 2011, 2013 |
| Israel | 1979, 1986, 1992, 1997, 2001, 2005, 2007, 2010, 2012, 2014, 2016 | Tabulation | Arab Barometer: 2011 |
| Jordan | 1986, 1992, 2002, 2006, 2008, 2010, 2011, 2013 | Micro-data, tabulation, Arab Barometer | Arab Barometer: 2014 |
| Kuwait | 2007, 2013 | Tabulation, Arab Barometer | Arab Barometer: 2014 |
| Lebanon | 2005-2016 | Micro-data and tabulation | Arab Barometer: 2013 |
| Morocco | 2013 | Arab Barometer | 2013 |
| Oman | 2010 | Tabulation | Arab Barometer: 2012 |
| Palestine | 1996-1998, 2004-2007, 2009- 2011, 2012, 2016 | Micro-data, tabulation, Arab Barometer | |
| Qatar | 2007, 2012 | Tabulation | |

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|-------------------------|------------------------------|--|---|
| Saudi Arabia | 2011 | Arab Barometer | Arab Barometer: 2011 |
| Syrian Arab Republic | 1996, 2003, 2004 | Micro-data and tabulation | |
| Tunisia | 2005, 2010, 2011, 2013 | Micro-data, Arab Barometer | Survey micro- data 2005, 2010 Arab Barometer: 2011, 2013 |
| Turkey | 1987, 1994, 2002-2023 | Micro-data and tabulation | Tabulation 2022-2023 |
| United Arab Emirates | 1998, 2009, 2013, 2014, 2018 | Tabulation | |
| Yemen | 1998, 2006, 2011, 2013, 2014 | Micro-data, tabulation, Arab Barometer | Arab Barometer: 2011, 2013 |

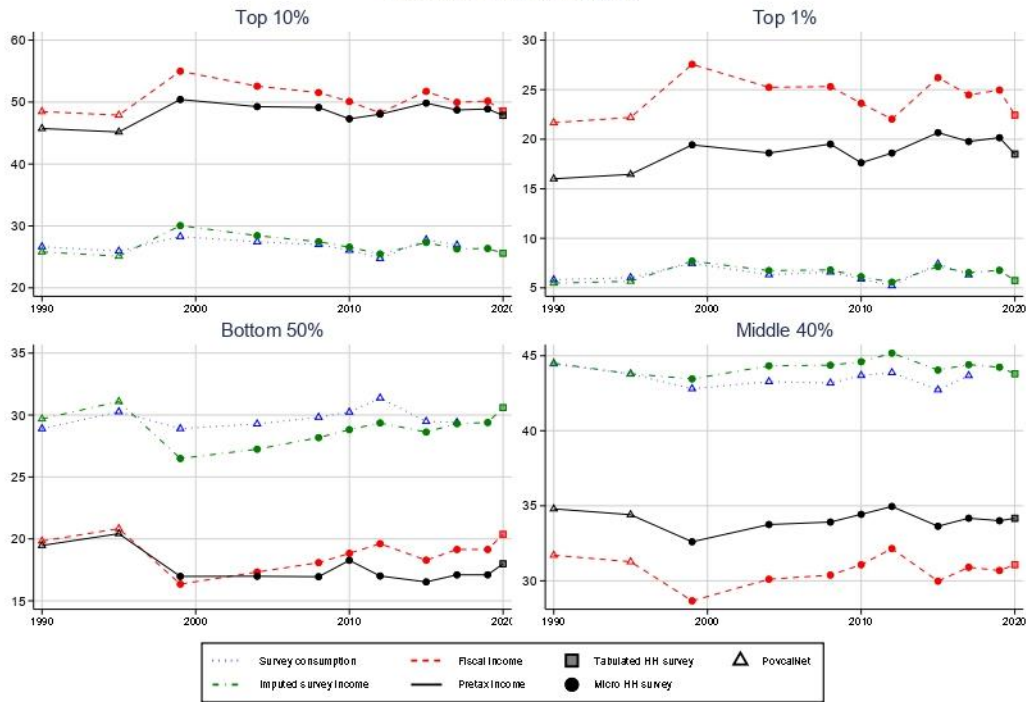
Income share(%) in Algeria



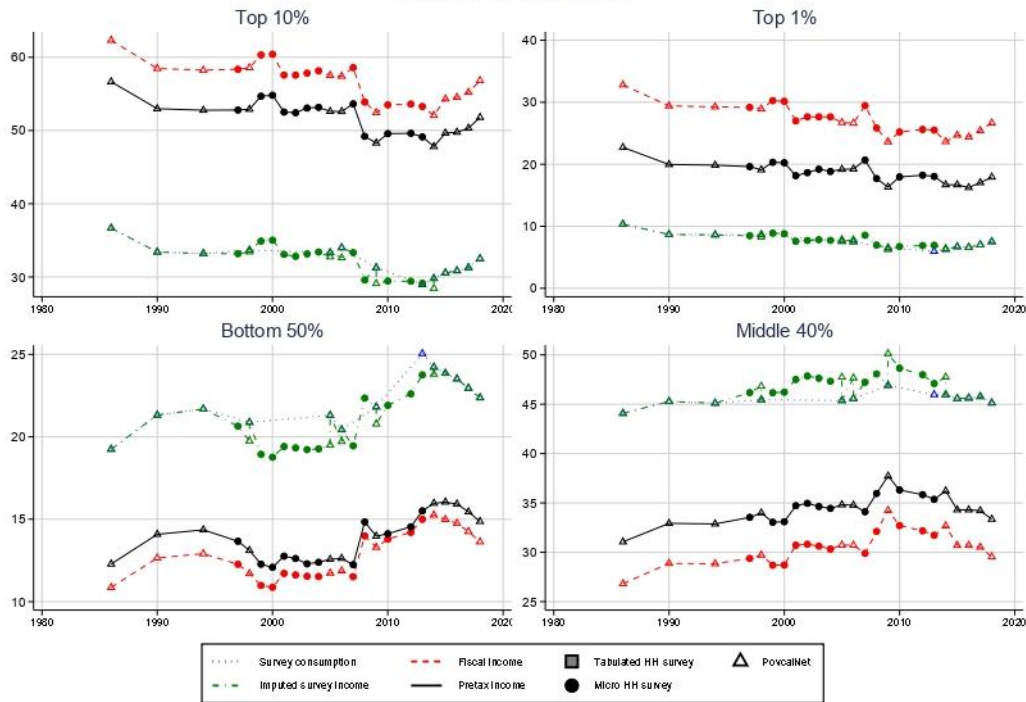
Income share(%) in Bahrain



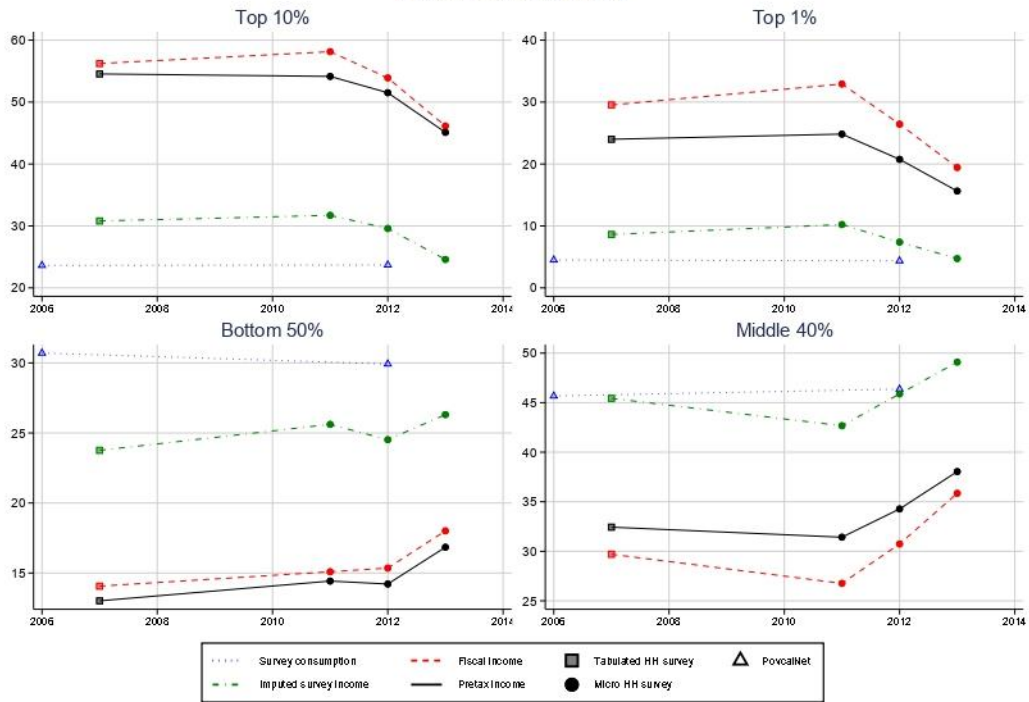
Income share(%) in Egypt



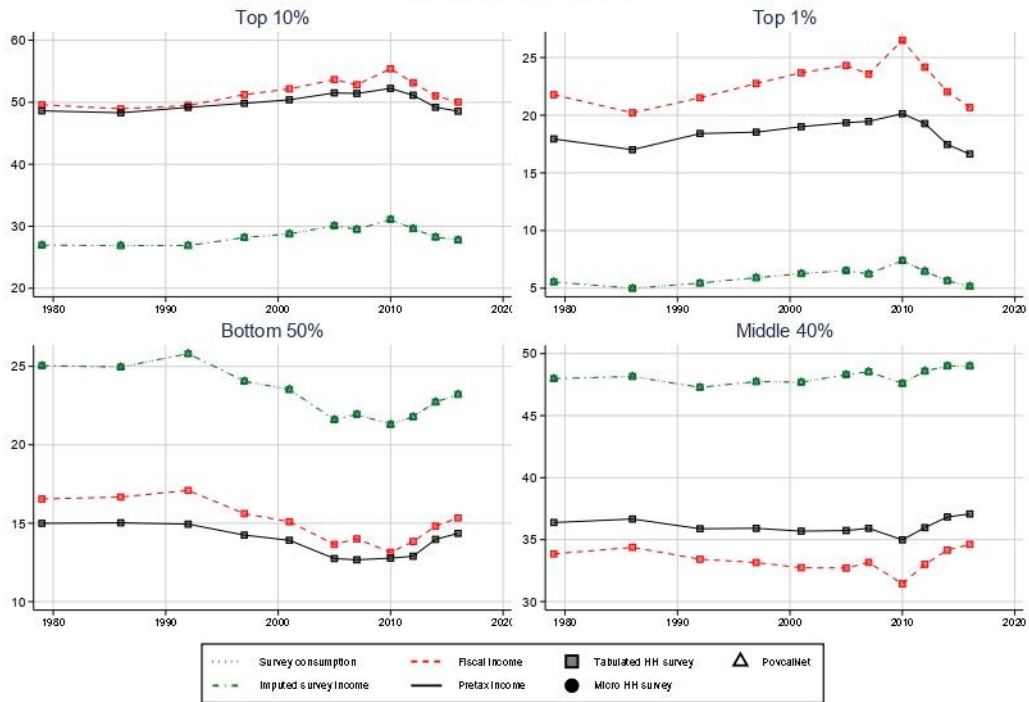
Income share(%) in Iran



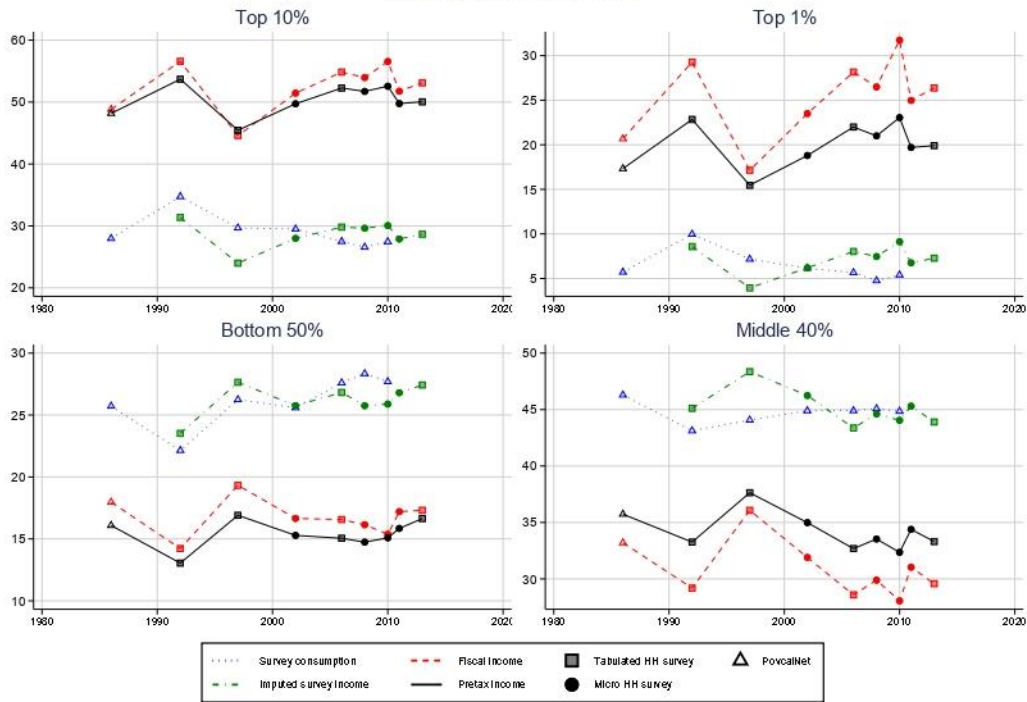
Income share(%) in Iraq



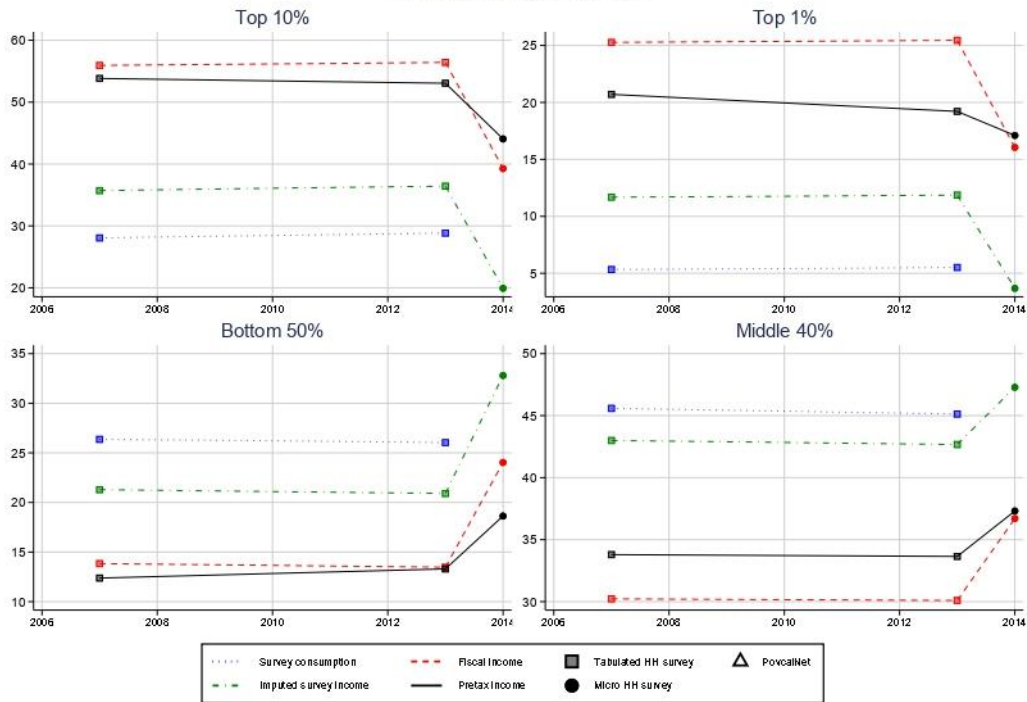
Income share(%) in Israel



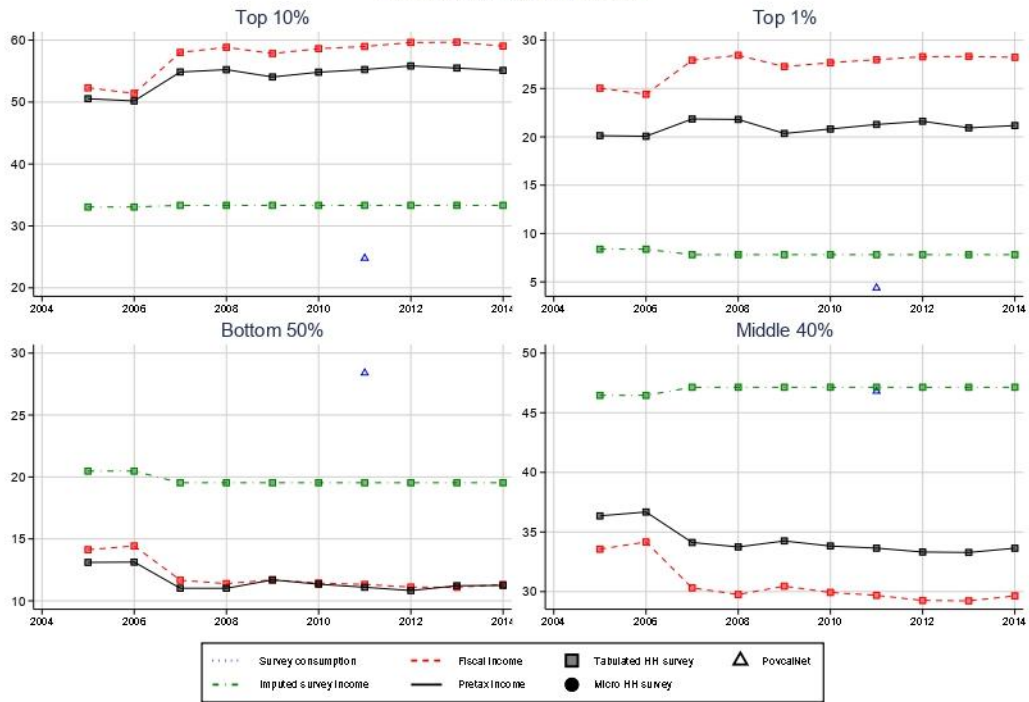
Income share(%) in Jordan



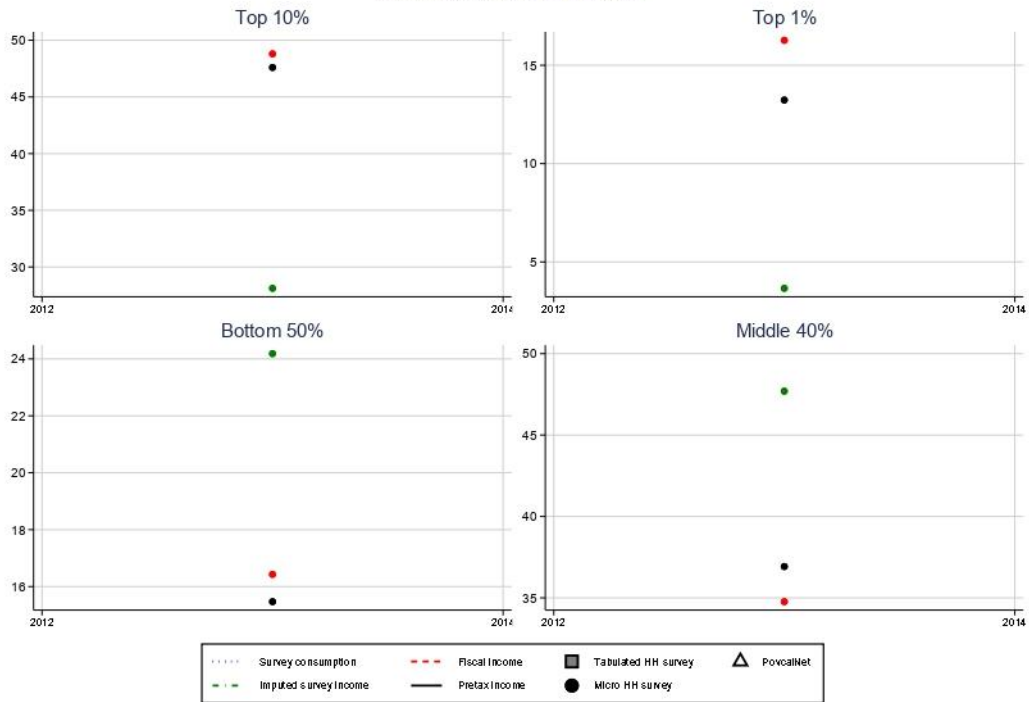
Income share(%) in Kuwait



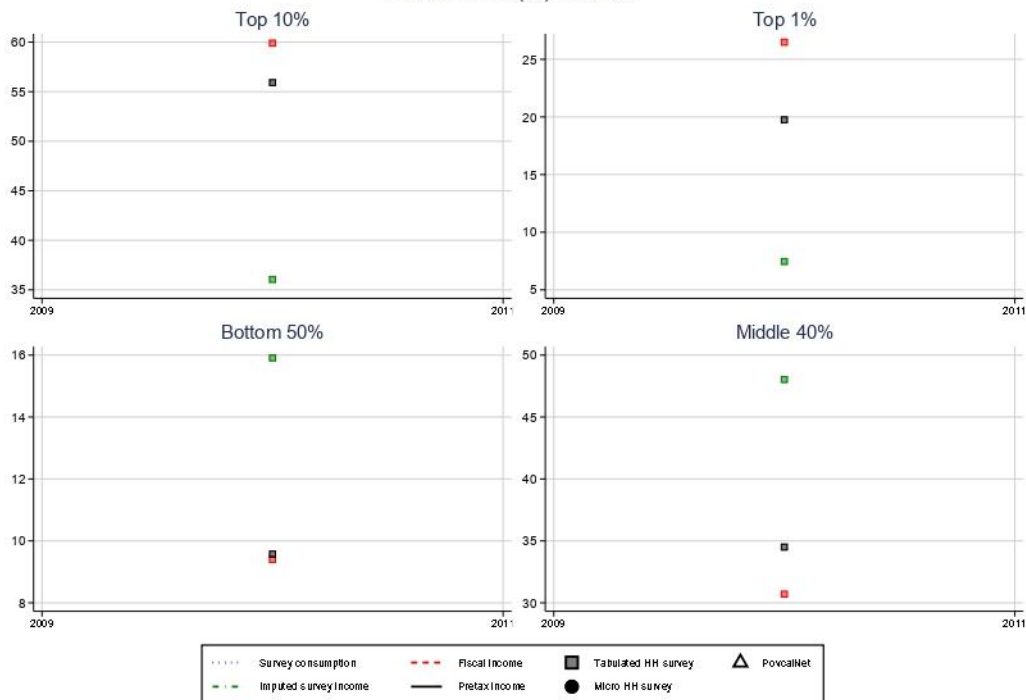
Income share(%) in Lebanon



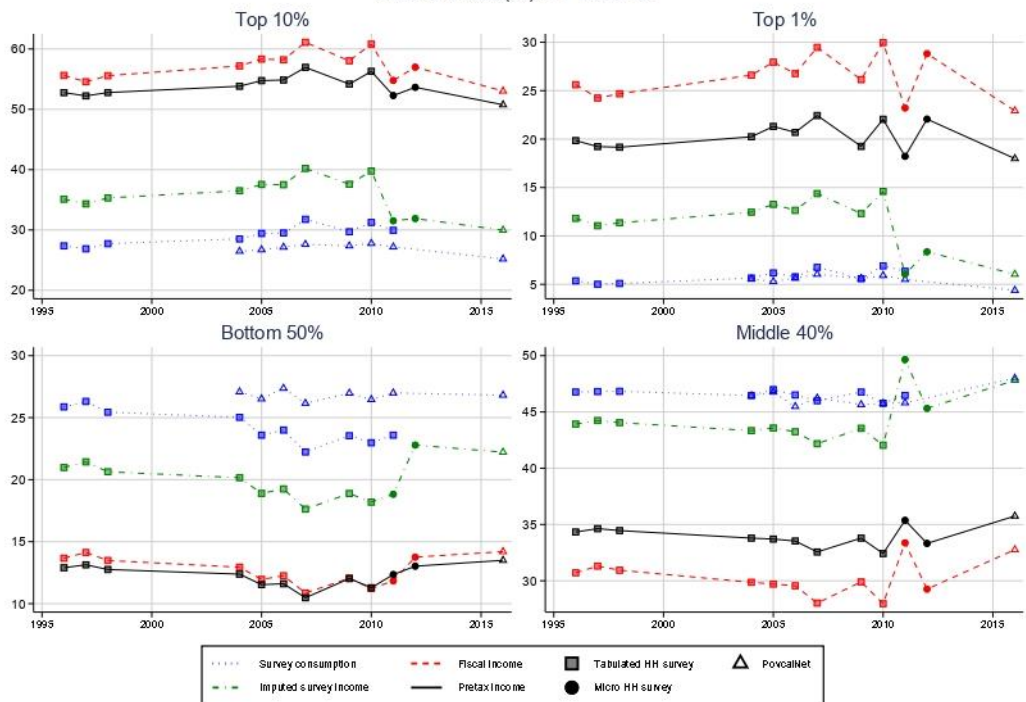
Income share(%) in Morocco



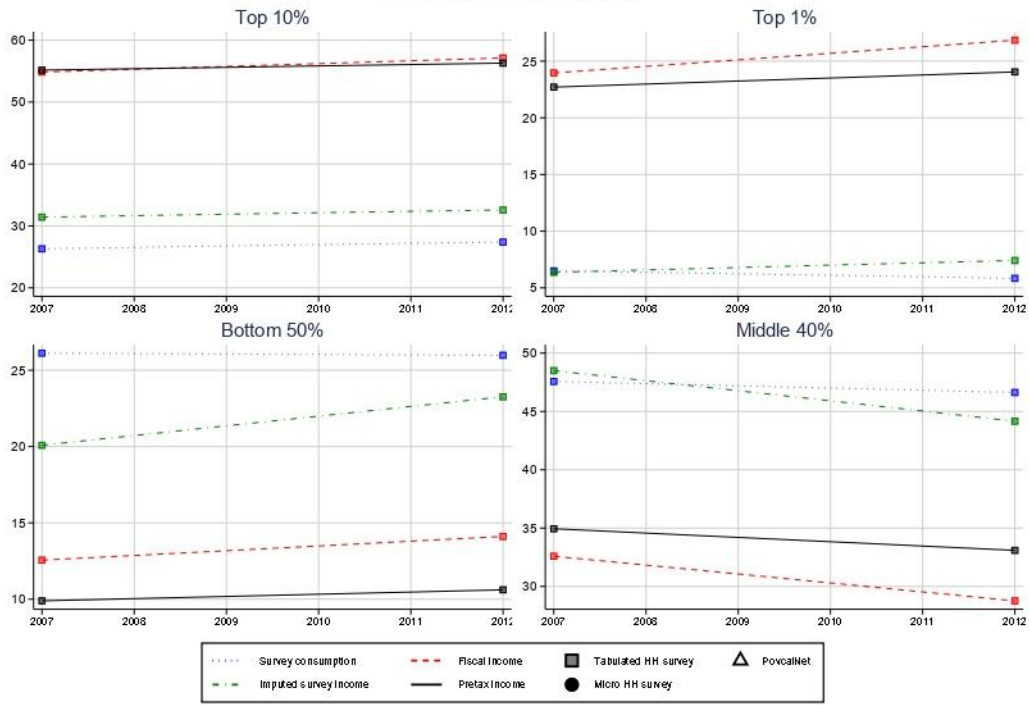
Income share(%) in Oman



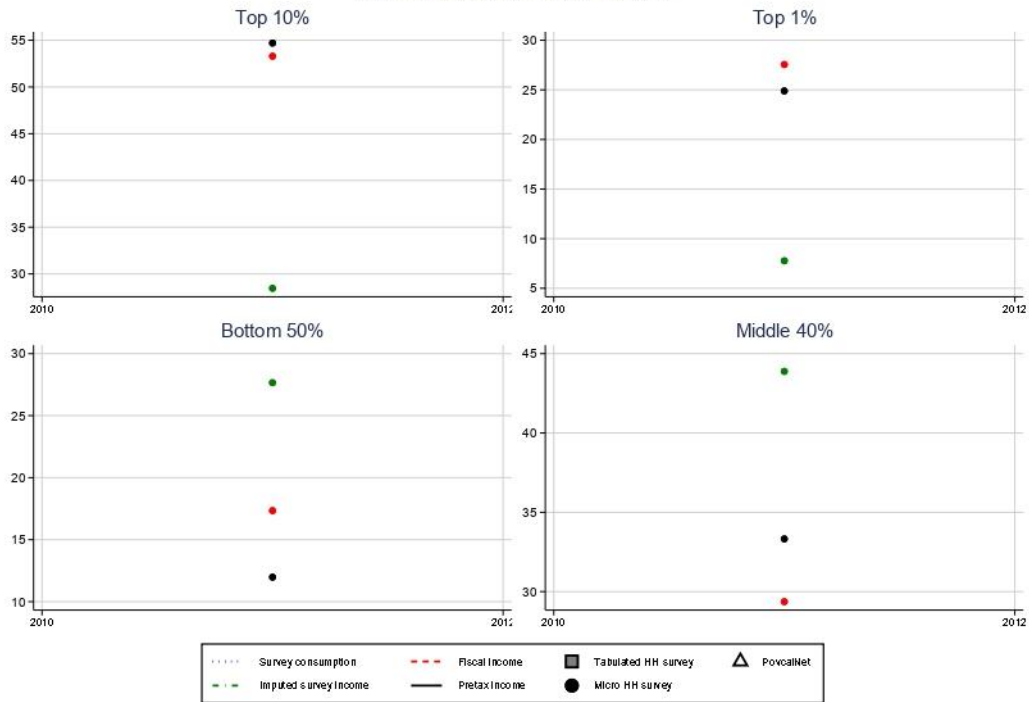
Income share(%) in Palestine

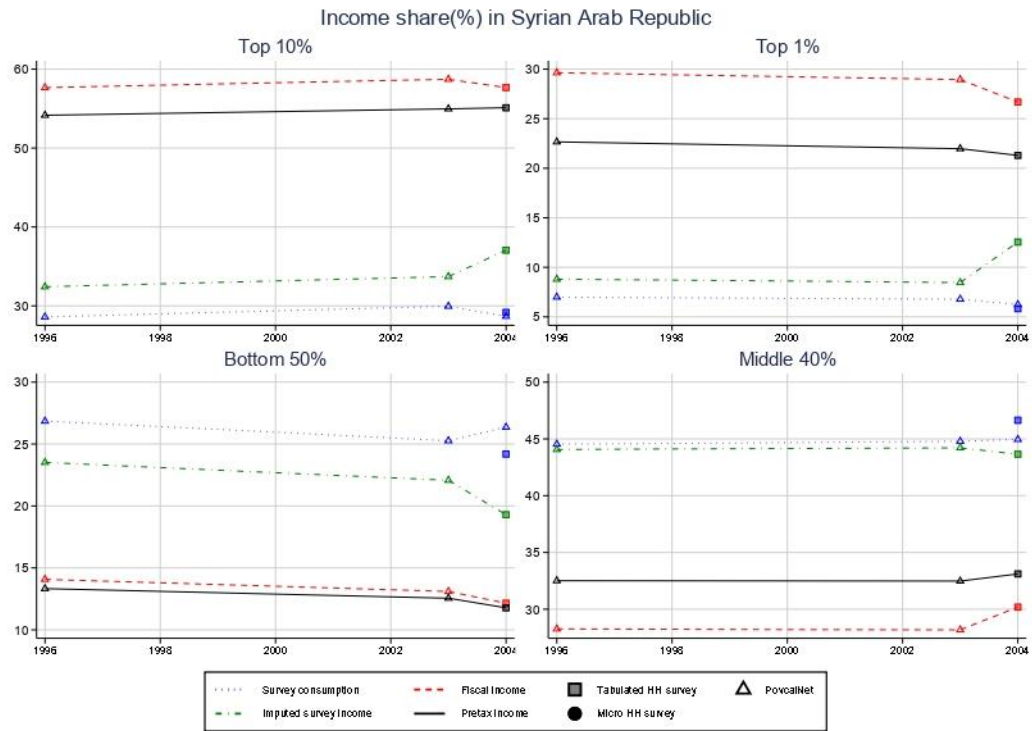


Income share(%) in Qatar

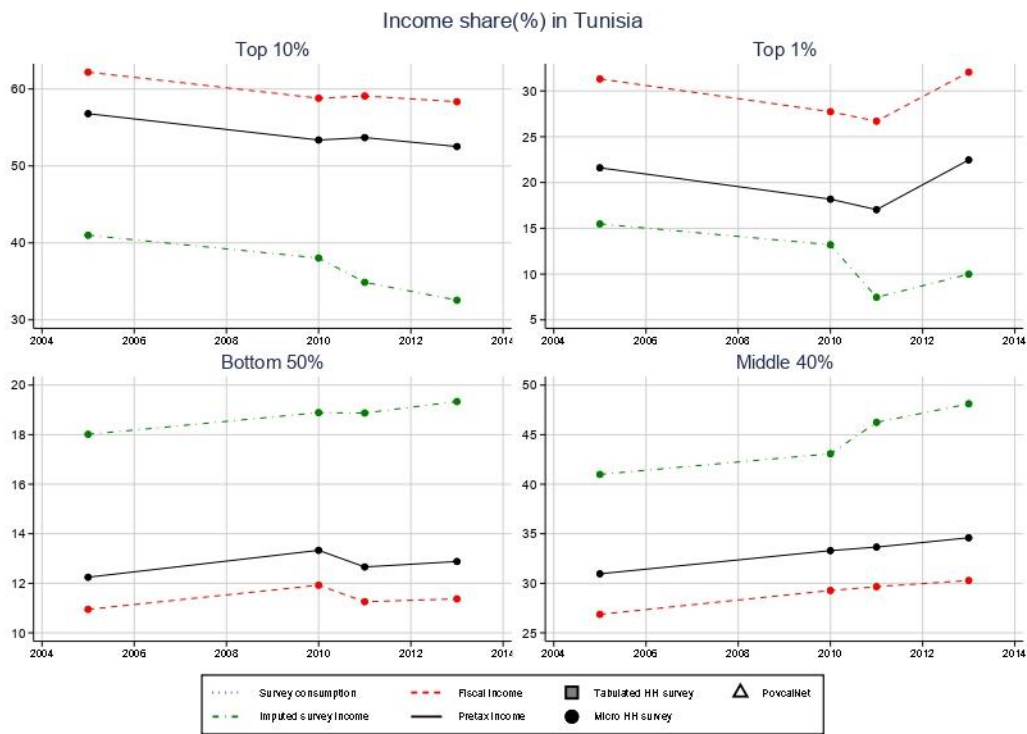


Income share(%) in Saudi Arabia

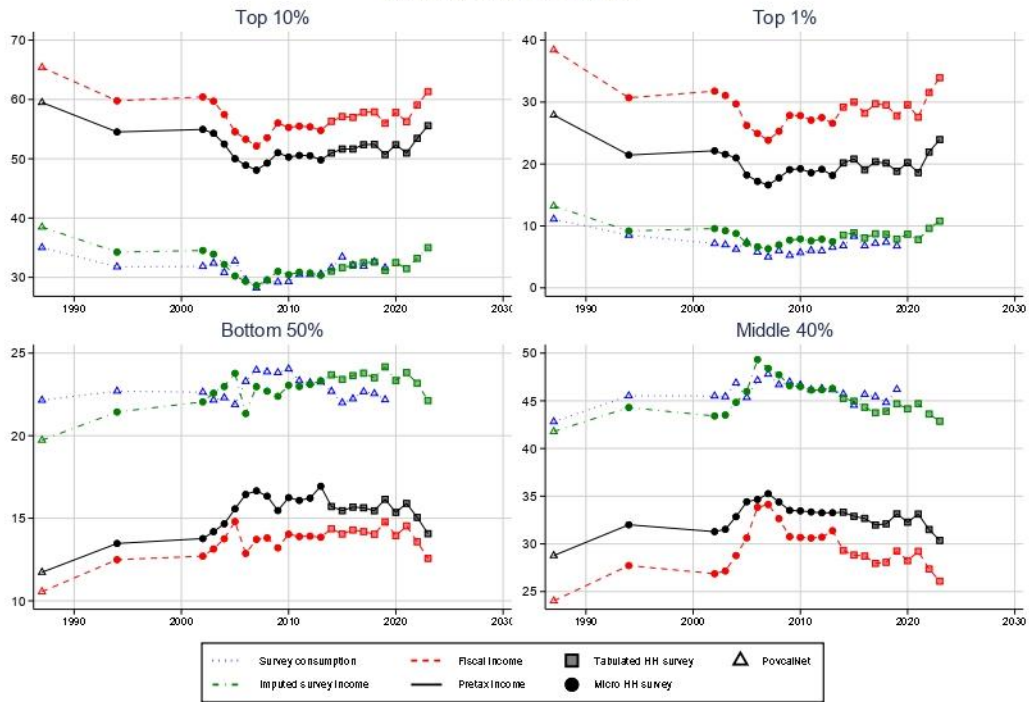




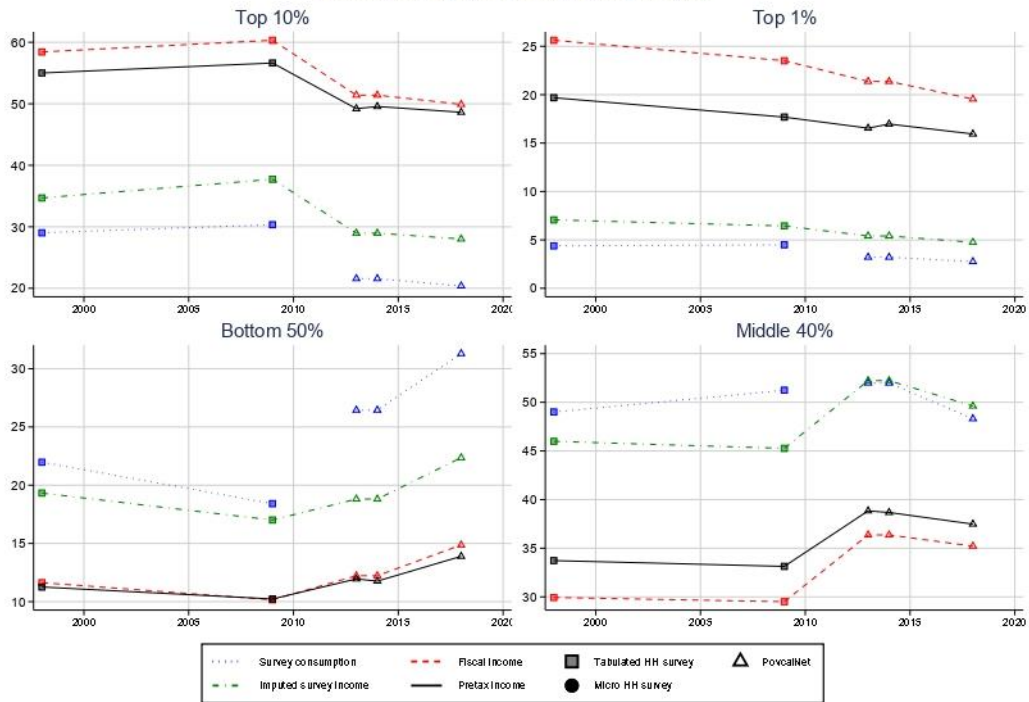
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Income share(%) in Turkey



Income share(%) in United Arab Emirates



Income share(%) in Yemen

