DigiGen

Digitally deprived children in Europe

Digital Citizenship Plus seminar series

Family SES and the Digital Wellbeing of Learners

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Introduction

- The COVID-19 pandemic has completely changed the need for internet connectivity and for technological devices across the population, but particularly among children.
- In an attempt to halt the spread of the virus, many countries have moved part or all their teaching online.
- Therefore, nowadays, for many children, having a computer connected to the internet makes the difference between being able to keep up with their education and falling badly behind.
- But not all children in Europe have either a computer or an internet connection.
- According to the latest wave available of the EU-SILC, on average, in 2019, 5.3% of children in Europe are digitally deprived: that is, they live in a household that cannot afford to have a computer and/or live with adults who claimed they could not afford to have an internet connection for personal use at home.
- Our paper provides a detailed account of who the digitally deprived children in Europe are, where they live and what the associated risk factors of such deprivation are.

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Literature review

- Much of the work on digital inequality — or, more specifically, the digital divide — has focused on access (the “first-level” digital divide), which was assumed to be largely resolved (Paus-Hasebrink et al., 2019; van Deursen and Helsper, 2015).
- This prompted a move to focus research on digital use and digital competencies, understood as “digital skills” and often referred to as the “second-level” digital divide (Hargittai, 2002; Ronchi and Robinson, 2019).
- However, the pandemic has shown us that the assumption that “now everybody has access to and can use the internet” (van Deursen et al., 2011, p. 126) is inaccurate; instead, it has served to demonstrate that children still face inequalities in access, leading to digital exclusion — or what we call “digital deprivation”.

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Literature review

- Despite the heterogeneity of the definitions and levels of the digital divide, for the purposes of this article we adhere to the definition provided by the Organization for Economic Co-operation and Development (OECD, 2001) which interprets the digital divide as “the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities”.

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Data

- The database used in our study is the European Union - Statistics on Income and Living Conditions (EU-SILC) (in its cross-sectional form) provided to researchers by Eurostat.
- Most of the analysis focuses on the last wave of data available, 2019, but results from regressions refer to the last five years.
- The EU-SILC has several advantages for the purposes of our analysis:
  (i) it allows a comparative analysis across Europe, with evidence for 32 countries,
  (ii) it provides very detailed information on the socio-economic background of children, as it includes data on household income, parental characteristics (such as labour market attachment), household structure, material deprivation, etc.
  (iii) it allows us to track changes over time.

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Data

- The information relative to digital deprivation is contained in two variables:
- *HS090* collects, at the household level, the answers to the question “Does your household have a computer?”. Household respondents can answer “yes” or “no”. If the answer is negative, the question continues as follows: “If you do not have a computer: (a) Would you like to have it but cannot afford it? or, (b) Do you not have one for other reasons e.g. you do not want or need it?”
- *PD080* collects, at the individual level, the answers to the question “Do you have an Internet connection for personal use when needed?”. In this case, all adult members in the household can answer “yes” or “no”. And, again, if the answer is negative, they are asked whether it is because of unaffordability or because of other reasons.

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Data

- We define as “digitally deprived” those children that either live in a household that cannot afford to have a computer and/or live with adults that cannot afford internet connection.
- EU-SILC is the only data set that we know of that records **enforced lack**; thus, it is clearly stated that the members of the household would like to have a given item, but cannot afford it (Mack and Lansley, 1985; Marlier et al., 2007).

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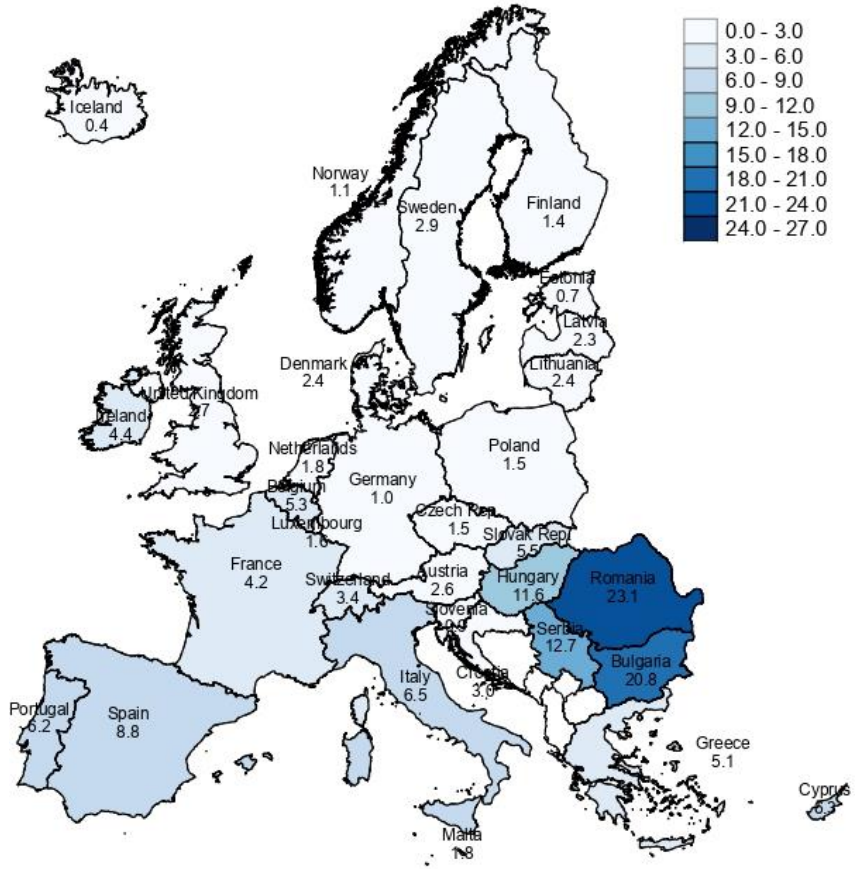
Children’s digital deprivation across countries and over time

- On average, 5.3% of children in Europe are digitally deprived
- Differences across Europe of digital deprivation among school-aged children are large.
- The choropleth map shows two country clusters with a certain North-South divide.

Figure 1: Percentage of digitally deprived school-aged children (6-16), Europe, 2019



Source: Ayllón et al. (2021)

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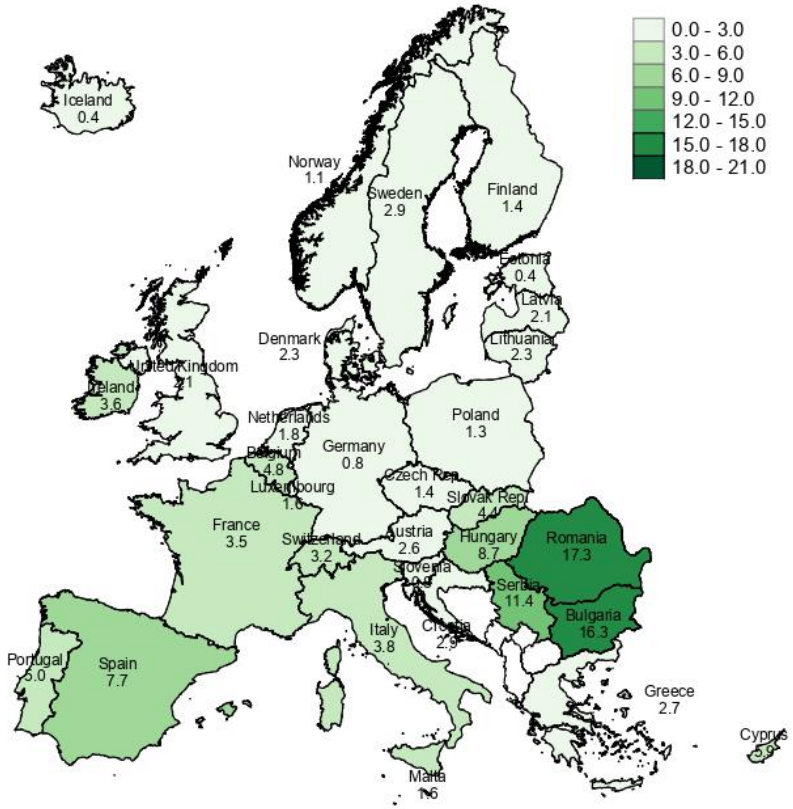
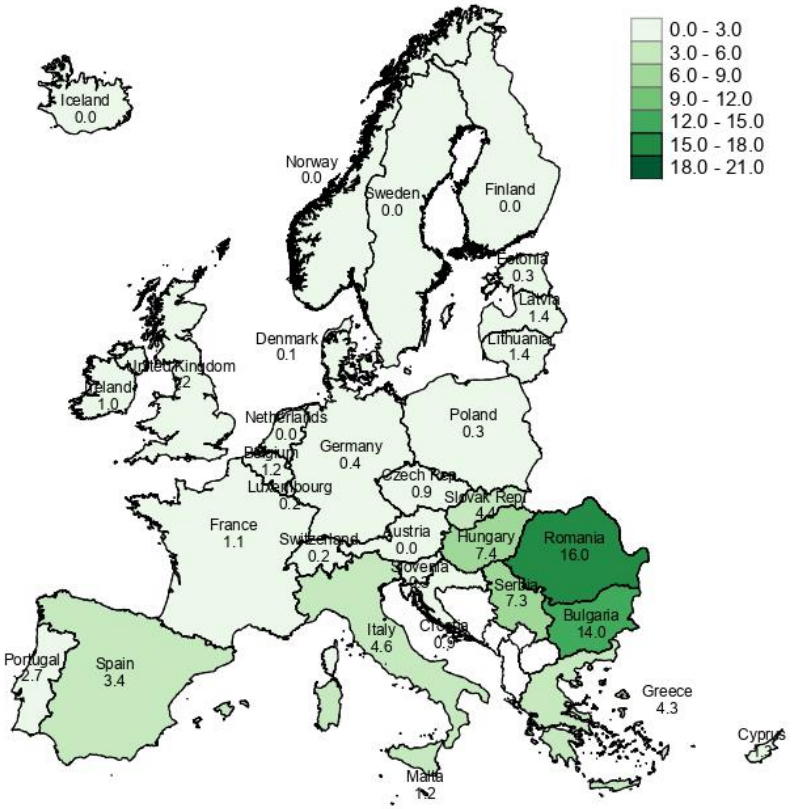
Children’s digital deprivation across countries and over time

Figure 2a: Percentage of school-aged children (6–16) who live in a household that cannot afford a computer, Europe, 2019.



Source: Ayllón et al. (2021)

Figure 2b: Percentage of school-aged children (6–16) who live in a household that cannot afford an internet connection, Europe, 2019.



Source: Ayllón et al. (2021)

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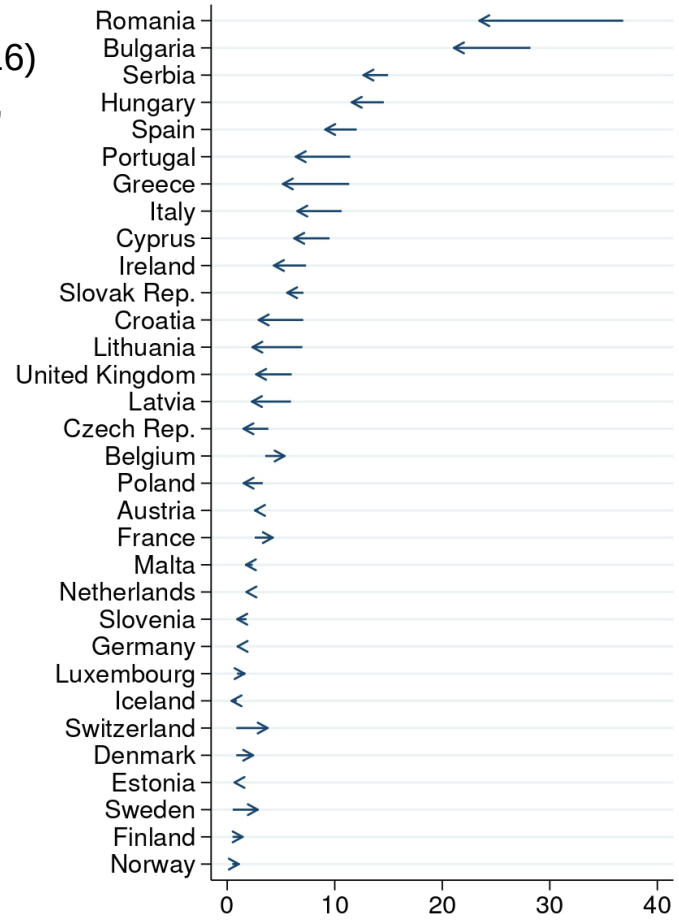
Children's digital deprivation across countries and over time

- Of the two items, it is the inability to have a computer at home which mostly drives the overall results.
- The great majority of countries — and particularly those most affected by the problem — have moved in the right direction.

Figure 3: Percentage of school-aged children (6–16) digitally deprived, Europe, 2015–2019



Source: Ayllón et al. (2021)

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Who are the digitally deprived children in Europe?

- We consider six household characteristics that could potentially be associated with digital deprivation: the child lives
  - (i) in a single-parent household
  - (ii) in a poor family
  - (iii) in a severely materially deprived household
  - (iv) with at least one parent of non-European origin
  - (v) with parents that have at most lower secondary education
  - (vi) with at least two other siblings under the age of 18.

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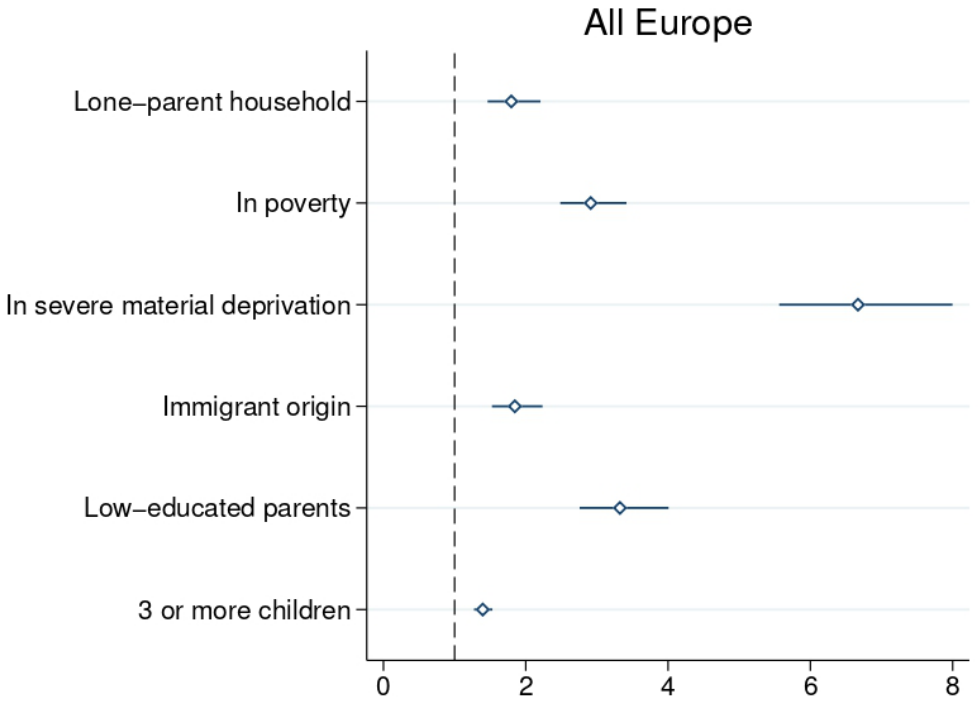
Who are the digitally deprived children in Europe?

- At the European level one characteristic clearly stands out as being very closely linked to children's digital deprivation: living in severe material deprivation. That increases the risk of suffering digital deprivation by a factor of 6.7. Being poor and having low-educated parents are also relevant factors — these variables multiply the risk of being digitally deprived by a factor of 2.9 and 3.3, respectively.
- All other risk factors considered are positive (albeit at a lower level) and statistically significant at 99%.

Figure 4: Probability of being digitally deprived, by socio-economic characteristics in school-aged children (6–16 years), Europe, 2015–2019



Source: Ayllón et al. (2021)

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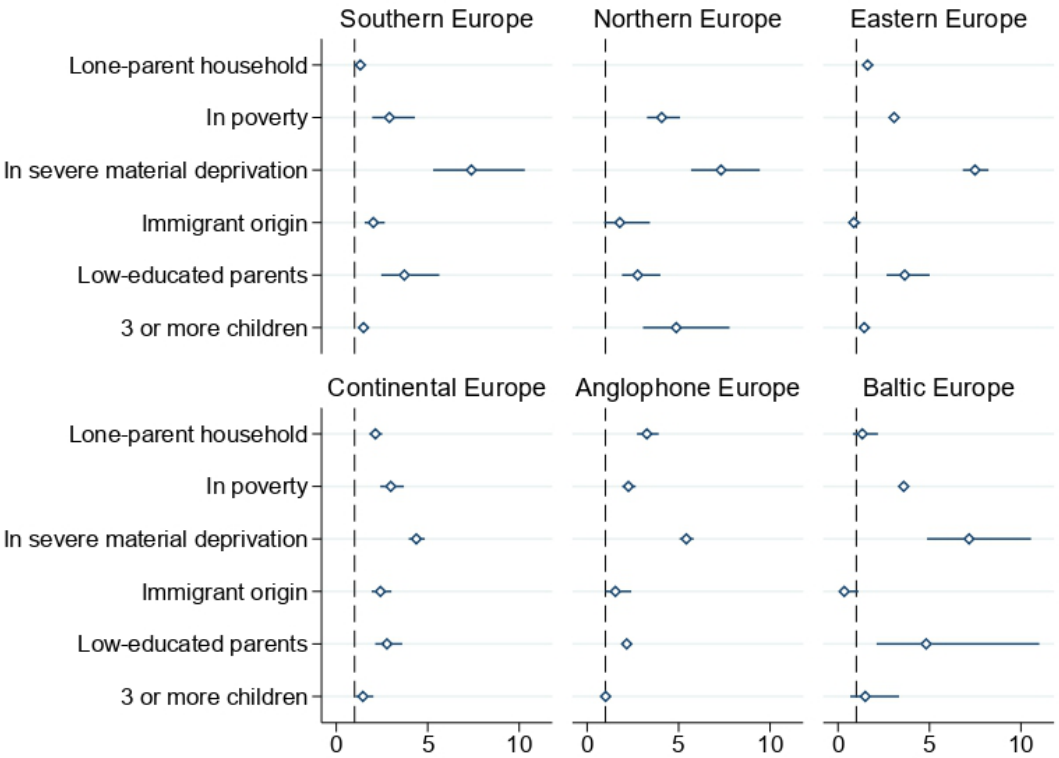
Who are the digitally deprived children in Europe?

- We find that the large bulk of the risk factors considered are positively linked to digital deprivation — though the strength of the association varies by context.
- In all groups of countries, the characteristic most strongly associated with digital deprivation is living in a household with severe material deprivation.

Figure 5: Probability of being digitally deprived, by socio-economic characteristics in school-aged children (6–16 years), European country clusters, 2015–2019



Source: Ayllón et al. (2021)

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Who are the digitally deprived children in Europe?

- Poverty is also a strong determinant of digital deprivation among school-aged children, though with a similar effect in all the country clusters analysed.
- With the sole exception of Northern Europe (which shows high risk), living in a large family has a more muted effect, and does not differ statistically from zero in the English-speaking countries.
- Having parents of non-European immigrant origin reduces the likelihood of digital deprivation in Eastern Europe and the Baltic area, while it increases the probability in all other contexts.

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Towards a new definition of “material deprivation”

- We consider the possibility of including our indicator of digital deprivation in the well-established definition of “material deprivation” and “severe material deprivation” used by the European Commission to monitor the progress of European societies.
- A household is in (severe) “material deprivation” if cannot afford (four) three or more of the following items:
  - (i) to avoid arrears in rent, mortgage or utility bills;
  - (ii) to keep the home adequately heated;
  - (iii) to face unexpected expenses;
  - (iv) to eat meat or proteins regularly;
  - (v) to go on holiday;
  - (vi) to have a television set;
  - (vii) to have a washing machine;
  - (viii) to have a car;
  - (ix) to have a telephone.

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Towards a new definition of “material deprivation”

- Our proposal consists of adding a tenth item to the list: inability to afford a computer and/or internet connection.
- When accounting for digital deprivation, we find that 14.8% and 7.4% of school-aged children in Europe live in material and severe material deprivation, compared to 13.9% and 6.1% according to the standard definition.
- At country level, we observe important differences regarding such a change. While in some countries the change is negligible, in Romania we observe an increase of 3.7 p.p. in material deprivation that takes account of digital deprivation and 5.5 p.p. in the corresponding figure for severe material deprivation. Large increases are also to be found in Spain (2.1 p.p. and 2.7 p.p.) and in Bulgaria (1.5 p.p. and 2.9 p.p.).

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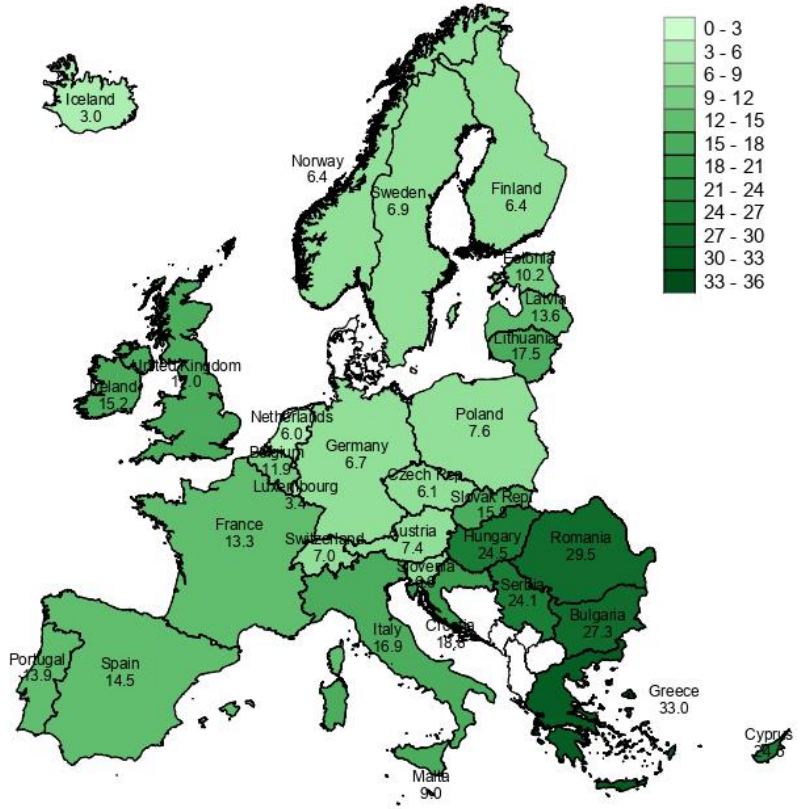
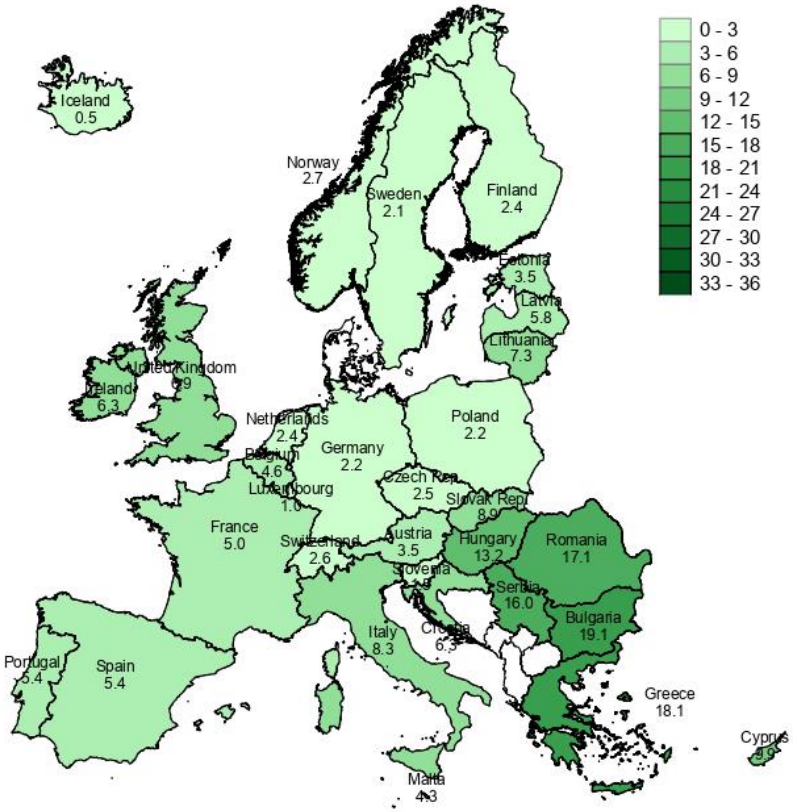
Towards a new definition of “material deprivation”

Figure 6a: Percentage of school-aged children (6–16) who live in material deprivation), Europe, 2019



Source: Ayllón et al. (2021)

Figure 6b: Percentage of school-aged children (6–16) who live in severe material deprivation), Europe, 2019



Source: Ayllón et al. (2021)

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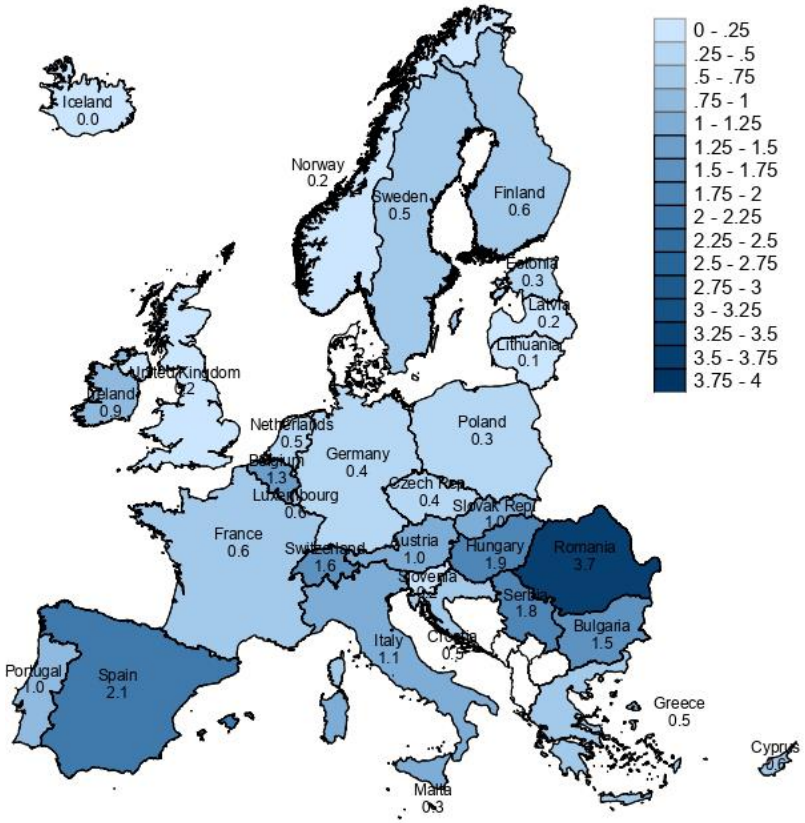
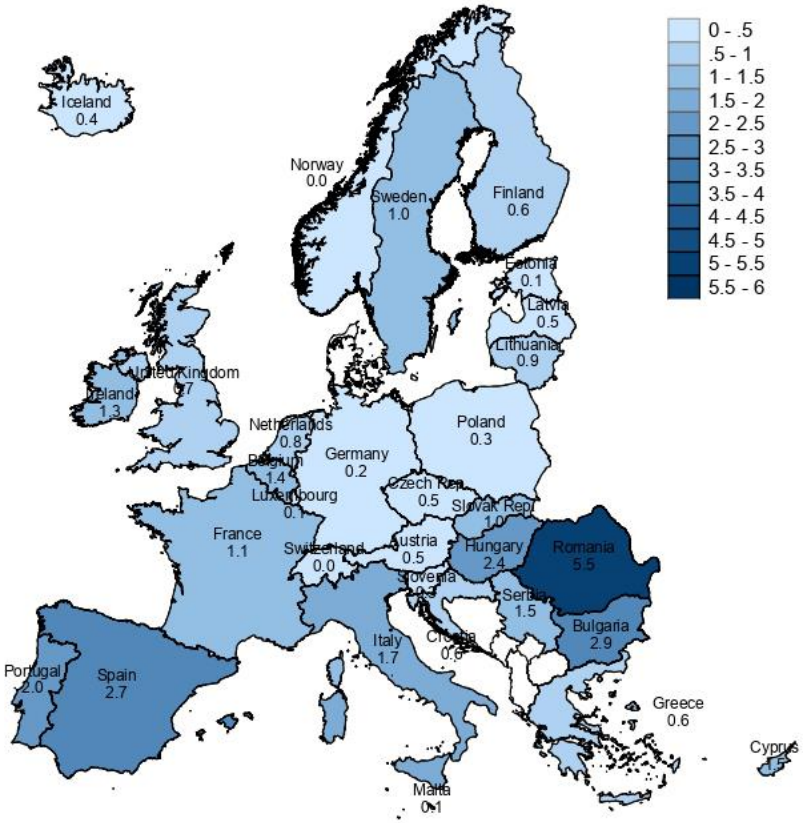
Towards a new definition of “material deprivation”

Figure 6c: Percentage point change in material deprivation (when including digital deprivation) of school-aged children (6–16), Europe, 2019



Source: Ayllón et al. (2021)

Figure 6d: Percentage point change in severe material deprivation (when including digital deprivation) of school-aged children (6–16), Europe, 2019



Source: Ayllón et al. (2021)

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Conclusions

- Digital deprivation is a problem among school-aged children in certain European countries.
- Of the two items considered, being unable to afford a computer is much more prevalent than the incapacity to afford internet connection.
- The phenomena is particularly widespread in Southern and Eastern European countries.
- It affects particularly children that cohabit with low educated parents, in poverty or in severe material deprivation. However, the heterogeneity of characteristics that describe a digitally deprived child is large across countries.
- Despite its importance, digital deprivation is not part of the EU definition of “material deprivation” or “severe material deprivation”
- We argue that (particularly now) digital deprivation should be considered as part of the definition of material deprivation used by the European Commission to monitor the situation of member States.

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Working paper

- Ayllón, S., Holmarsdottir, H.B. & Lado, S. (2021). Digitally deprived children in Europe. (DigiGen - working paper series No. 3). doi: 10.6084/m9.figshare.14339054

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