

## 2020 DINA Update for Europe

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## Technical Note

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### Overview

The Distributional National Accounts (DINA) update for the 38 European countries to 2019 follows the methodology outlined in [Blanchet, Chancel and Gethin \(2020\)](#), hereafter BCG20. This note explains how this update was done for both Western and Eastern European countries, highlighting the new data that was incorporated.

Following BCG20 we classify Western Europe as comprising Austria, Belgium, Cyprus, Denmark, Finland, France, Greece, Germany, Iceland, Ireland, Italy, Luxemburg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Eastern Europe includes Albania, Bosnia and Herzegovina, Bulgaria, Czech Republic, Estonia, Croatia, Hungary, Kosovo, Lithuania, Latvia, Moldova, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovenia, and Slovakia.

Some blind spots remain on the European map, namely Belarus, Ukraine and the Caucasus countries – Armenia, Azerbaijan and Georgia. Distributional data for these countries is available, but they require more time to process. This will be done in a forthcoming update. In the meantime, WID.world employs a general strategy to provide estimates for these countries. The methodology is described in Chancel and Piketty (2020).

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## Data availability and quality

Table 1 presents the new data used for the update.

For Western European countries we rely entirely on the EU-SILC for survey data. The survey covers EU countries as well as non-EU countries. The update utilises the last two releases of the SILC micro data in 2017 and 2018, which correspond to incomes received in the previous calendar year, i.e. 2016 and 2017, with the exception of Ireland and the UK, whose incomes correspond to the current calendar year, i.e. 2017 and 2018. Only two countries did not have a 2018 data release: the UK (2017 release corresponding to 2017 incomes) and Iceland (2016 release corresponding to 2015 incomes). Thus, Iceland is the only Western European country whose survey microdata was not updated vis-à-vis BCG20. Tax data is available in the form of tabulations for all Western countries, with the exception of Malta, to varying degrees of annual coverage. This update incorporates new data from tax tabulations for Greece (2017), Italy (2016) and Portugal (2016 and 2017), which are distinguished from tax data already used by BCG20 in Table 1. Access to tax micro data is often not systematic and restricted to a country-based researchers.

Some country-based researchers are currently working on producing distributional national accounts for their countries at a greater level of detail and precision than the estimates of this update. Austria and France are the only two countries included in this update that have followed this strategy to date (see Table 1). The results for other countries should gradually come out over this academic year. These concern the cases of Belgium, Germany, Spain and Sweden. We expect that more countries will be added to this list over time. This is desirable as it will improve cross-country comparability.

As can be seen from Table 1, new tax data is available in raw form that hasn't been used in this update. The use of this new data is problematic given the harmonized methodology used to estimate the DINA series for European countries currently on WID.world. These tax tabulations are not straightforward to use either – many refer to “net taxable incomes”, requiring treatments to correct for deductions, and other items. They thus require more time and resources to process. Further collaboration with local researchers will help us overcome these data obstacles.

Eastern Europe is still heterogeneous concerning data quality. We use the EU-SILC survey micro data for EU-member states. For many non-EU members PovcalNet is currently the only available survey data source. In this light, the integration of further countries into the EU-SILC, already realized for Serbia and currently under way for North Macedonia, Montenegro, and Albania is a positive development. Tax data in the form of tabulations is still sparse however. Another obstacle for the integration of tax information is that capital incomes are withheld at the source in many Eastern European countries. Therefore, a combination of personal income tax returns and a database on incomes for which tax was withheld at the source would be necessary.

[Kump and Novokmet \(2018\)](#) can draw on such a database for Slovenia. Access to tax micro data is even less systematic than in Western Europe.

The constituent republics of the former Federal Republic of Yugoslavia – Bosnia and Herzegovina, Croatia, Montenegro, Northern Macedonia, Serbia and Slovenia – are plotted since 1980 as separate entities. This data is taken from [Maddison Project Database \(2018\)](#) and based on extrapolations. The same applies for the Czech Republic and Slovakia forming late Czechoslovakia. Kosovo is considered since 1999 as a separate entity.

For National Accounts aggregates, we follow BCG20 by using EUROSTAT and OECD data as primary sources. UN SNA is used when the first two sources do not have information. Since detailed data on the composition of national income is sparse before 1995, we impute missing information by repolation using exponential smoothing. As a last step, regional averages based on the regional classification by the [UN Statistics Division](#) are used to treat cases in which component information is missing for all years. This applies to subcomponents of national income for Albania, Bosnia and Herzegovina, former Czechoslovakia, the former German Democratic Republic, Kosovo, Moldova, Montenegro, and North Macedonia, and former Yugoslavia. Little is currently known about income redistribution in the South-eastern European countries including information on social benefits and health expenditures used to compute posttax incomes in particular. Estimates directly from WID.world are produced in a similar, but more sophisticated manner, using data from UN MADT, OECD, IMF BOPS (see [Alvaredo et al. 2020](#), p. 88 for details).

We have identified further data sources for European countries beyond those currently researched. These include the Ukrainian Longitudinal Monitoring Survey for Ukraine, PovcalNet distributional estimates for the Belarus, Ukraine, and the Caucasus countries, Armenia, Azerbaijan, and Georgia, as well as three waves of the Luxemburg Income Survey (LIS) for Georgia. We plan to integrate these in a future update.

## **Methodology**

The procedure used in BCG20 involves various steps to distribute net national income within countries, sub-regions and the region of Europe as a whole. In brief, different household surveys are first harmonized at a conceptual level to obtain cross-country distributions of pre-tax and post-tax income.

Second, these surveys are then calibrated on top incomes from tax data, ensuring that top income shares calculated in previous research are maintained, while correcting for income under-coverage in surveys. The calibration is also done on top income shares from new tax data, which are estimated by using an internal control total for income from the survey, rather than an external control total from national accounts used in previous research on top incomes.

Third, missing income components are added to the calibrated survey from the national accounts following various distributional assumptions that utilize information from income surveys, consumption surveys and wealth surveys. These comprise imputed rents of households, the undistributed profits of corporations, product and production taxes, and in-kind government expenditure. Imputed rents are imputed to their distribution in the surveys where they are recorded (EU-SILC). Undistributed profits (which includes the corporate tax) are imputed to the distribution of corporate stock holdings from wealth surveys (HFCS) calibrated on top income shares. Taxes on products and production are imputed proportionally to the distribution of pretax income. Lastly, in-kind government expenditures are imputed proportionally to the distribution of disposable income, except for public health spending, which is imputed in equal lump-sum shares to individuals. We refer readers to the BCG20 paper for further details.

We follow this routine to update the series up to 2017 with the new distributional and aggregate data (the survey microdata reaches 2015 in BCG20). Furthermore, we expand the distributional data by two more years to reach 2019, assuming a constant fiscal income (survey + tax data) distribution. We then add new macro data from national accounts that were recently updated on WID.world to 2019.<sup>2</sup> In Table 1, “+ macro data 2016-2019 (constant fiscal income distribution 2017-2019)” means that we impute these macro incomes assuming that the fiscal distribution remains unchanged. The imputation of these missing macro incomes alters the final distribution, given that they are not all imputed proportionally to fiscal incomes. The benchmark unit of observation used in these inequality series is the adult individual aged 20 or older.

***A note on the differences with the OECD-Eurostat expert group on disparities in a national accounts framework (EG DNA).***

*The sole focus of the EG DNA is to distribute the disposable income of the household sector in the SNA. In contrast, our DINA series distribute the entirety of national income among resident households (including all income flowing to corporations, the government, and to and from the foreign sector). In this way we account for 100% of macroeconomic growth coming from GDP statistics. We also present results for numerous concepts (e.g. pre-tax national income, post-tax disposable income and post-tax national income) across granular percentile groups reaching small fractiles at the very top of the distribution, with greater precision than the EG DNA, which primarily focuses on quintile groups.*

*For our harmonized European DINA series, we do not scale individual income components in the micro data to their macro equivalents in SNA. This is another difference with the EG DNA. However, for newly incorporated DINAs, like those for Austria and France, this component scaling to SNA is carried out by the authors.*

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<sup>2</sup> See <https://wid.world/news-article/2020-update-of-macroeconomic-aggregates/>

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**Table 1. Data sources and type of update by country**

Western Europe							
Country	New years of survey data used	Survey data source and format	Last year of tax data used	Latest year of tax data available	Tax data source and format	Macro data	Type of update
Austria	2016, 2017	EU-SILC, microdata	2016, 2017 (new)	2017	<a href="http://www.statistik.at">www.statistik.at</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	2003-2017 from <a href="#">Jestl and List (2020)</a> (2013, 2017 results sent by authors) + extrapolations (1980-2016, 2018-2019) based on internal update
Belgium	2016, 2017	EU-SILC, microdata	2013	2017	<a href="http://www.statbel.fgov.be">www.statbel.fgov.be</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Cyprus	2016, 2017	EU-SILC, microdata		2017	<a href="http://www.mof.gov.cy">www.mof.gov.cy</a> , tabulation	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Denmark	2016, 2017	EU-SILC, microdata	2010	2018	<a href="http://www.statbank.dk">www.statbank.dk</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Finland	2016, 2017	EU-SILC, microdata	2009	2018	<a href="http://www.vero2.stat.fi">www.vero2.stat.fi</a> , tabulations	EUROSTAT & OECD 1980-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)

France	2016, 2017	EU-SILC, microdata	2015-2018 (new)	2018	<a href="http://www.impots.gouv.fr">www.impots.gouv.fr</a> , tabulations	EUROSTAT & OECD 1980-2019	External estimation by <a href="#">Garbinti, Goupille-Lebret and Piketty (2018)</a> for 1900-2014; Bozio et al. (2020) for 2014-2018. 2019 is extrapolated from 2018 distribution
Germany	2016, 2017	EU-SILC, microdata	2013	2016	<a href="http://www.destatis.de">www.destatis.de</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Greece	2016, 2017	EU-SILC, microdata	2017 (new)	2017	<a href="http://www.aade.gr">www.aade.gr</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + tax data 2017 from <a href="#">Christis and Koutentakis (2019)</a> + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Iceland	No new income data since 2015	EU-SILC, microdata	2016	2019	<a href="http://www.px.hagstofa.is">www.px.hagstofa.is</a> , tabulations	EUROSTAT 1995-2019, 1980-1999 UN SNA	Macro data 2016-2019 (constant fiscal income distribution 2015-2019)
Ireland	2017, 2018	EU-SILC, microdata	2015	2017	<a href="http://www.statbank.cso.ie">www.statbank.cso.ie</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2017-2018 + macro data 2017-2019 (constant fiscal income distribution 2018-2019)
Italy	2016, 2017	EU-SILC, microdata	2016 (new)	2018	<a href="http://www1.finanze.gov.it">www1.finanze.gov.it</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + tax data 2016 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Luxemburg	2016, 2017	EU-SILC, microdata	2012	2012	<a href="http://www.ces.public.lu">www.ces.public.lu</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant



							fiscal income distribution 2017-2019)
Malta	2016, 2017	EU-SILC, microdata		n/a	n/a	EUROSTAT 1997-2019, UN SNA 1980-2005	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Netherlands	2016, 2017	EU-SILC, microdata	2014	2014	<a href="#">Salverda (2019)</a>	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Norway	2016, 2017	EU-SILC, microdata	2011	2018	<a href="http://www.microdata.no">www.microdata.no</a> , microdata (available to Norwegian-based researchers), <a href="http://www.ssb.no">www.ssb.no</a> , tabulations	EUROSTAT & OECD 1980-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Portugal	2016, 2017	EU-SILC, microdata	2016, 2017 (new)	2018	<a href="http://www.pordata.pt">www.pordata.pt</a> , tabulations	EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + tax data 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Spain	2016, 2017	EU-SILC, microdata	2012	2018	<a href="http://www.agenciatributaria.es">www.agenciatributaria.es</a> , tabulations	EUROSTAT 1995-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Sweden	2016, 2017	EU-SILC, microdata	2013	2018	<a href="http://www.statistikdatabasen.scb.se">www.statistikdatabasen.scb.se</a> , tabulations	EUROSTAT & OECD, 1980-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)

Switzerland	2016, 2017	EU-SILC, microdata	2014	2016	<a href="http://www.estv.admin.ch">www.estv.admin.ch</a> , tabulations	EUROSTAT 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
United Kingdom	2016, 2017	EU- EU-SILC, microdata	2014	2018	<a href="#">Advani and Summers (2020)</a>	EUROSTAT 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
<b>Eastern Europe</b>							
Country	New years of survey data used	Survey data source and format	Last year of tax data used	Latest year of tax data available	Tax data source and format	Macro data	Type of update
Albania	2014, 2015, 2016, 2017	PovcalNet, tabulations				WID.world 1980-2019 (only GDP GNI, depreciation)	Survey tabulations 2014-2017 + macro data 2014-2019 (constant fiscal income distribution 2017-2019)
Bosnia & Herzegovina	2015	PovcalNet, tabulations				WID.world 1980-2019 (only GDP GNI, depreciation)	Survey tabulations 2015 + macro data 2015-2019 (constant fiscal income distribution 2015-2019)
Bulgaria	2016, 2017	EU-SILC, microdata				EUROSTAT 1999-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Croatia	2016, 2017	EU-SILC, microdata	2013	2013	<a href="#">Kump and Novokmet (2018)</a>	EUROSTAT 2002-2019, UN SNA 1996-2001	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)

Czech Republic	2016, 2017	EU-SILC, microdata	2015	2018	<a href="http://www.financnisprava.cz">www.financnisprava.cz</a> , tabulations	EUROSTAT 1995-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Estonia	2016, 2017	EU-SILC, microdata	2016, 2017 (new)	2018	<a href="http://www.emta.ee">www.emta.ee</a> , tabulations	EUROSTAT 1995-2019, UN SNA 1980-1994 (only GDP GNI, depreciation)	Survey microdata 2016-2017 + tax data 2018 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Hungary	2016, 2017	EU-SILC, microdata	2008	2008	Top shares by <a href="#">Mavridis and Mosberger (2017)</a>	EUROSTAT & OECD 1995-2019, UN SNA 1991-1994 (only GDP GNI, depreciation)	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Kosovo	2014 - 2017	PovcalNet, tabulations				WID.world 1999-2019 (only GDP GNI, depreciation)	Survey tabulations 2014-2017 + macro data 2014-2019 (constant fiscal income distribution 2017-2019)
Lithuania	2016, 2017	EU-SILC, microdata				EUROSTAT & OECD 1995-2019, 1993-1994 UN SNA	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Latvia	2016, 2017	EU-SILC, microdata				EUROSTAT & OECD 1995-2019, UN SNA 1980-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
North Macedonia	2015-2017	PovcalNet, tabulations				WID.world 1980-2019, UN SNA 1990-1993, 1997-2011	Survey tabulations 2015-2017 + macro data 2015-2019 (constant fiscal income distribution 2017-2019)

Moldova	2016 - 2018	PovcalNet, tabulations				WID.world 1980-2019	Survey tabulations 2016-2018 + macro data 2016-2019 (constant fiscal income distribution 2018-2019)
Montenegro	2015	PovcalNet, tabulations				WID.world 1980-2019	Survey tabulations 2015 + macro data 2015-2019 (constant fiscal income distribution 2015-2019)
Poland	2016, 2017	EU-SILC, microdata	1992-2015 (new)	2017	Revised shares provided by <a href="#">Bukowski and Novokmet (2019)</a>	EUROSTAT & OECD 1996-2019	Survey microdata 2016-2017 + revised top shares 1992-2015 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Romania	2016, 2017	EU-SILC, microdata	2014	2014	Shares by <a href="#">Andrei, et al. (2017)</a>	EUROSTAT 1995-2019, UN SNA 1990-2017	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Serbia	2016, 2017	EU-SILC, microdata	2017	2018	Shares provided by Statistical Office of the Republic of Serbia	WID.world 1980-2019, EUROSTAT 2016-2017, UN SNA 1997-2011	Survey microdata 2016-2017 + macro data 2016-2017 (constant fiscal income distribution 2017-2019)
Slovenia	2016, 2017	EU-SILC, microdata	2012	2018	Shares 1991-2012 provided by <a href="#">Kump &amp; Novokmet (2018)</a> . further microdata access possible through Statistical Office of Slovenia	EUROSTAT & OECD 1995-2019	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)
Slovakia	2016, 2017	EU-SILC, microdata				EUROSTAT & OECD 1995-2019, UN SNA 1992-1994	Survey microdata 2016-2017 + macro data 2016-2019 (constant fiscal income distribution 2017-2019)

