The Single Market, welfare and population size – an analysis of EU countries and regions

Policy Brief

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Introduction

The Single Market (SM) constitutes the world's largest economic area. Its trade liberalization policies can bring about significant income gains: Fewer barriers to trade are likely to increase competition and boost the productivity of firms – which would positively impact upon wage growth. Moreover, heightened competition decreases markups and reduces the prices of goods and services, which fosters consumer welfare. Through these channels, the SM increases the size of the "economic pie" and contributes to stronger economic growth across European countries and regions. These welfare gains can be deemed as "direct" or "first round" as fewer trade barriers and thus lower trade costs due to the SM directly translate into higher productivity and lower prices. Empirically, these welfare gains have been documented in a number of recent studies (e.g., Ponattu and Mion, 2019a).

In theory, however, the SM would also, albeit indirectly, affect another quantity that fosters economic growth, but is often neglected when studying gains from EU integration: population size. The growth accounting technique in economics separates economic growth into the three components of capital, productivity and labor – where the latter would be positively affected by population growth. Thus, the income gains from the SM make the set of participating countries more attractive as a place to live as compared to countries outside the SM. Therefore, more people from the rest of the world would choose to live and work in Europe and its population grows. Population growth, in turn, adds to economic growth and can thus exhibit an indirect or "second round" effect on economic growth. It is thus important to understand not just how the SM affects welfare through lifting barriers to trade, but also how the SM affects population sizes across Europe – especially as ageing in most European is projected to reduce the labor force and thus hamper growth.

To what extent are income gains from the SM and population flows from outside the SM related? If they are, in which countries and regions does the SM matter the most for population growth? We address these questions by running a thought experiment. Specifically, we simulate the *abolishment* of the SM to analyze how a decline in welfare gains would impact upon population sizes across Europe. As in Mion and Ponattu (2019a), we use a modern quantitative trade model of the global economy based on Behrens et al. (2014) and Behrens et al. (2017) and data on world trade flows (from COMTRADE (ITS)) to analyze the effects of undoing the SM. We firstly estimate the impact of undoing the SM at the country level with our baseline being the year 2016. We secondly use the Eurostat Regio database to break down the individual country effects to the NUTS2 level. It is important to note that our approach reflects the population outflows from the SM area into the rest of the world as a result of terminating the SM. Thus, our results do *not* reflect intra-European population flows as a result of undoing the SM.

The simulated population changes reflect a location choice solely based on changes in welfare if people were completely free to move. But even if parts of the labor force intended to move locations, there would be legal and other hurdles ultimately preventing some of the leavers from doing so. Thus, our estimates should be seen as an *upper bound* or benchmark of population changes that countries and regions *could* expect as a result of undoing the SM. Despite this caveat, the relative differences in the simulated losses allow us to compare countries and regions. We find that welfare losses due to a hypothetical removal of the SM and the associated welfare losses would indeed trigger people to leave the SM area: All SM members would see a shrinking population as a result of undoing the SM, simply because the terms of trade for SM members would worsen as compared to the rest of the world. The magnitude of population losses, however, varies strongly across countries and regions: Those at the core (strong beneficiaries of the SM) would see the highest losses, whereas countries and regions in the periphery would see little of its population leave. Overall, the results suggest that the impact of the SM on population sizes is important, especially as ageing has become a challenge in many advanced European economies. In terms of policy, the analysis speaks in favor of completing the SM as it does not only affect economic growth through lower trade costs, but can also attract labor, which is conducive to economic growth.

The big picture: Looking at countries around the world

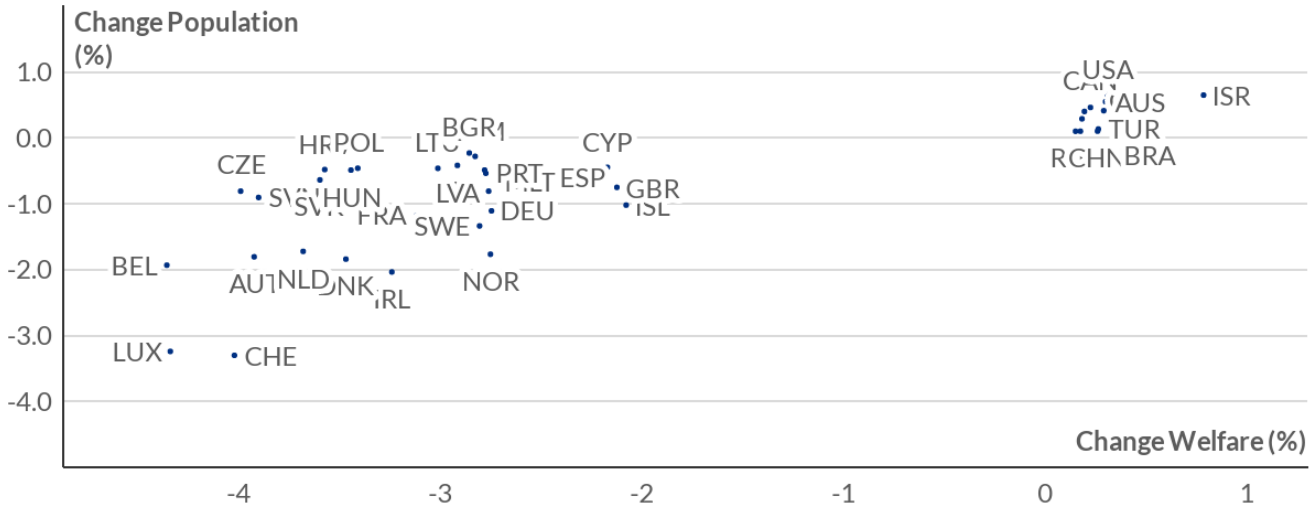
Starting with the country level, the analysis suggests that all EU countries (and other members of the SM) would incur population reductions if the trade boosting effect of the EU single market vanished. This result is obvious since trade restrictions would affect SM countries only vis-à-vis the rest of the world. This way, the former SM members trade less with each other. The population decline SM members is significant: On average, a country's population would see a (maximum) reduction of about 1% in population size if the SM were to be abolished. Conversely, the rest of the world would see increases in population sizes due to the non-existence of the SM. This is because in a counterfactual world without the SM, trade costs increase for SM members, which makes, in relative terms, the rest of the world more attractive to trade with. In other words, the terms of trade improves for the rest of the world, leading to welfare gains for these countries – such gains, in turn, attract people to move to countries and regions not members of the SM. Table 1 summarizes the population gains at the country level. The countries with the highest maximum number of simulated population gains would be the US and Israel (at about 0.6%) and Australia (0.5%).

Across the countries within the SM, the estimated population decline varies considerably across countries. Small and particularly open countries like Luxembourg, Norway, Switzerland and the Netherlands with excellent market access would incur maximum population losses of up to 3% of its population. At the same time, population reductions for countries in the periphery (e.g., Bulgaria and Romania) would be much smaller at about 0.2%. Overall, these maximum losses in population size reflect the distribution of welfare gains that are due to the SM and its differential impact across EU countries and regions. The aforementioned set of small, open economies are also the ones featuring the strongest per-capita economic gains from the SM.

Figure 1 plots the relationship between the projected reduction in population size and the loss of welfare associated with the removal of the SM. As can be seen, the relationship is positive: The higher the welfare losses are, the higher the decline in population size. Countries outside of the SM see positive changes in welfare and population, whereas naturally all SM members see reductions in both quantities. Figure 1 allows for some interesting observations: For instance, Luxembourg would see the same population decline as Switzerland, but at a lower welfare loss. This difference could suggest that compared to Luxembourg, the Swiss economy is slightly less dependent on (skilled) labor from abroad or less labor intensive in general. Indeed, the share of services of GDP is lower in Switzerland than in Luxembourg. Less surprisingly, Switzerland and the Czech Republic exhibit the same projected welfare loss. However, Switzerland would experience four times the decline in labor, which reflects its higher share of foreign (skilled and mobile) labor in Switzerland as opposed to the Czech Republic. Note that the welfare loss in the Czech Republic could be a result of the country being fairly well integrated in pan-European value chains, for instance in manufacturing.

Figure 1: Estimated welfare and population change, removal of Single Market

Country level, in %



Estimation based on the gravity model of trade as used in Mion and Ponattu (2019a).

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Table 1: Estimated maximum population change, removal of Single Market

Country	Change Population (%)	Change Welfare (%)
Switzerland	-3.32	-4.02
Luxembourg	-3.26	-4.33
Ireland	-2.05	-3.24
Norway	-1.78	-2.75
Denmark	-1.86	-3.46
Belgium	-1.95	-4.35
Austria	-1.82	-3.92
Netherlands	-1.74	-3.67
Sweden	-1.35	-2.80
Iceland	-1.04	-2.07
France	-1.20	-3.11
Germany	-1.12	-2.74
Finland	-1.01	-2.52
United Kingdom	-0.77	-2.12
Italy	-0.82	-2.76
Slovenia	-0.92	-3.90
Czech Republic	-0.82	-3.98
Malta	-0.67	-2.72
Spain	-0.62	-2.45
Slovakia	-0.65	-3.59
Portugal	-0.55	-2.77
Cyprus	-0.46	-2.17
Estonia	-0.50	-2.78
Hungary	-0.50	-3.44
Lithuania	-0.48	-3.01
Greece	-0.44	-2.49
Croatia	-0.50	-3.57
Poland	-0.48	-3.40
Latvia	-0.43	-2.91
Romania	-0.30	-2.82
Bulgaria	-0.24	-2.85
India	0.02	0.45
Russian Federation	0.08	0.16
Mexico	0.09	0.18
China	0.09	0.26
Turkey	0.12	0.27
Brazil	0.12	0.52
Korea	0.27	0.19
Chile	0.17	0.45
Japan	0.39	0.20
Canada	0.45	0.23
New Zealand	0.40	0.30
Australia	0.53	0.30
United States	0.64	0.32
Israel	0.63	0.79

Estimation based on the gravity model of trade as used in Mion and Ponattu (2019a).

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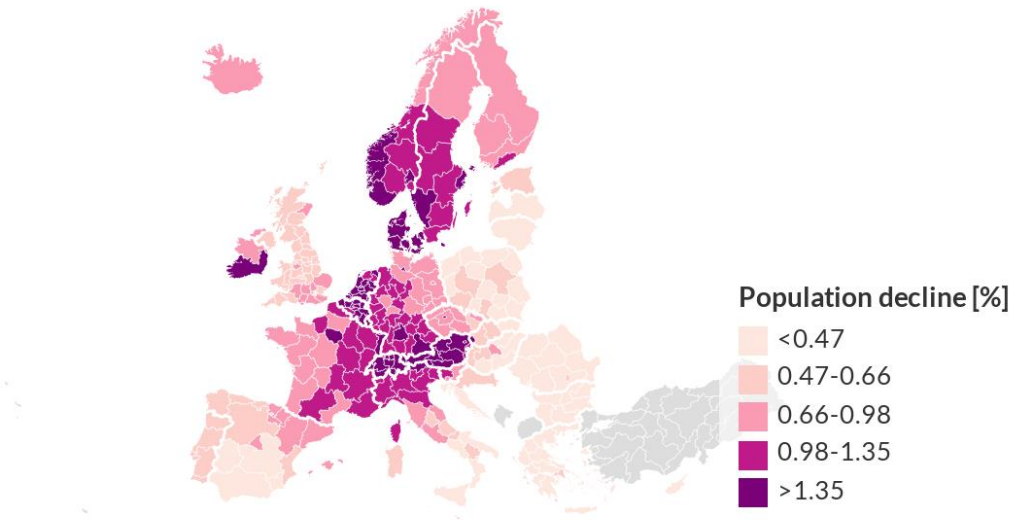
Zooming in: What about regions within countries?

We find that regional differences in population decline are also severe. In line with the country results, a separate regression analysis reveals that population reductions are higher for (1) regions experiencing higher welfare gains, (2) regions that are larger and (3) regions that have less favorable amenities in terms of weather and climate (especially Northern Europe). Overall these three covariates explain 90% of the variation in the data. Doing away with the SM would see the region of Zurich lose out the most in terms of population size with a maximum reduction of about 4%. The simulation also suggests that other Swiss regions incur maximum losses of similar magnitude (around 3-4%). Other regions like the Austrian region of Voralberg and Brussels record strong gains, too (at about 2.6%). On the contrary, regions in southeast Europe come last, e.g. the Bulgarian region of Severen Tsentralen sees a maximum loss of just about 0.17%. Within-country heterogeneity is high, too: For example, the Italian region of Bozen would feature a strong, above-average maximum loss in population of 1.5% if the SM ceased to exist – while Sicily in the Mezzogiorno would only see less than 0.5% of losses. Any such disparities are also observable in economically stronger countries: In Germany, maximum losses could be as high as 1.6% in the Oberbayern region (which includes the Munich area) and just half the loss in the east German region of Brandenburg.

Figure 2 maps the heterogeneity in terms of projected population losses across NUTS2 regions. It also reveals other patterns across countries: Overall, population losses resemble a core-periphery pattern with strong maximum losses concentrated on rather wealthy countries in the core of Europe; southern, eastern and western regions in the periphery would lose smaller shares of its population. Within countries, there is a strong east-west difference in maximum losses within France – mostly stemming from the east being closer to larger markets like Germany and Italy as well as to particularly open economies like Switzerland, Luxembourg and Belgium. In Spain, projected losses in population size would be higher in wealthier regions like Catalunya and the Basque Country, but much smaller in the south of the country. Italy displays a strong difference between the north and the south (Mezzogiorno) with population losses being much higher in the former region.

Figure 2: Estimated population decline, removal of Single Market

NUTS2 regions, in %



Estimation based on the gravity model of trade as used in Mion and Ponattu (2019a).

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The role of Brexit

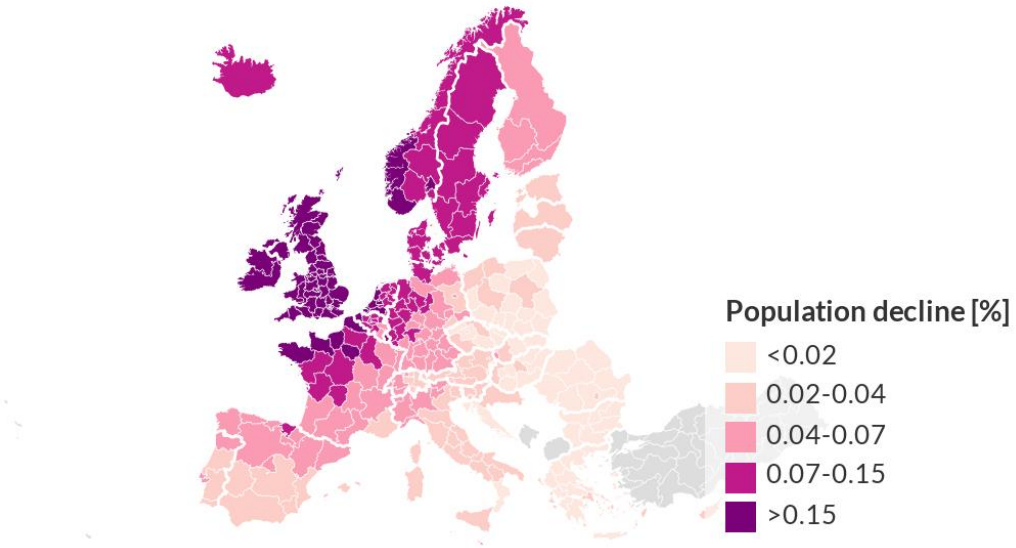
The UK's exit from the EU (Brexit) is likely to significantly weaken the UK's embeddedness in the SM framework, especially in a hard Brexit scenario. Thus, the welfare losses associated with Brexit will also affect population

sizes across Europe. Again considering countries from all over the world (not just Europe), it is clear to see that Brexit weakens the terms of trade for all of SM member countries. In Mion and Ponattu (2019b), we study the impact of a hard and soft Brexit scenario using a gravity model of trade. Here, we apply the model with the same parameters to gauge the effect on population losses.1

Figure 3 depicts maximum population losses associated with a hard Brexit scenario, as simulated in Mion and Ponattu (2019b). Clearly, the magnitude of the impact would be significantly lower than in the case of abolishment of the entire SM. Yet, some countries and regions would lose significant population shares. First and foremost the UK would see significant maximum losses of about 1.1% of its population – which is, for the UK, even higher than in the scenario in which the whole SM would be removed. In the hard Brexit scenario, Ireland would see a maximum population loss of about 0.9%, corresponding to about half the loss as compared to the scenario undoing the SM. For other SM member countries, the impact is much lower, ranging between 0.01% in Bulgaria and Romania and 0.2% in the Netherlands. This arguably wide range indicates that countries and regions with a more dense trade relations with the UK are to lose the highest population shares, with welfare gains from trade being the driver of these losses.

Figure 3: Estimated population decline, hard Brexit

NUTS2 regions, in %



Estimation based on the gravity model of trade as used in Mion and Ponattu (2019b).

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Conclusion: What can policymakers do?

Much of the current debate on the EU Single Market (SM) centers around the direct economic value of the SM. It mostly focuses on productivity, competition and ultimately welfare effects. In this policy brief, we discuss to what extent these welfare effects may also impact population size. Specifically, we employ a gravity model of trade to simulate the effect of welfare changes on population sizes across Europe assuming that the SM agreement would suddenly cease to exist. These hypothetical changes in population size can be interpreted as a result of citizens' shifts in location choice based on welfare changes resulting from abolishing the SM and thus increased trade costs vis-à-vis countries not part of the SM. It should be noted that the simulated population change resembles a

[1] See Mion and Ponattu (2019a) for details on the estimation technique and the associated calibration of the model.

hypothetical choice solely based on changes in welfare.2 Even if people sought to move locations accordingly, there would be legal and other hurdles impeding them from doing so. Therefore, the estimates reported here should be seen as an upper bound of population declines that a country or region could see as a result of the SM ceasing to exist. However, the relative differences in the losses allow us to compare the differential impact across countries and regions.

Overall, a removal of the SM agreement would clearly weaken trade integration across Europe vis-à-vis the rest of world. Welfare and population declines are linked: The simulation suggests that all countries and regions currently in the SM would lose part of its population if trade liberalization policies of the SM were to be removed. The magnitude of losses differs quite strongly: Regions that economically benefit the most from the SM (e.g., Switzerland, Austria, Ireland, Norway and Germany) would see a significant reduction in population size. On the contrary, regions in the European periphery (e.g., in the south east) would see very little change in population if the SM were to be removed. Differences within countries are also noteworthy: Germany would see a strong east-west divide, as would France. Regional disparities within Italy and the UK would largely resemble a north-south divide.

The simulations highlight several relevant implications for policy. First, in line with growth accounting, population size and the labor force are one of the factors driving growth. Thus, the analysis suggests that the SM does not only realize more gains from trade, but could also contribute to medium-run growth as it attracts labor from the rest of the world as compared to the counterfactual of no SM. This potential “second round” effect of the SM appears to be even more critical in light of the ageing workforce in many SM member countries. Moreover, skilled labor is meant to be more mobile (Arpaia et al., 2014), suggesting that especially skilled labor would be inclined to leave if the SM agreement was to be terminated. Such considerations could be particularly important for members of the SM like Norway or Switzerland, with the latter currently re-negotiating their SM membership with the EU. Moreover, the evidence suggests that the completion of the SM should be a priority for EU policy makers as it can realize additional gains from the SM, both more first order ones (gains from trade) and second round gains (population growth). Hence, the current strategies on the digital SM and the capital markets union should be implemented swiftly. The deepening of the SM would realize more gains in productivity and eventually welfare, which would – in turn – attract even more labor leading to a stronger second round growth effect.

Third, and related to the deepening of the SM, is a stronger emphasis on a common innovation policy and industrial policy across Europe. These initiatives can help the SM to even better capitalize on its harmonized rules, e.g., through a state-of-the-art infrastructure. Again, welfare gains from the SM would increase even more, contributing to both first and second round gains through population growth. It should be noted, however, that an improvement in infrastructure does not necessarily or unambiguously help laggard regions catch up – in fact, improving infrastructure between the core and the periphery could even increase agglomeration in the core (Krugman and Venables, 1990). Nonetheless, such measures could help laggard regions to more strongly benefit from the SM, which is a pull factor for population size and which would help narrow the gap to the economically strongest regions.

[2] Even though the model allows for location preferences independent of welfare gains, too. See the technical appendix of Mion and Ponattu (2019a) for details.

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