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EURO PERISTAT

ARE DIFFERENCES IN CAESAREAN SECTION RATES BETWEEN COUNTRIES IN EUROPE DECREASING OR INCREASING?

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Workshop

Caesarean section in Europe: Are women and babies receiving evidence-based obstetric care?

By Euro-Peristat

16th European Public Health Conference 2023, Dublin, Ireland

Aim and questions

Aim

The aim of this paper is to bring together data from countries since 2004 to investigate trends in the overall caesarean section rate and the rate by sub-group.

Questions

1. Did countries with low CS rates in the beginning of the 2000s continue to have low CS rates or have trajectories differed?

2. Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by parity (nulli, multi), multiplicity, previous CS, breech and preterm?

Countries and Data

- Countries with data in 2004 are included in the main study from Euro-Peristat data collected in 2004, 2010 and 2015-2020

Analysis

1. We calculated overall caesarean section rates
2. We calculated terciles based on rates in 2004
3. Countries were classified into 3 groups (of 8/9 countries), as follows:
   - **1st tercile (green) – low CS (14.5-18.6)**
   - **2nd tercile (blue) – medium CS (19.2-25.1)**
   - **3rd tercile (red) – high CS (25.3-37.8)**

These terciles were retained for subgroup analysis.

Did countries with low CS in the beginning of the 2000s continue to have low CS or have trajectories differed?

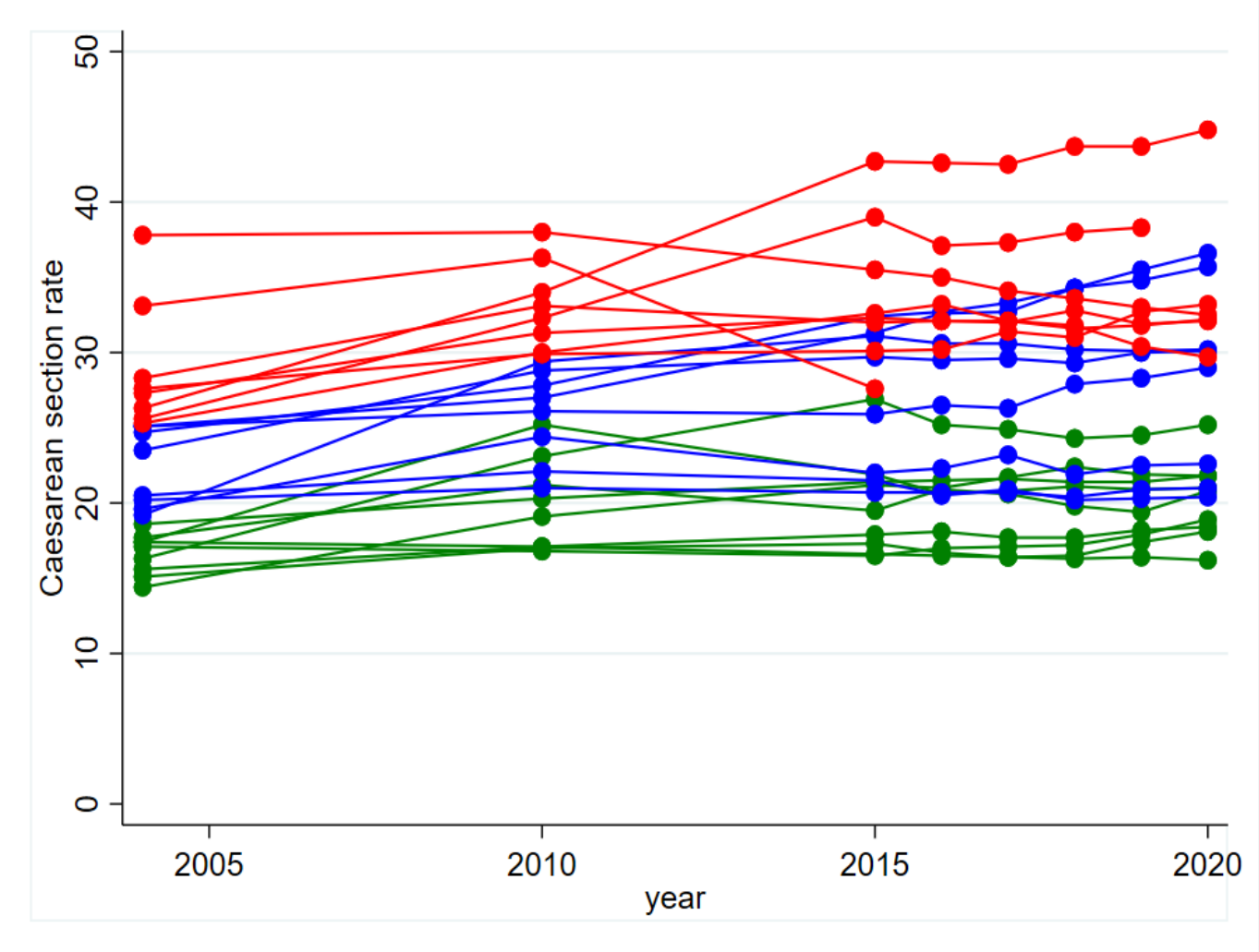

Figure 1: Total caesarean section rates

Answer: mostly yes.

In the 1st tercile:

- **Most countries continue to have low rates in 2020.**

In the 2nd tercile (blue), 2 groups:

- **3 countries have flat curves,**
- **4 countries experience sharp increases over time.**

In the 3rd tercile:

- **Has the largest increases.**

Did countries with low CS in the beginning of the 2000s continue to have low CS or have trajectories differed?

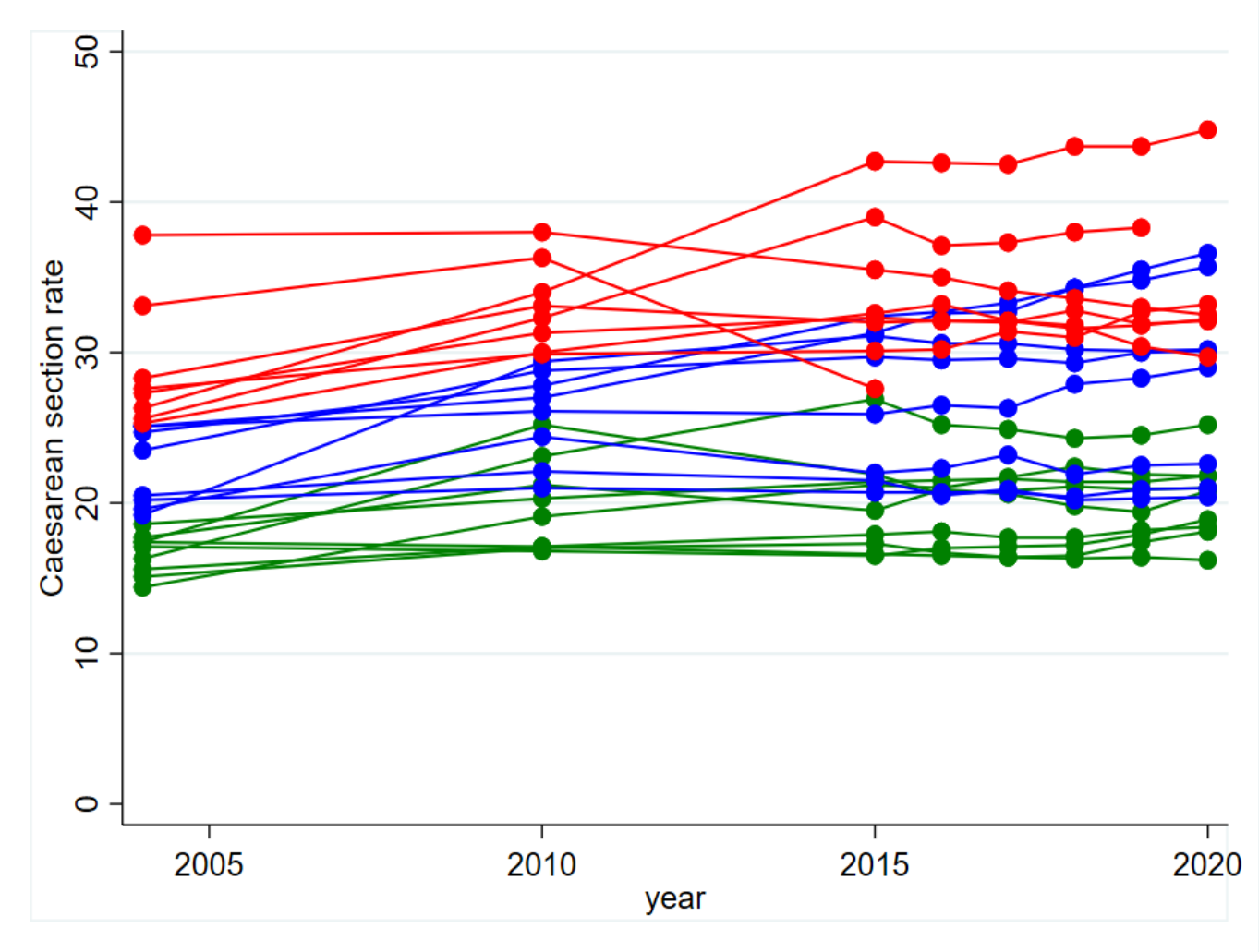

Figure 1: Total caesarean section rates

1st tercile:
Belgium, Czech Republic, Estonia, Finland, Lithuania, Netherlands, Norway, Slovenia, Sweden

2nd tercile:
Austria, Denmark, France, Ireland, Latvia, Slovakia, UK: Wales, UK: Scotland

3rd tercile:
Germany, Italy, Hungary, Luxembourg, Malta, Poland, Portugal, UK: Northern Ireland

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

By multiplicity

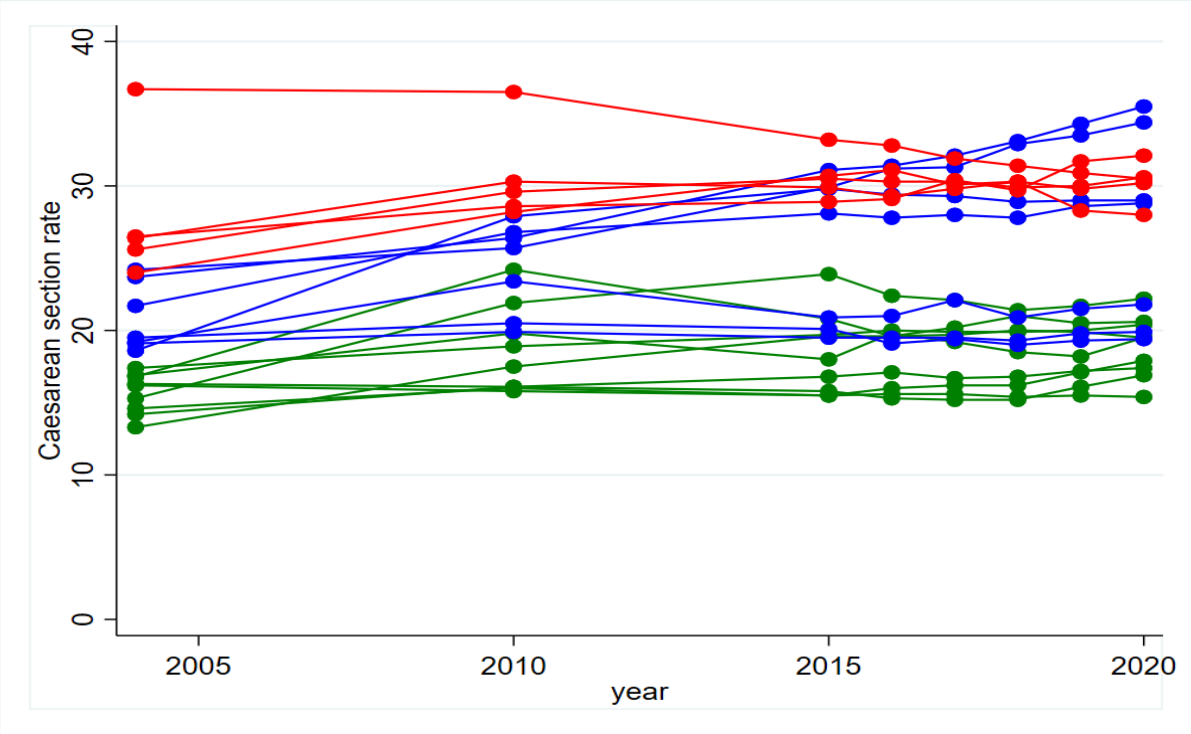

Figure 2: Caesarean section rates for singletons

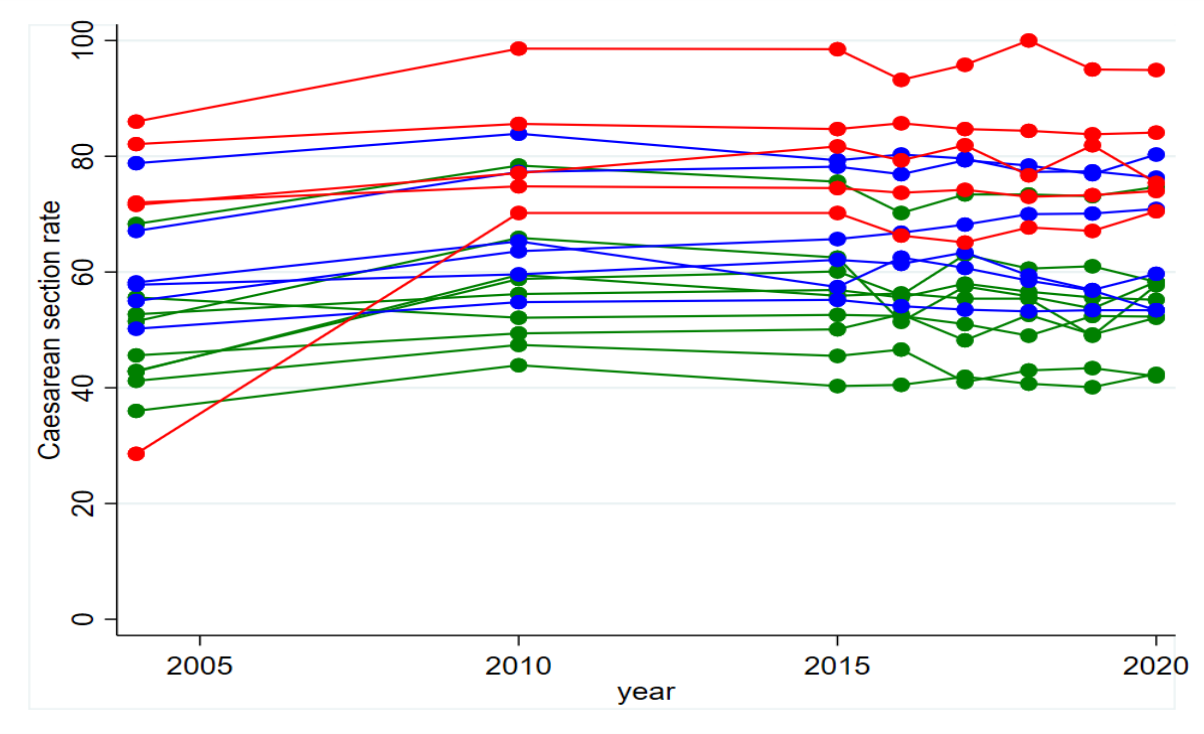

Figure 3: Caesarean section rates for multiples (twins)

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

By multiplicity - Singletons

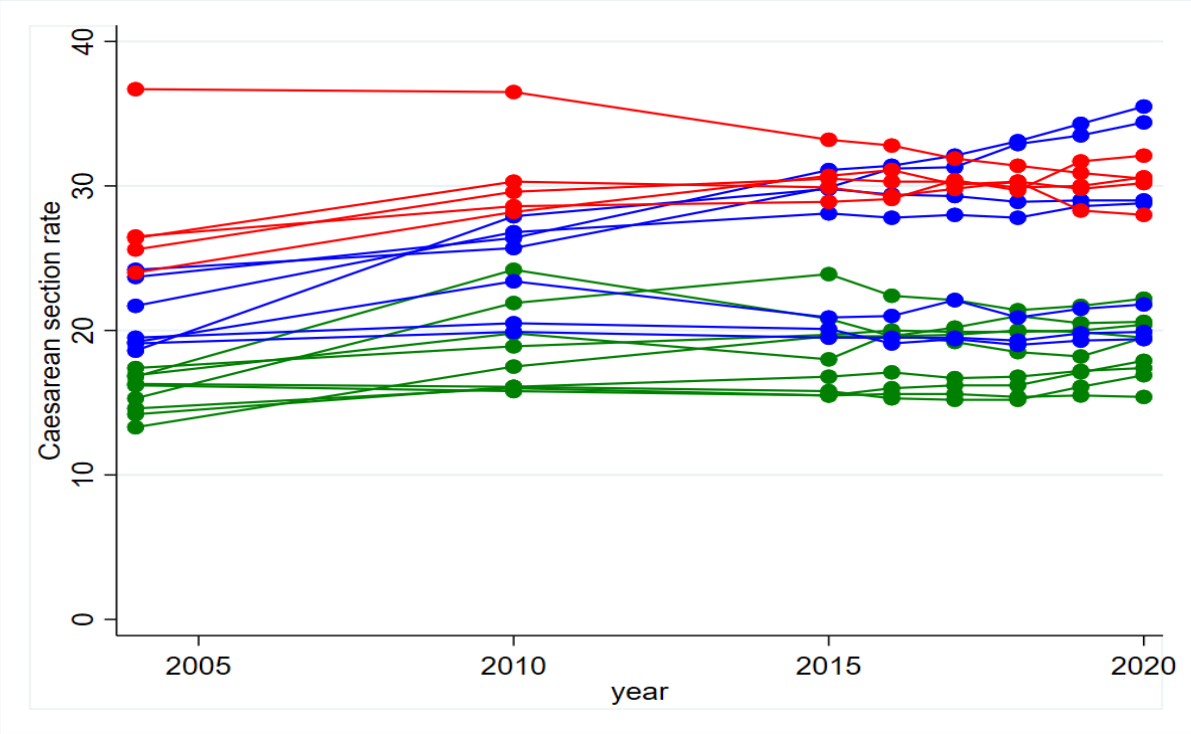

Figure 2: Caesarean section rates for singletons

Trends in CS rates for singletons are flat in 1st tercile.

Trends also similar in 3rd tercile (with exception of Italy, where CS rates are decreasing).

In 2nd tercile, there are two subgroups: 3 countries with flat curves and 4 countries with increases (UK: Scotland, Ireland, Slovakia, Austria).

- **the importance of singletons (respectively clinical management and indications in this group) on overall trends**

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

By multiplicity - Multiples

Among twins, trends are relatively flat in all three terciles, except Malta (reaching 95% in 2020) and Ireland.

- **Variation in practices within 1st and 2nd tercile groups**

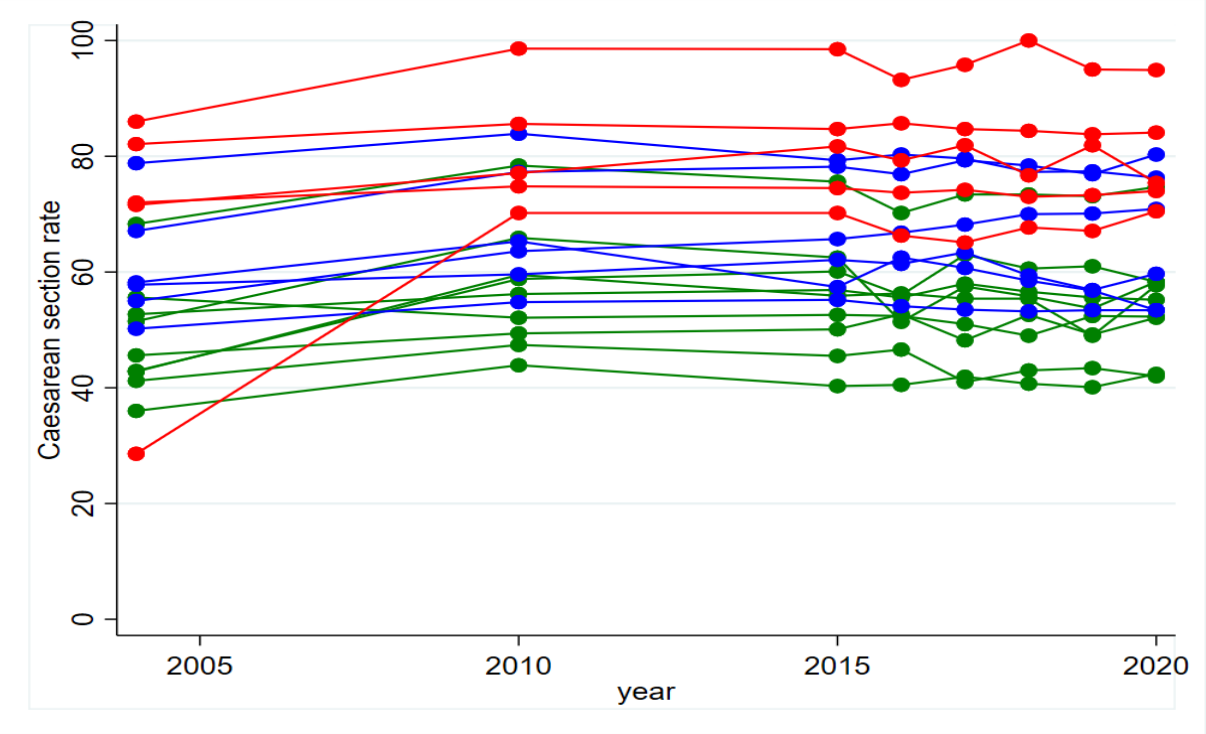

Figure 3: Caesarean section rates for multiples (twins)

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

By parity

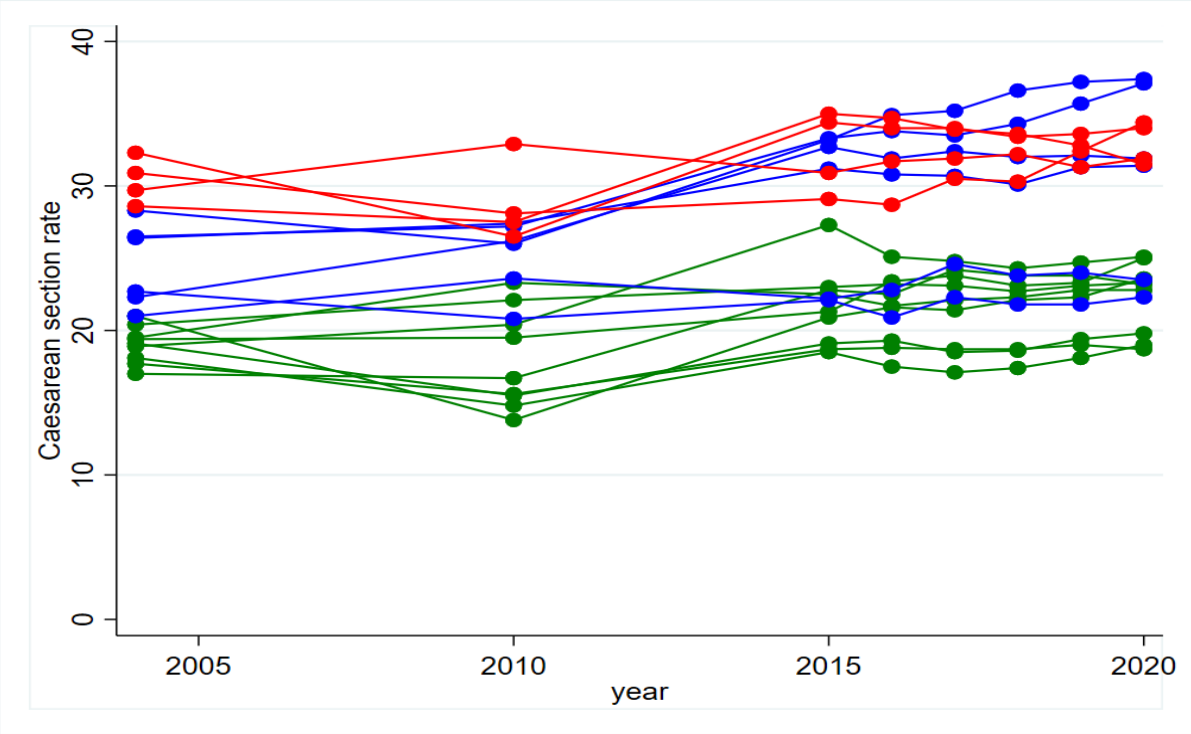

Figure 4: Caesarean section rates for nulliparous

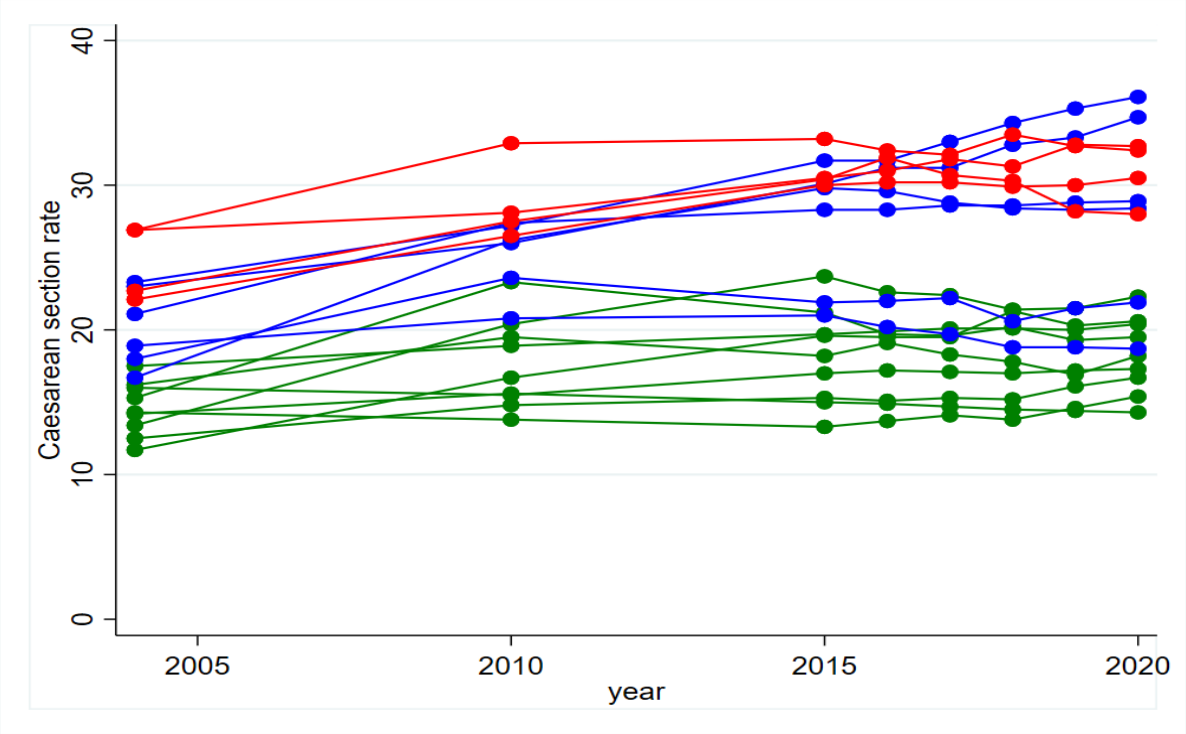

Figure 5: Caesarean section rates for multiparous

➢ **Similar patterns in trends by parity**

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

By previous CS

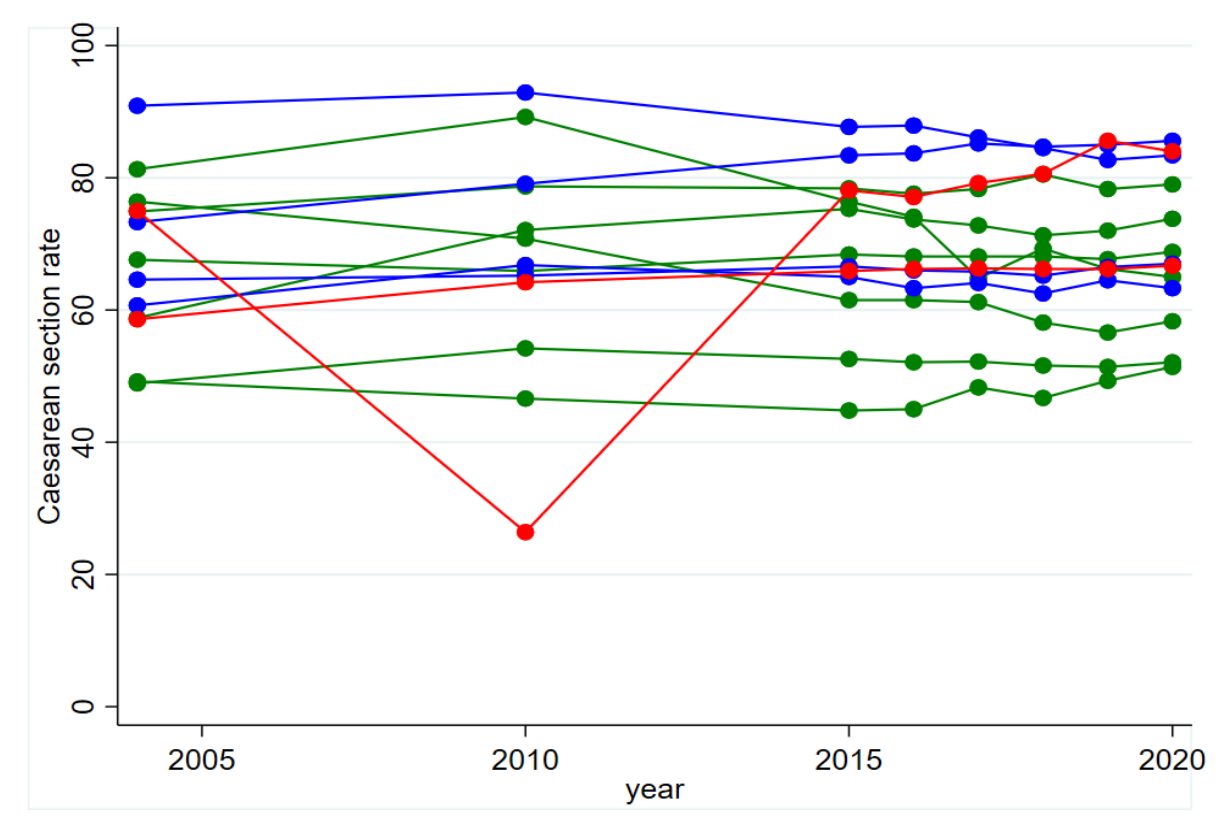

Figure 6: Caesarean section rates for women with previous CS

The situation regarding the slopes and differences among tercile groups is more homogeneous. Trends of rates are stable for 1st tercile and 2nd tercile group (with increase in UK: Scotland and decrease in Latvia).

Third tercile group has higher proportion of countries with missing data.

- **Variation in practices in this subgroup within tercile groups**

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

For breeches

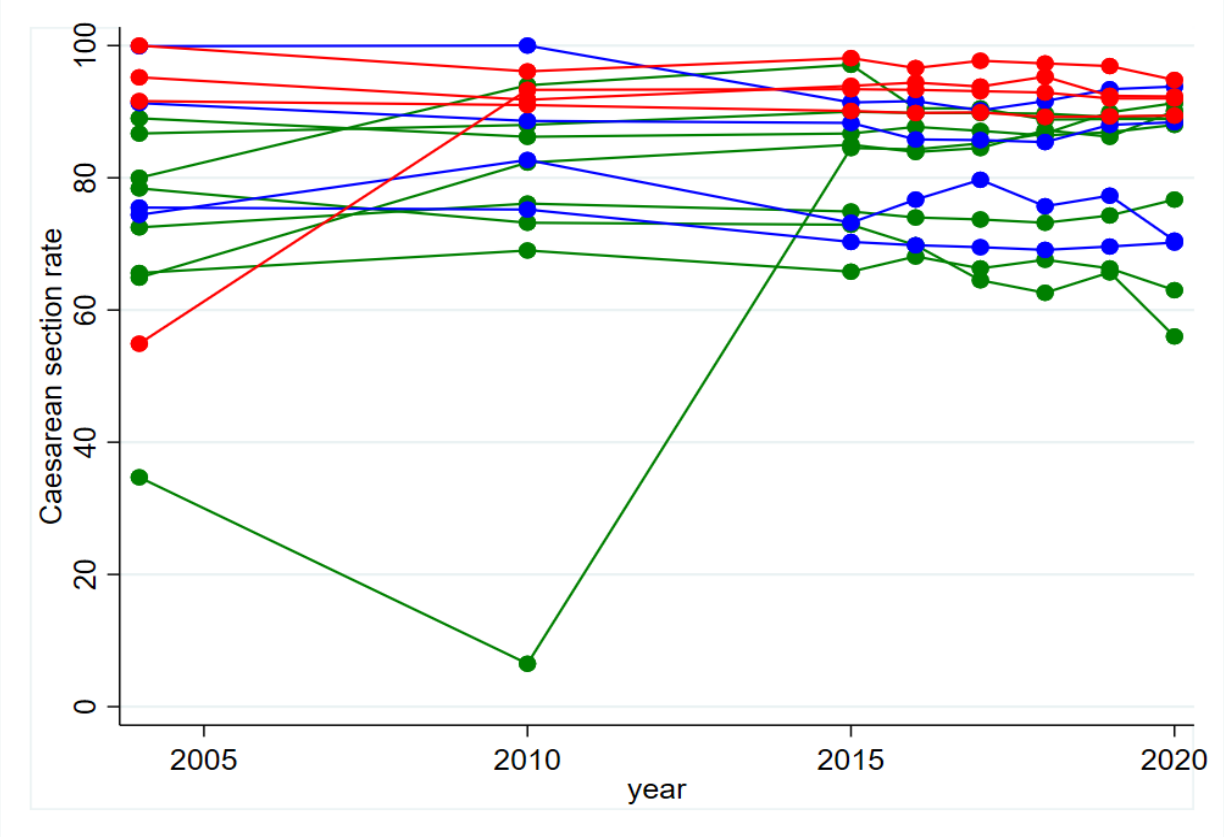

Figure 7: Caesarean section rates for breeches

The CS rates among breeches are high, and practically in all tercile groups the trends are flat; rates remain mostly stable or slightly decreasing, depending on the rates at the beginning of the study period.

- **This probably indicates the stable practices among women with baby in breech position in observed countries**

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

For preterms

The CS rates among preterm babies are relatively stable over time.

- **The overlaps of tercile groups might suggest different approaches to the management of preterm deliveries in different countries regardless the overall CS rates**

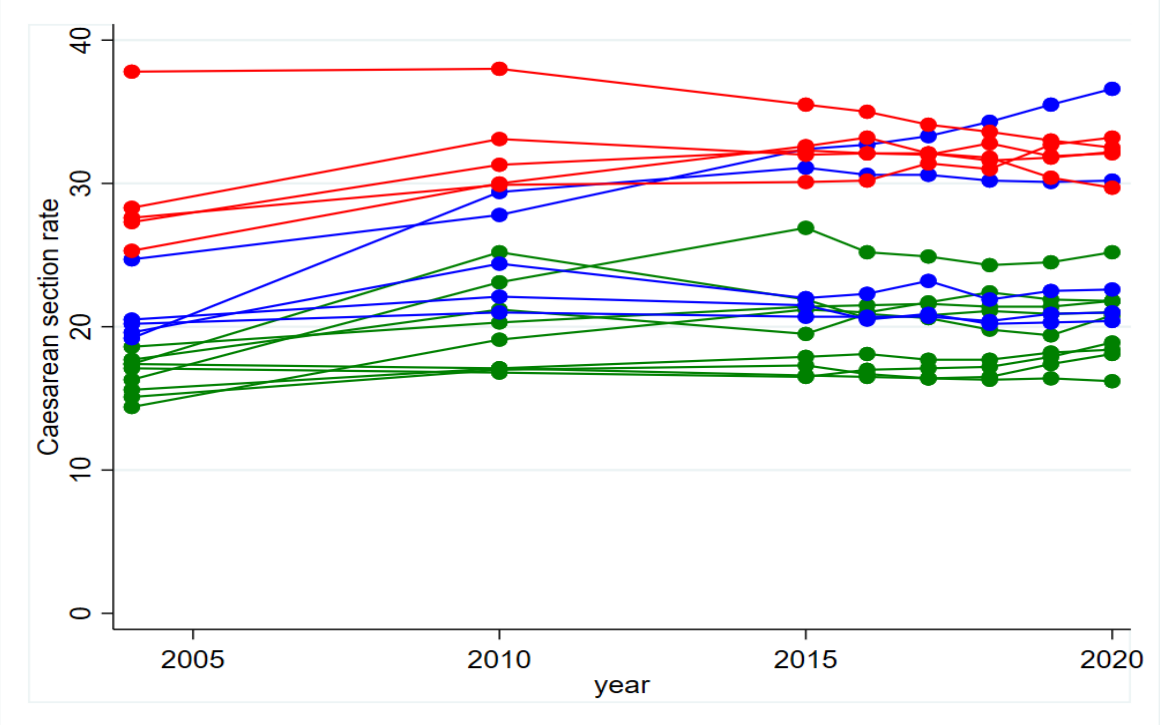

Figure 8: Caesarean section rates for preterms

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

For prelabour CS and intrapartum CS

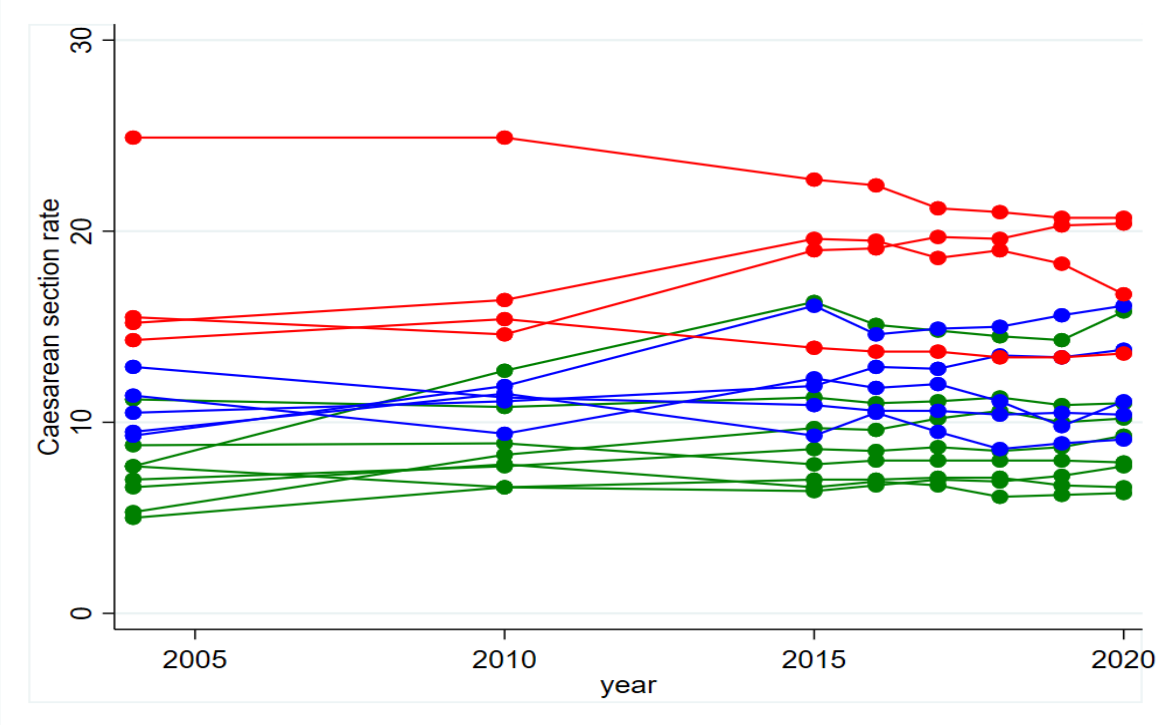

Figure 9: Prelabour caesarean section rates

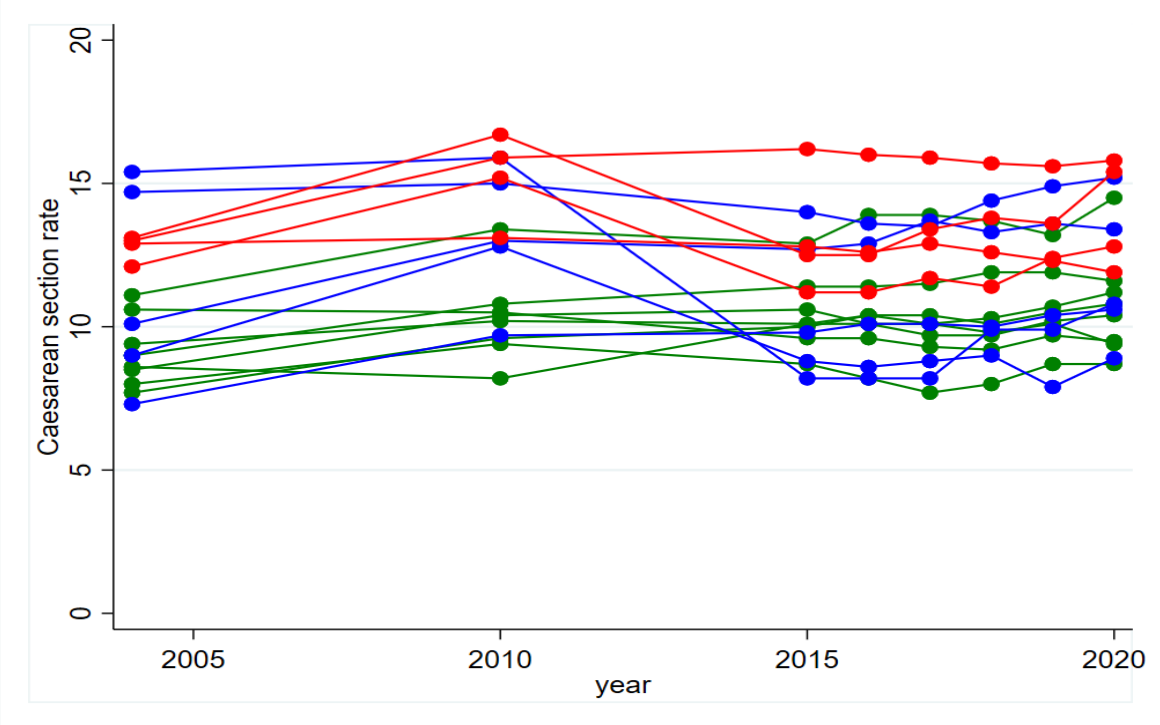

Figure 10: Intrapartum caesarean section rates

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

For prelabour CS

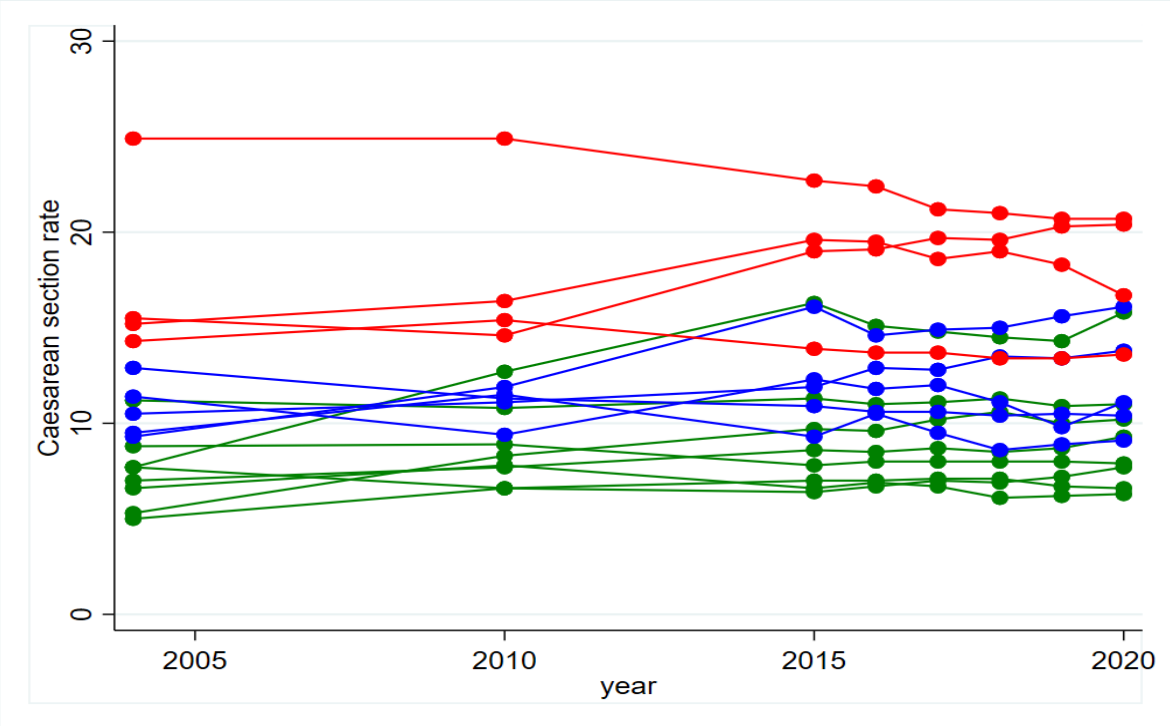

Figure 9: Prelabour caesarean section rates

The rates of CS performed before the onset of labour remained mostly stable over time

In the 3rd tercile there was sharper decrease in Italy from 24.9% to 20.7%, and increase in the UK: Northern Ireland from 15.5% to 20.4%)

In the 1st tercile group the highest increase was noted in the Czech Republic (from 7.7% to 15.8%), and Slovakia had the highest prelabour CS rate in 2020 (23.5%) among all countries.

In the 2nd tercile group the highest increases were noted in the UK: Scotland and UK: Wales.

- **The extent of elective CSs before the onset of labour might be related to the legal environment and role of defensive medicine**

Are the country-specific trajectories for overall caesarean rates similar for all sub-groups: by multiplicity, parity, previous CS, for breeches, preterms, by timing of CS?

For intrapartum CS

The CS rates intra-partum had increasing trends in countries with originally low SC rates overall and in this subgroup of caesarean deliveries.

The decreasing trend was noted in the UK: Scotland (from 15.4% to 10.8%; this country though reported one of the highest increases of pre-labour CS rates), and further in Austria, while there was an increasing trend in France and Latvia.

In the 3rd tercile group, there were increasing trends of intra-partum CSs in Germany and Malta.

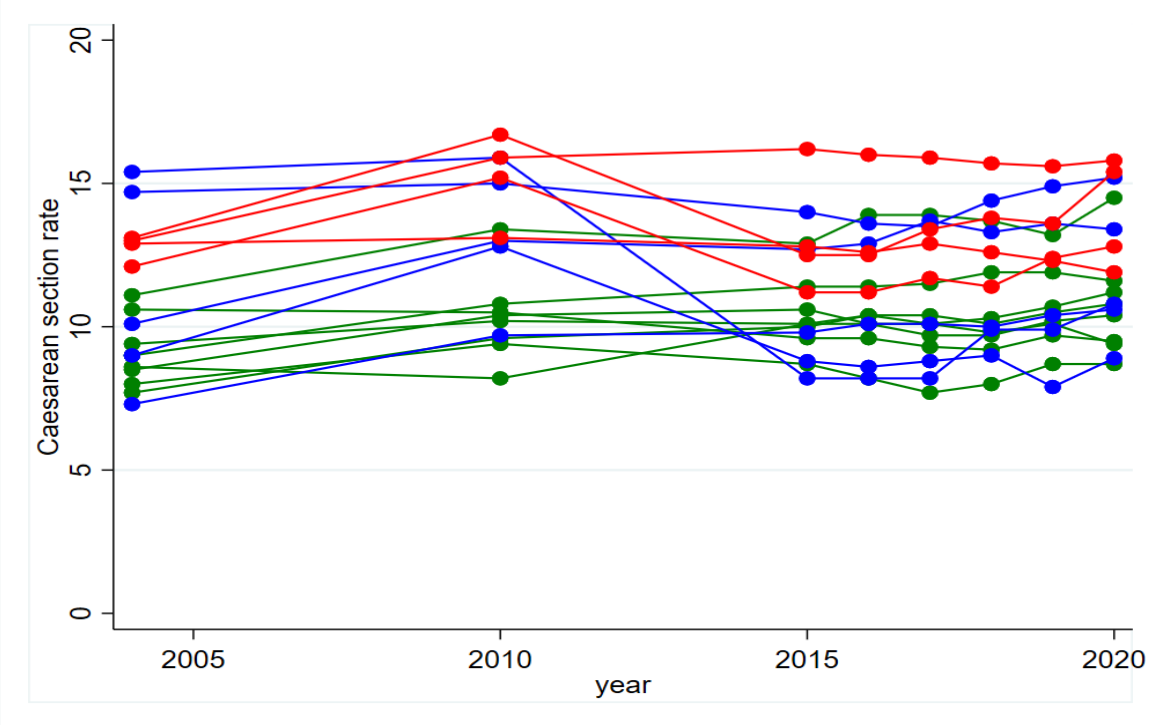

Figure 10: Intrapartum caesarean section rates

➢ **Variation in practices in this subgroup within tercile groups**

Conclusions

- The differences in caesarean section rates between countries in Europe are remaining – there are no converging trends in overal CS rates, and there are also differences in CS rates in subgroups.

- This points on the specific situations in different countries, and on a role of multiple influential factors with different weights in different countries.

- The ability to identify the country-specific areas (and related factors) with the greatest potential to make a change (to decrease numbers of unnecessary CSs by promoting EBM principles) is crucial.

- The fact that only about one third of European countries was able to provide data for this study further supports the objective of the Euro-Peristat Network to establish a high quality, innovative, internationally recognized and sustainable European perinatal information system to promote sustainable health reporting in Europe.

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