Nowcasting income indicators during the pandemic (FE 2020)
Methodological developments

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Acknowledgements:

This methodological paper focuses on the updates to the nowcasting methodology put in place in order to capture the impact of COVID-19 on income inequalities in 2020.

We appreciate the support of National Statistical Institutes, which provided new data on the short term monetary schemes. Many thanks to our colleague Hannah Kiver, which provided detailed information and methodological support for the use of labour market indicators

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Eurostat

Aura LEULESCU*, Mihaela AGAFITEI*, Andrea GALLELLI*, *Adriano DI GUGLIELMO***, *Francesca DEMONTIS***

*EUROSTAT

** *SOGETI*

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1. Introduction

Providing timelier social statistics – especially indicators on income poverty and inequality – is a priority for the Commission and the European Statistical System.

Indicators on poverty and income inequality are based on EU statistics on income and living conditions (EU-SILC). These indicators represent an essential tool to prepare the European Semester (the annual cycle of economic policy coordination between EU countries).

In 2021, EU-SILC income indicators for 2019 (SILC 2020) will be available for all countries by autumn, which is late for the EU's policy agenda. Efforts for improving the timeliness of EU-SILC data are ongoing but the collection and processing of EU-SILC data based on both survey and administrative sources, will always have a certain time lag.

A new approach was therefore proposed, which consists in the development of flash estimates. Flash estimates have already been developed at EU level in relation to macro-indicators such as early releases of the GDP growth[1] and inflation rate[2]. However, in our case the focus is on the distributional changes and this implies the use of models that allow the estimation of the entire distribution and capture the complex interaction between labour market developments, the effects of economic and monetary policies and the implementation of social reforms. The standard microsimulation approach in the frame of the flash estimates exercise is based on previous work done by ISER, University of Essex (Rastrigina, O., Leventi, C., Vujackov S. and Sutherland, H., 2016) and was being further developed by Eurostat in collaboration with them and the Task Force on "Flash estimates on income distribution". For more details see also the methodological note 2019.

This document focuses on the methodological developments put in place for producing flash estimates for the income year 2020, in the context of the current sanitary crisis. Flash estimates 2020 are still based on the same approach, namely microsimulation. However, the standard nowcasting methodology is enriched with a series of adaptations and model developments related to the current context.

The production of early estimates relies on estimating the effects of two main impacting factors:
1) the impact on the labour market- employment income evolution is modelled by Eurostat based on detailed distributional information on the loss of jobs and short-term work schemes from the Labour Force Survey and administrative data collected by Eurostat on the number of beneficiaries of different wage compensation schemes[3].
2) the impact of social policies, and in particular temporary policy measures introduced in different countries in order to support households' income and workers affected by the COVID-19 economic shutdown. Government transfers are simulated via the EUROMOD tax

[1] https://ec.europa.eu/eurostat/statistics-explained/index.php/Preliminary_GDP_flash_estimate_in_30_days_for_Europe
[2] https://ec.europa.eu/eurostat/statistics-explained/index.php/Inflation_in_the_euro_area#Flash_estimate_and_full_HICP_data

benefit model[3], which takes into account the most recent policy changes introduced during the pandemic.

For two countries the flash estimates are based on national sources:

- For Romania, flash estimates are based on **current income information** collected in HBS[4] (Household Budget Survey-RO). This differs from traditional EU-SILC income indicators as information is collected via a small set of questions that refer to the current reference period (e.g. current month).
- For Sweden, a national microsimulation model was used.

It is important to highlight that the uncertainty of the early estimates is particularly high in the current context and a number of caveats should be considered: incomplete information and model errors for the estimation of income from work; simulation of losses and compensation schemes for self-employed; over-simulation of benefits related to compensation schemes and assumptions of full take-up of benefits; lack of information on the informal economy and workers that fell outside the safety net of the tax-benefit system.

In the next sections, more details on the specific methodological developments related to the two main impacting factors are provided. First, we describe the labour transitions methodology that was adjusted to account for infra-annual spells of unemployment or periods of absence due to the sanitary crisis. We can therefore estimate losses for individual employment income by detailed characteristics: e.g. age, sex, sector of activity. Second, we rely on EUROMOD for estimating the impact of social policies and the extent to which the losses in income from work have been alleviated. While short-term schemes implemented across the EU countries to protect the labour market have a prime role for stabilizing wages, other social benefits contribute to the overall evolution in income indicators. For example minimum income schemes or large increase in pensions lead to different patterns across countries concerning the relative effect of different social benefits.

[3] EUROMOD is a tax-benefit microsimulation model for the European Union and UK that enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country and for the EU as a whole.

[4] http://statistici.insse.ro/shop/index.jsp?page=tempo2&lang=en&context=20

2. Effects on the labour market and employment income

The update of labour in the standard flash estimates methodology is either based on reweighting or labour transitions at individual level. The first one consists in the derivation of a new vector of sample weights in order to meet control totals for the policy simulation year for a set of main socio-demographic variables (Immervoll et al., 2005). In the second one changes in employment are modelled by explicitly simulating transitions between labour market states (Figari et al., 2011; Fernandez Salgado et al., 2013; Avram et al., 2011). In the case of the flash estimates, this is a country dependent choice based on the ability of the model to accurately capture SILC changes in the past.

For the analysis of the COVID-19 effects in 2020, this methodology was adjusted in order to take into account specific factors to the current crisis. The first choice was to rely exclusively on individual labour transitions, a methodology preferred in the case of a labour market shock.

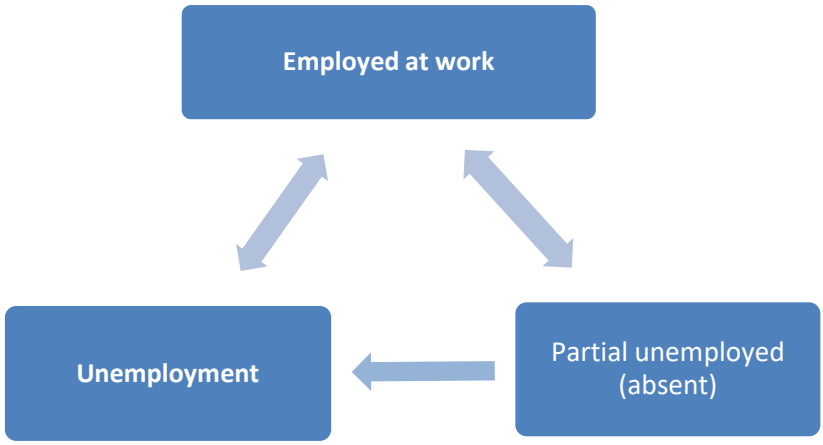
Types of transitions

There are four types of transitions, among which the last one is specific to the current COVID-19 crisis (4).

1) From non-employment to employment
2) From employment/self-employment to short-term unemployment
3) From short-term unemployment to long-term unemployment
4) From employment/self-employment to monetary compensation schemes

The information on the labour markets entering the model was extended to include not only transitions into/out of employment, but also workers under some kind of partial unemployment/furlough. In the latter category there are workers still employed, but temporarily absent from work or working reduced hours, due to the lockdown. These are often covered by short-time work monetary compensation schemes or similar measures (e.g. partial or temporary unemployment schemes, furlough) put in place or activated by the government in order to preserve jobs across EU.

The diagram below shows the types of transitions allowed between three different states:



In terms of data sources it is important to note a few aspects:

a) ***For the first type of transition (Into/out of employment):*** We use detailed quarterly LFS data for net changes[5] in employment broken down by sex, age, sector of activity and type of contract[6].

b) ***For the second type of transition (into/out partial unemployment or absent),*** we have used combined administrative data[7] and LFS data in order to assess the effects in income from work for people doing transitions to short-term monetary compensation schemes put in place by governments. LFS proxy indicator was used to further distribute overall numbers from administrative data. The primary source contains monthly administrative data provided by Member States to Eurostat via an ad-hoc data collection on the total number of jobs supported by governmental measures. These are jobs in public and private sectors, which are financially compensated, at least partially, by government funds that may transit or not through the employer. The data refers to stocks and the reference period is the end of the month.

All transitions considered above are quarterly, in order to capture infra-annual movements. Figure 1 shows the quarter on previous quarter change due to both transitions to unemployment and absences from work (or reduced working hours). After the peak in the

[5] Net changes are preferred because of the EU-SILC sample size
[6] Breakdowns might differ function of the sample size from country to country
[7] *https://ec.europa.eu/eurostat/documents/10760954/11071228/Job_benefiting_from_Covid19_governmental_support_measures.xlsx*

second quarter, we note an increase in the third quarter, and relative stability in the last quarter. Losses in the yearly income are mainly due to people absent from work in the first semester.

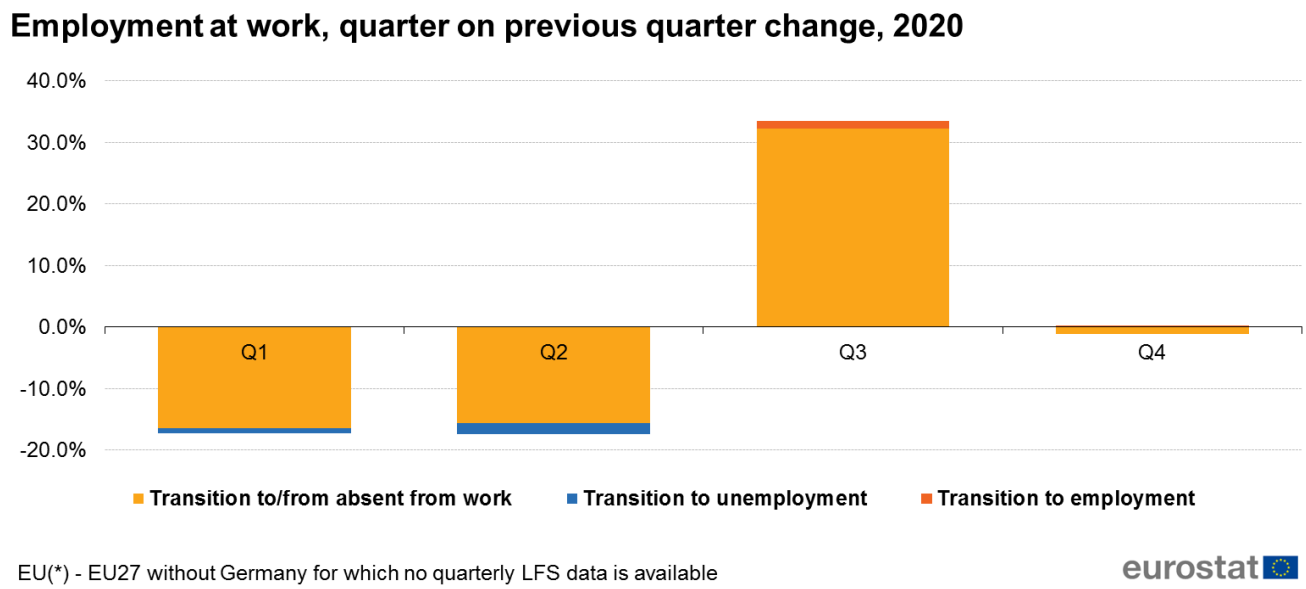


Figure 1

Duration of transitions: estimation of yearly spells of unemployment and/or absence from work.

It is important to note that we rely on quarterly transitions in order to approximate "the calendar of activities during year 2020" at individual level. Given that the change in the employment income to be estimated in SILC it is a yearly variable, it was important to quantify not only the transition but also the duration. The employment income is reduced proportionally to the number of month "lost" either due to (1) spells of unemployment during 2020 modelled via quarterly transitions into unemployment/employment (2) spells of absence from work/partial unemployment related to the sanitary measures put in place in the current context.

Figure 2 shows the impact in terms of "months lost" either due to transitions to unemployment or due to absences.

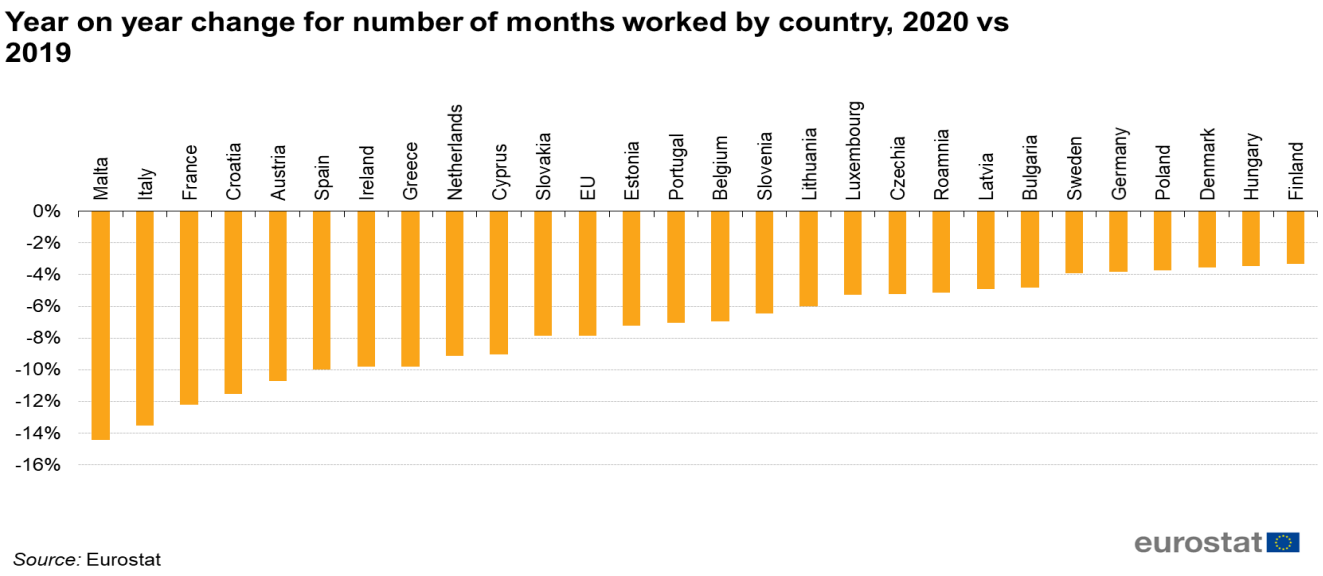


Figure 2

Figure 3, here below, further explains the decrease in number of month worked registered in 2020 compared with the previous year, by showing at country level the major causes of this reduction (absence from work, transition into/out of employment or a combination of the first two).

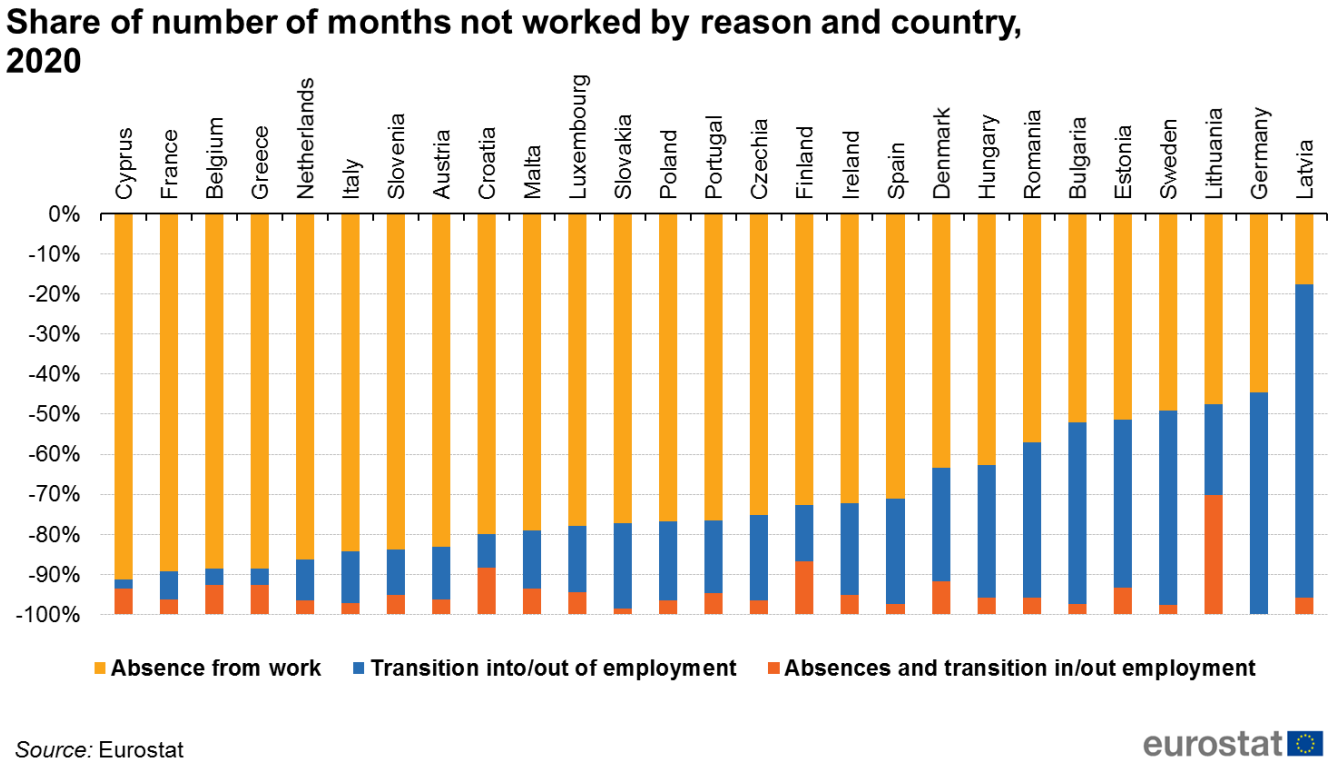


Figure 3

Double transitions: from employment → monetary compensation schemes → unemployment

In addition, we are including information on data flows based on longitudinal information on labour market flows[8]. This is used to calculate the percentage of people undergoing double transitions[9]: e.g. people under temporary schemes and after going to unemployment. The individual goes through quarterly transitions and the information is cumulated in a variable that summarises the estimated number of month in employment and/or absence.

Figure 4 shows the share of people that, after moving into monetary compensation scheme (absent from work or working reduced hours), are finally losing their job and moving into unemployment.

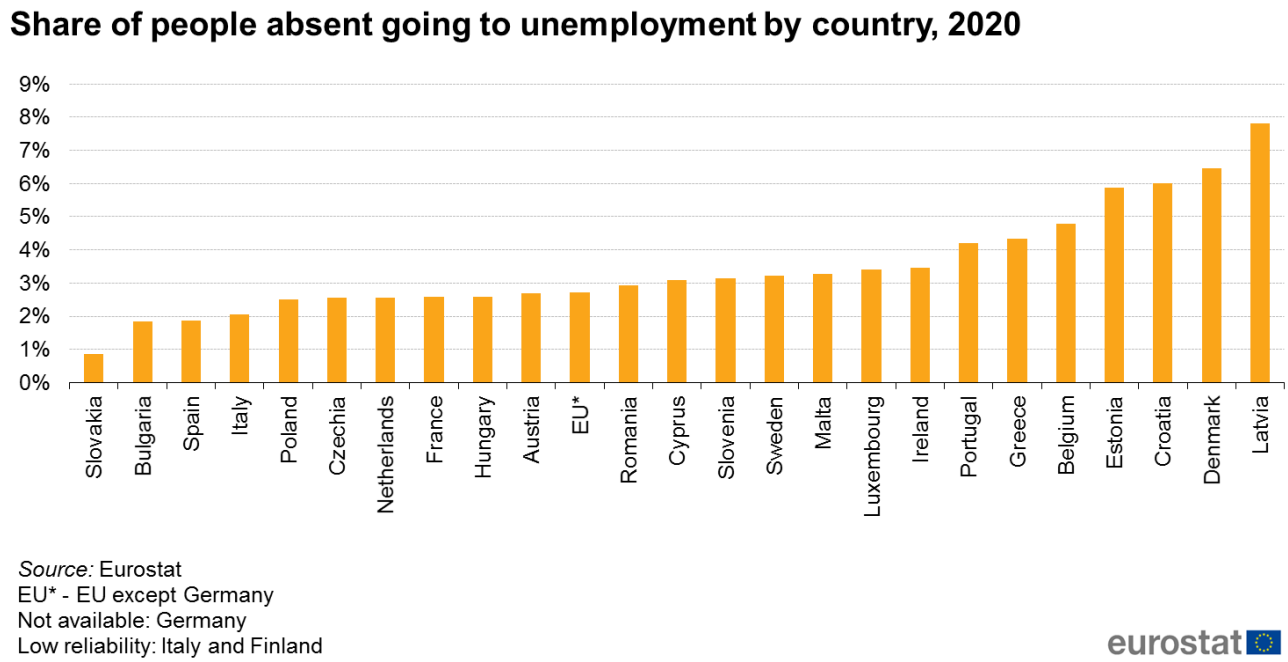


Figure 4

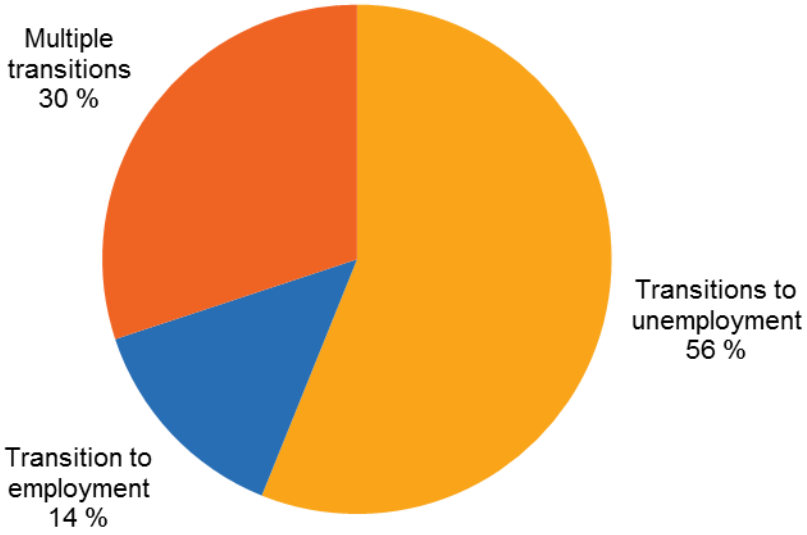
[8] Statistics | Eurostat (europa.eu)

[9] Currently this is limited to transitions from absent to unemployment. The other types of double transitions cannot be modelled in EUROMOD

Multiple transitions

The following chart (figure 5) shows the composition of the population of individuals undergoing labour transitions to unemployment-employment. It is important to note that for our models we have used longitudinal quarterly information from LFS to model multiple transitions and have a better view of infra-annual movements. Multiple transitions (in dark orange) concern people who had less stability across quarters, moving from unemployment to employment and back or *vice versa*.

Quarterly transitions into/out of employment, EU, 2020



Source: Eurostat

eurostat

Figure 5

Labour transition effects across the distribution

Finally, these overall trends are translated in distributional information by (1) assessing the risk of individuals either to lose their job or (2) to have reduced working time in the second quarter. We model via a logistic regression at individual level for all countries these probabilities. The main impacting factors used in the model are age groups, sex, economic sector, occupation and type of contract (temporary vs permanent). Probabilities are finally imputed in the baseline SILC file using the common labour and demographics characteristics.

For people absent or working reduced hours we combine overall targets from administrative data with proxy indicators on absences and reduced working hours available in LFS quarterly microdata. This allowed further disaggregating the targets for short-term (monetary compensation) schemes by sector (when not available in administrative data), sex and age. In addition, survey data from LFS covers also information on self-employed by sector. It is important to note that the indicator for self-employed represents mainly a measure of the effect of the pandemic in terms of reduced working hours. It is less straightforward to link the number of self-employed absent with the number of beneficiaries of different work schemes put in place by the government.

Both detailed targets and the probabilistic selection allow to "distribute" the labour risks for workers and households at different parts of the income distribution.

Figure 6 shows the sectors more affected in terms of number of months worked. It is important to note that while we assess the total number of people transitioning there is a peak in April, which is rather high for most countries, and in several sectors. However, the chart below it shows that sectors "food and accommodation" and "arts and entertainment" are those affected longer with a larger impact at yearly level.

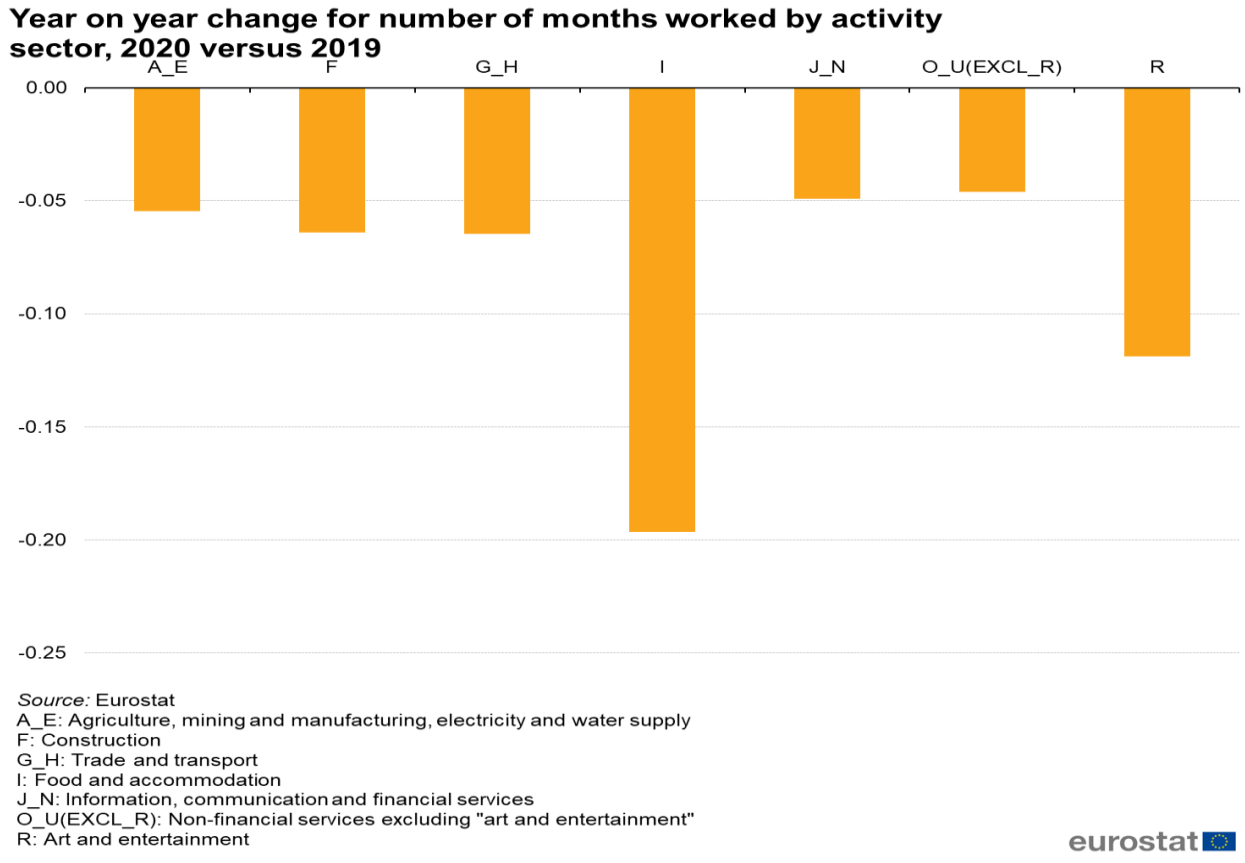


Figure 6

Figure 7 shows the percentage decrease of number of months worked by age groups, compared to the previous year. We note a much larger impact for the young workers in most countries.

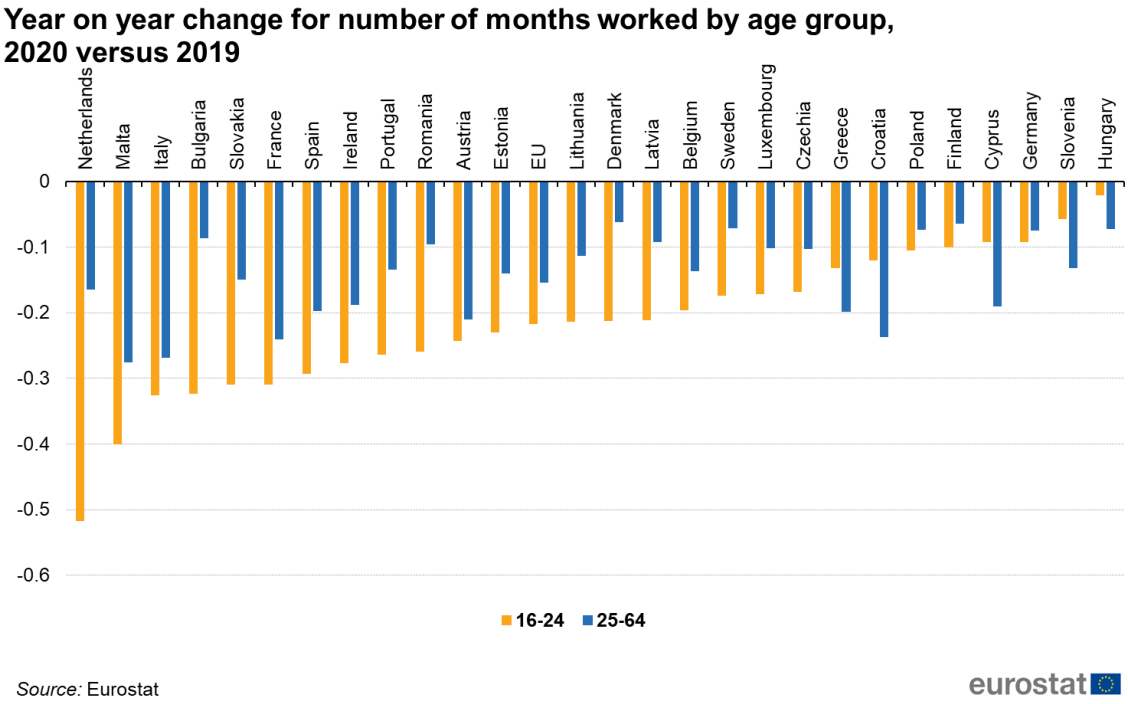


Figure 7

*Estimates for e*mployment income, after labour transitions

The labour transitions translate in simulated losses for employment income (both employees and self-employed). These are largely due to people absent from work for a certain duration but also spells of unemployment, in particular in the first Semester. Figure 8 shows how the decrease in employment income (before the simulation produced by tax and benefit model) is distributed across quintiles for the working population.

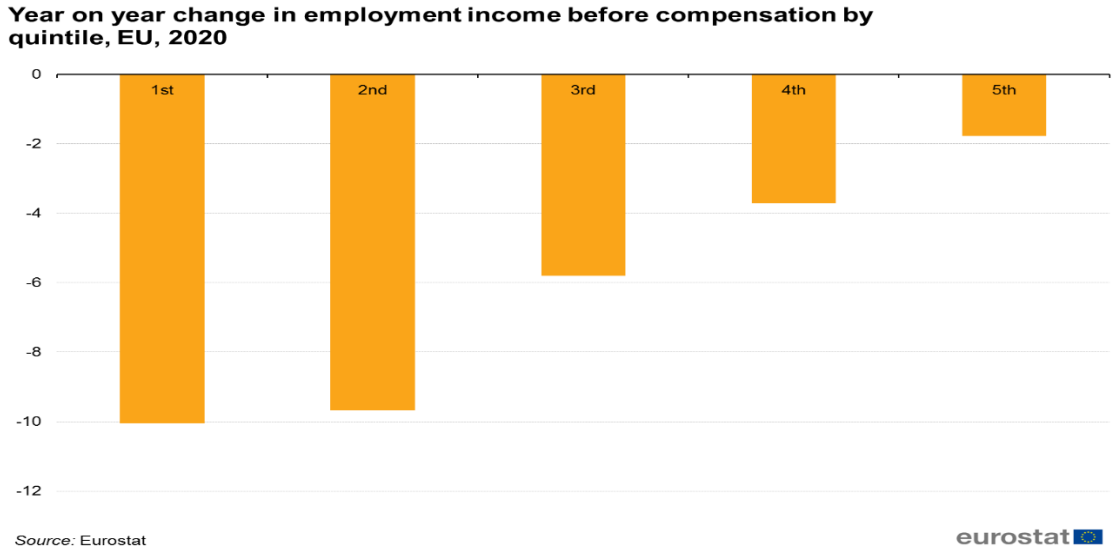


Figure 8

3. Policies via EUROMOD

The simulation of policies is done via EUROMOD I3.0+, the European Union tax-benefit microsimulation model. Originally maintained, developed and managed by the Institute for Social and Economic Research (ISER), since 2021 EUROMOD is maintained, developed and managed by the Joint Research Centre (JRC) of the European Commission, in collaboration with EUROSTAT and national teams from the EU countries.

EUROMOD is used to simulate changes in the income distribution within the period of analysis. All simulations are carried out on the basis of the tax-benefit rules in place in the given policy year.

Income elements simulated by the model include universal and targeted cash benefits, social insurance contributions and personal direct taxes. Income elements that cannot be simulated mostly concern benefits for which entitlement is based on previous contribution history (e.g. pensions) or unobserved characteristics (e.g. disability benefits). These are read from the data and updated according to statutory rules (such as indexation rules) or changes in their average levels over time. More detailed information on EUROMOD and its applications is available here[10].

Covid-related policies

In the current context, EUROMOD contains most of the discretionary policy measures exceptionally introduced or activated by national government to address the COVID-19 economic challenges, in particular, policies to preserve jobs and stabilise the wages.

In EUROMOD, there are 25 EU countries with a wage compensation scheme for employees implemented to mitigate the loss of employment income. The exceptions are the Netherlands and Finland:

- In the Netherlands, the compensation scheme NOW (Noodmaatregel Overbrugging Werkgelegenheid, Emergency measure bridging employment) subsidizes the wage cost of employers. EUROMOD does not simulate this wage compensation scheme, because employers are assumed to continue to pay 100% of the wages.
- In Finland compensation schemes are not in place for employees. Temporary laid off employees can apply for earnings-related unemployment benefit, if they are members of an unemployment fund and meet a specified work requirement. Otherwise, they can apply for unemployment benefit from the Kela (The National Social Insurance Institute). Finnish government implemented new benefits for parents who were forced to take unpaid leave because of childcare responsibilities or who returned from abroad to Finland and were forced to take unpaid leave between 16 March 2020 to 13 May

[10] [4] H. Sutherland and F. Figari, EUROMOD: the European Union tax-benefit microsimulation model. International Journal of Microsimulation, (2013), 6(1), 4-26

2020, but given the lack of information and the low number of recipients, this benefits was not simulated in EUROMOD. Also minor temporary changes to waiting period, maximum duration, and work requirement for earnings related unemployment benefit were not simulated in EUROMOD.

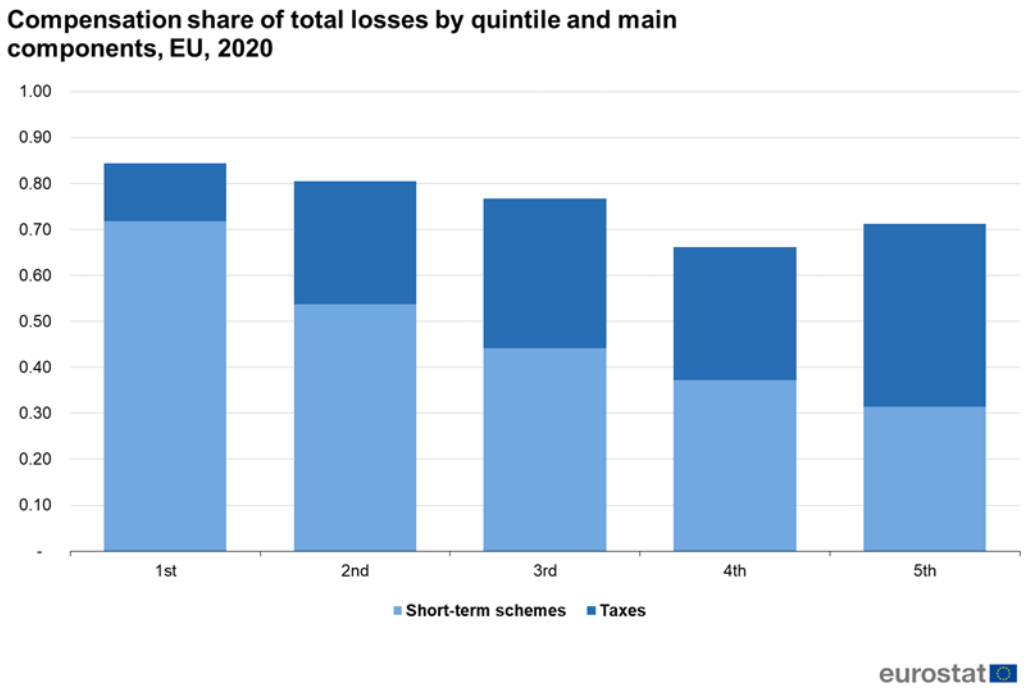
These schemes provide a monetary compensation to employees absent from work due to COVID-19 restrictions. The design of these compensation schemes differs by country:

- The compensations are paid solely by the State or both by the State and the firm (10 countries[11] have a compensation paid by the firm simulated in EUROMOD).
- Employees receive either a fixed amount (Greece, Croatia, Malta) or a percentage of their employment income or net earnings (Austria, Ireland) that replaces at least partially their employment income during the period that are unable to work. This percentage is often subject to a minimum (Belgium, Cyprus, Estonia, Spain, France, Luxembourg, Latvia, Portugal, Slovenia, Slovakia) and/or maximum compensation. This amount can also differ if there are dependent children in the household (e.g. Spain).

Income support to self-employed individuals, such as lump-sum transfers or monetary compensation for the income losses, is simulated for Belgium, Cyprus, Czechia, Denmark, Greece, Spain, Finland, France, Croatia, Italy, Malta, Portugal, Romania and Slovakia.

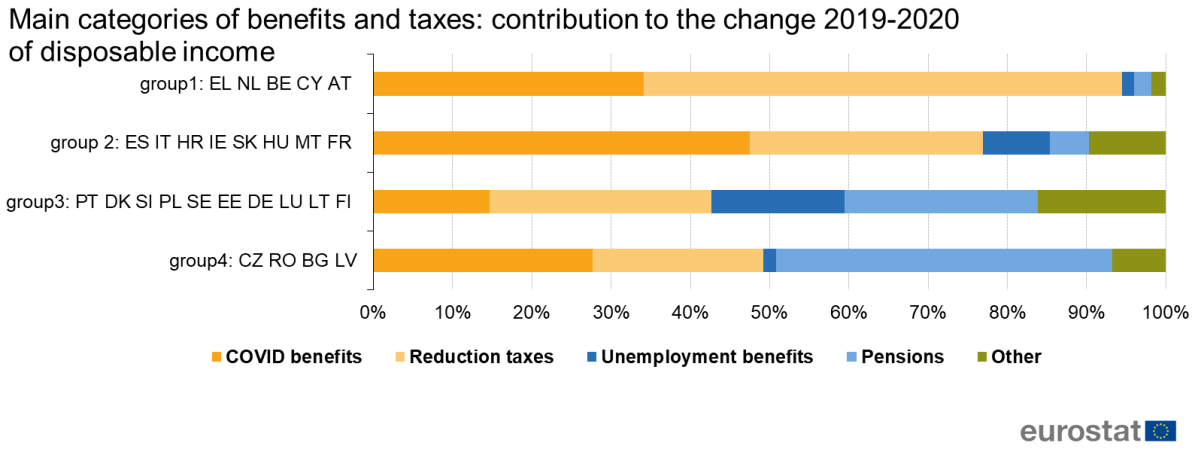
The general effect of such policies is measured with the *compensation share*. It indicates the extent to which the losses in income from work have been alleviated due to the short-term schemes implemented across the EU countries, as described above. At EU level, the overall compensation rate ranges between about 70 and 85 percent, and as shown in the following chart, it follows a progressive distribution, being higher for lower incomes. According to the country, these monetary transfers can be tax exempted, or particular tax regimes might be put in place during the crisis. In any case, when simulating the effect of labour policies in compensating the wage losses, also the reduction in taxes plays a significant role, as also shown in the chart below.

[11] Austria, Bulgaria, Czechia, Denmark, Estonia, Lithuania, Poland, Portugal, Sweden, Slovenia



While compensation schemes play a fundamental role to compensate employment income losses, they have a different weight in the overall disposable income in each country. Furthermore, there might be additional policies, such minimum income schemes, child allowances or changes in unemployment benefits and pensions that impact the estimated disposable income. It is worth specifying that the estimation keeps into account also these components, based on an integrated methodological framework, which aims at combining labour dynamics and social policies.

In this light, the chart below shows the extent to which these different polices and schemes contribute to the change between 2019 and 2020 in household disposable income. We can identify four main groups of countries, according to the role played by the different components.



In the first group, both the monetary benefits implemented during the COVID crisis and taxes are the two components that mainly contributed to the change in disposable income.

The positive effect of changes in taxes is related to two main reasons: (a) compensation schemes not being subject to income tax; (b) changes in tax legislation not related to the COVID-19 crisis, as in the case of Greece.

The second group is characterized by a stronger role of COVID benefits, with a combined contribution of unemployment benefits, increase in pensions and other social transfers. In countries such as Spain and Italy a central role is played by policies not necessarily related to the COVID crisis, but which are important instruments for supporting households' income (i.e. the extension to the *reddito di cittadinanza* in Italy and the *Ingreso Mínimo Vital* approved by the Spanish government in June 2020).

The third group is characterised by a more homogeneous role of the different components. The category "other" comprises monetary transfers typically oriented toward social exclusion or marginality conditions, but also temporary schemes that during the crisis integrated the labour policies with parental benefits, lump-sum transfers for childcare or to the elderly. For instance, in Slovenia a crisis allowance has been granted to workers who continued to work during the pandemic, and universal income has been assigned to self-employed and other beneficiaries (religious communities or insured farmers). Or in Luxembourg the State included in the compensation scheme parents of children under the age of 13 with no other options of childcare during the lockdown.

In the fourth group pensions play a major contribution in determining the disposable income change in 2020. Bulgaria and Czechia are the countries with the highest reduction in the At-Risk-of-Poverty rate for the age group 65+. This effect is mainly due to the important increases in pensions, for which EUROMOD estimates an increase in 2020 of 11 and 14 percent, respectively.

Model assumptions and limitations

A part of the uncertainty of the early estimates is related to the micro-simulation of benefits, in particular concerning the implementation of wage compensation schemes as a consequnce of a labour transition. In 13 EU countries we estimate that following the micro-simulation process, at least 10% of the working population has a compensated wage higher than in 2019. This is due to the fact that monetary transfers are modelled following the actual policy provisions, leading to a certain degree of "over-simulation".

Four explanatory cases can be highlighted.

1) Informal workers have no contracts and are not subject to regulation, and therefore to social insurance or tax regimes. In the data collection they report a salary and can be identified as employees, but when labour shocks occur, these workers are not protected and are excluded from temporary labour schemes. The micro-simulation is not always able to

detect individuals working under such conditions, and hence it computes wage compensation values even for workers who are not entitled to.

2) A similar case concerns employees with earnings below a national statutory minimum wage or self-employed when lump sums are provided. In the first case the simulation of benefits is computed in a way such that the compensated wage cannot be lower than the official minimum wage. Drawing from the methodology outlined by Brandolini et al. 2010, we estimate that in around 15 EU countries at least 10% of employees have a full-time equivalent salary below the national minimum wage. In such contexts, the new simulated wage might be actually higher than the original one, resulting in "over-compensation". For more details on the topic see also Fernandez-Macias and Vacas-Soriano (2016).

3) A third possible cause of over-simulation is the "full take-up" assumption. In some cases the effect of a policy might be modelled following the assumption that all the individuals or households who are eligible to a specific scheme, are receiving the benefit. As a result, the model runs the scheme "as if" 100% of the cases were recipients of the benefit, while in reality only a part of the cases might have actually access to it, for reasons such as delay in the implementation of the policy, administrative burden or other. The implementation of the minimum income in Spain in 2020 is one example where no adjustment is done at this stage for non take-up.

4) In some cases an income gain in 2020 is not necessarily related to the simulated wage compensation schemes, but to other policies that might have an effect on income. For instance, in the Austrian case, supplements to tax credit have been implemented in 2020, leading to an important decrease in taxes. A similar effect can be found in many EU countries that have implemented additional discretionary policies such as parental leave, one-off payments for children or the elderly as described in the previous section.

4. Appendix: main definitions new indicators and variables

Explanatory and disaggregation variables

In the table below there are the main variables used to estimate the probability to lose the job or to be absent/have reduced hours. These were also used for presenting the figures by different sub-groups.

Variable	Description	Type
Age	Age at the time of interview	Continuous
Gender	Male	Categorical
	Female	
Occupation[*)]	High skilled white collar (ISCO88 codes 1,2 and 3)	Ordinal
	Low skilled white collar (ISCO88 codes 4 and 5)	
	High skilled blue collar (ISCO88 codes 6 and 7)	
	Low skilled blue collar (ISCO88 codes 8 and 9)	
Economic sector (NACE rev2)	A: Agriculture, forestry and fishing	Categorical
	B-E: Manufacturing, mining, and other industry	
	F: Construction	
	G: Wholesale and retail trade; repair of motor vehicles and	
	H: Transportation and storage	
	I: Accommodation and food service	
	J: Information and communication	
	K-N: Finance and insurance; real estate; professional, sci	
	O-U (excluding R): Public administration, defence, educati	
	R: Arts and entertainment	
Employees	Employee with permanent contract	Categorical
	Employee with temporary contract	
Self-employed		Categorical
[*)] Occupation according to International Standard Classification of Occupation (ISCO_88(COM)) at 1 digit level		
1	Legislators, senior officials and managers	
2	Professionals	
3	Technicians and associate professionals	
4	Clerks	
5	Service workers and shop and market sale workers	
6	Skilled agricultural and fishery workers	
7	Craft and related trades workers	
8	Plant and machine operators and assemblers	
9	Elementary occupations	
10	Armed forced	

Current income

For Romania, FE 2020 are based on HBS data[12] . The Household Budget Survey (FBS) is organized as a continuous quarterly survey over a period of three consecutive months, based on a sample of 9504 permanent dwellings, divided into monthly independent sub-samples of 3168 permanent dwellings (per year the sample cover 38016 households). Response rate is around 80% -85%. The survey covered people with permanent residence in Romania, members of households in all counties and in Bucharest. Main variables collected are expenditures, incomes, endowment with durable goods and other demographic variables. Data are collected by face-to-face interview and self-registration for the diary. The support of data collection is the household questionnaires (CG) and the household diary (JG). The reference period for the data registration in the survey questionnaire and household diary is the calendar month (from the first to the last day of the month).

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6. Annex: intermediary indicators

The estimation process has been adapted to the exceptional conditions under the COVID-19 pandemic, as fully documented in the present methodological note. In these circumstances, indicators referring to employment income and social benefits have been of particular interest for users.

As annex to the main publication, we publish here the following indicators: quintile share ratio for employment income, average equivalised employment income by quintile, average equivalised disposable income by quintile and average equivalised gross income (i.e. income before taxes and after benefits) by quintile.

Employment income refers here to two components: income from employment and from self-employment, other components such as income from properties or capitals are not considered.

Furthermore, in the context of the COVID-19 pandemic, social benefits are simulated in two main components: monetary transfers from the governments to the firms and direct payments to the households. Indicators a) and b), do not include benefits from the governments to the firms (even if eventually these benefits have been redistributed from the employer to the employees), in order to provide figures that could account for the real impact of the crisis on the labour market before and after the policy interventions.

For all the indicators, the following equivalisation scale has been adopted: a weight of 1.0 is applied to the first member of the household aged 14 or more, 0.5 to the second and each subsequent member aged 14 or over, and 0.3 to each child aged less than 14.

The intermediate output indicators are disseminated with the point estimate of the year on year change; for the QSR this is calculated as absolute difference, while for the other indicators as percentage difference. Only the average equivalised disposable income is disseminated by interval as it is part of the main indicators of the Flash Estimates publication.

These are considered supporting information for the analysis (intermediary indicators) and they should be interpreted with caution taking into account the high uncertainty of model based estimates in current circumstances.

a) Quintile share ratio and average equivalised employment income by quintile, year on year change

COUNTRY	QSR	Q1	Q2	Q3	Q4	Q5
AT	0.95	-15.9%	-10.4%	-8.7%	-7.8%	-7.1%
BE	1.2	-19.9%	-12.3%	-7.5%	-4.6%	-2.9%
BG	1.08	-8.4%	-4.4%	-3.2%	-2.1%	-1.1%
CY	0.29	-10.7%	-11.1%	-9.6%	-8.7%	-7.2%
CZ	0.49	-10.2%	-5.9%	-4.9%	-3.6%	-2.1%
DE	0.67	-8.1%	-3.1%	-1.7%	-1.1%	-0.2%
DK	0.99	-2.7%	-2.9%	-0.3%	1.1%	0.1%
EE	1.22	-15.4%	-9.6%	-6.9%	-3.7%	-1.2%
EL	1.12	-18.7%	-14.3%	-11.0%	-9.3%	-8.0%
ES	1.72	-14.6%	-12.7%	-10.3%	-6.7%	-2.6%
FI	1.04	-8.7%	-6.7%	-3.7%	-2.5%	-1.4%
FR	1.43	-14.6%	-13.0%	-10.2%	-6.7%	-2.6%
HR	-	-	-	-	-	-
HU	0.52	-2.0%	-5.0%	-3.0%	-1.9%	-1.4%
IE	2.83	-21.2%	-10.9%	-6.9%	-3.8%	-1.1%
IT	1.99	-18.7%	-15.8%	-11.7%	-9.4%	-4.0%
LT	-	-	-	-	-	-
LU	0.44	-7.4%	-7.9%	-6.0%	-3.3%	-1.9%
LV	-	-	-	-	-	-
MT	-	-	-	-	-	-
NL	0.41	-6.0%	-3.7%	-2.5%	-2.2%	-0.9%
PL	0.4	-5.9%	-4.6%	-3.5%	-2.9%	-1.3%
PT	0.9	-11.7%	-9.6%	-7.0%	-4.5%	-2.2%
RO	-	-	-	-	-	-
SE	-	-	-	-	-	-
SI	0.77	-10.5%	-7.4%	-6.1%	-4.5%	-2.1%
SK	0.14	-8.3%	-7.5%	-7.8%	-6.2%	-5.6%

Unreliable estimates are omitted. RO and SE not produced, national estimates are available

b) Average equivalised disposable income by quintile, year on year change

	Q1		Q2		Q3		Q4		Q5	
COUNTRY	low	high	low	high	low	high	low	high	low	high
AT	0.08	2.96	0.09	1.91	1.31	2.67	0.85	2.53	-2.32	4.04
BE	-6.06	-0.12	-2.82	-1.28	-2.77	-1.47	-2.15	-1.15	-3.35	1.21
BG	1.43	8.17	1.41	3.71	0.39	2.45	-0.35	1.77	-11.10	10.38
CY	-5.21	0.01	-4.41	-2.15	-4.44	-2.50	-4.15	-2.15	-8.54	1.14
CZ	4.65	8.73	4.97	5.99	2.82	3.76	1.12	2.38	-2.08	3.86
DE	-0.99	4.45	1.03	2.21	0.71	1.69	0.41	1.45	-4.93	3.23
DK	-6.18	5.90	0.03	1.53	0.53	1.97	1.03	2.19	-5.50	6.40
EE	4.35	8.23	1.30	2.94	-1.00	0.64	-1.37	0.49	-2.02	2.48
EL	-6.03	-2.43	-4.03	-2.91	-2.65	-1.63	-1.43	-0.39	-3.82	3.04

ES	-	-	-2.35	-0.79	-2.28	-0.86	-2.43	-1.09	-4.23	1.57
FI	0.05	2.45	-0.50	0.62	-0.93	-0.03	-0.99	0.01	-3.68	2.66
FR	-	-	-	-	-	-	-	-	-	-
HR	-	-	-	-	-	-	-	-	-	-
HU	-4.75	5.25	-1.17	1.75	-0.48	1.18	-0.59	1.33	-4.34	5.86
IE	-8.41	-1.19	-1.33	1.55	-0.47	2.69	-0.65	2.33	-6.35	10.09
IT	-3.02	1.84	-3.84	-2.38	-3.48	-2.50	-3.08	-2.08	-4.04	1.30
LT	-	-	-	-	-	-	-	-	-	-
LU	-0.34	4.84	0.07	2.37	-0.36	1.86	-0.37	1.51	-5.44	4.96
LV	-	-	-	-	-	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
NL	-9.42	-2.10	-1.38	-0.18	-1.07	-0.07	-0.84	0.22	-3.22	4.78
PL	2.19	7.11	5.62	7.02	6.11	7.19	5.74	6.94	2.93	6.53
PT	-2.64	0.92	-0.95	0.77	-0.52	0.58	-1.04	0.62	-3.02	2.50
RO	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-	-	-	-
SI	-0.03	2.51	2.19	3.29	1.81	2.79	1.63	2.53	-0.15	4.57
SK	-3.15	4.57	1.07	2.69	0.69	1.85	-0.02	1.44	-2.39	1.83

Unreliable estimates are omitted. RO and SE not produced, national estimates are available

c) Average equivalised gross income by quintile, year on year change

COUNTRY	Q1	Q2	Q3	Q4	Q5
AT	-0.80%	-2.40%	-1.00%	-2.70%	-4.00%
BE	-3.90%	-3.60%	-4.70%	-3.40%	-2.10%
BG	5.50%	1.50%	0.70%	0.10%	-0.60%
CY	-2.70%	-4.00%	-4.20%	-3.70%	-4.70%
CZ	4.80%	4.20%	1.00%	-0.60%	-0.50%
DE	0.70%	0.50%	0.30%	0.20%	-1.70%
DK	0.40%	1.50%	2.10%	2.20%	0.60%
EE	7.20%	1.60%	-0.70%	-0.80%	0.10%
EL	-5.50%	-6.10%	-4.70%	-4.00%	-4.70%
ES	-	-4.50%	-4.00%	-3.50%	-2.30%
FI	0.50%	-1.00%	-1.10%	-0.90%	-0.70%
FR	-	-	-	-	-
HR	-	-	-	-	-
HU	-1.80%	-0.50%	-0.20%	-0.40%	-0.40%
IE	-5.50%	-1.20%	-0.50%	-2.50%	0.20%
IT	-1.00%	-4.60%	-4.20%	-3.70%	-2.10%
LT	-	-	-	-	-
LU	2.50%	1.30%	0.70%	0.50%	-0.60%
LV	-	-	-	-	-
MT	-	-	-	-	-
NL	-2.70%	-1.40%	-1.80%	-1.90%	-0.80%
PL	2.20%	2.80%	3.30%	2.40%	1.50%
PT	-0.90%	-0.60%	-0.60%	-0.70%	-0.70%
RO	-	-	-	-	-

SE	-	-	-	-	-
SI	1.40%	2.20%	1.10%	0.10%	0.00%
SK	0.80%	0.90%	-0.80%	-1.30%	-1.90%

Unreliable estimates are omitted. RO and SE not produced, national estimates are available