**Are disparities in the educational performance of children from different family backgrounds associated with level of country development?**

**Abstract**

Disparities in the educational performance of children of different family backgrounds is of interest to researchers, alongside the related issue of the trajectories of these disparities. Are gaps between more and less socially advantaged children widening or narrowing? The analysis in this paper examines data derived from the Programme for International Student Assessment (PISA) to make comparisons in the mathematics and reading performance of representative samples of fifteen-year olds in 64 different countries in 2015. Specifically, the performance of children of highly educated versus moderately educated parents were compared, as were the children of fathers in high status occupations versus low/medium status occupations. United Nations data on country development, and OECD data on average country spending on children’s education were included in the assessment. Analysis indicated that the gap between children of less well-educated parents or of fathers in lower status occupations and those children whose parents were better educated, or whose fathers were in higher status occupations, were significantly greater in countries that were more developed. This was despite the evidence that more developed countries spend more per pupil in education.

**Keywords:** Educational performance; intergenerational achievement; international comparison; parental education; father’s occupation; country development

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1. **Introduction**

It is uncontroversial that in contemporary societies, educational attainments provide an important stepping stone for most young people to occupational opportunities, and hence to their likely income trajectories. Unsurprisingly therefore, there has been a great deal of interest in disparities in children’s educational achievements, particularly those that appear to be associated with family background (see Björkland & Salvanes, 2011; Blanden, Gregg, & Macmillan, 2013; Erikson & Goldthorpe, 2010; Erola, Jalonen & Lehti, 2016). While much of the debate has centred on the degree of association between family background and educational disparity, as well as the likely complex causal mechanisms, a more recent focus has been on the overall trend in disparities in educational or academic outcomes. Is there any evidence of trends towards convergence or greater divergence in academic performance among children of parents with contrasting educational or occupational status?

Careful assessment of available data in the UK led Blanden and Macmillan (2014) to argue that although there was evidence of a slight narrowing of the educational attainment gap between children from highest and lowest income families, the trend was uneven, and did not, for example, extend to those at the highest level of attainment. Conversely, Reardon (2011) and Reardon & Portilla (2016), examining US data on educational disparities among children born between 1943 and 2001 found evidence of widening gaps between more and less advantaged children. Chmielewski and Reardon (2016) broadened the focus to consider variation in educational disparity by country characteristic. They used datasets based on educational performance in standardised tests among representative samples across many countries to make inferences about the disparity between children whose families were at the 90th income percentile versus those at the 10th income percentile. The datasets used were the Progress in International Reading Literacy Study (PIRLS), and Programme for International Student Assessment (PISA). The authors found that country characteristics such as income distribution, poverty and some educational policies, were associated with greater disparities.

In this paper, the aims are twofold. The first is to add to the findings in relation to trends in educational disparities among children of different family backgrounds. The second is to follow Chmielewski and Reardon (2016) in broadening the search for country-characteristic variables that might be associated with educational disparities among children of different backgrounds. Specifically, the level of development of the country as assessed by the UN’s ongoing Human Development Reports (HDR) was brought into the analysis as an independent system-level variable, as was level of spending on education by the country.

1. **Method**
	1. *A two-step method of analysis*

The method used here is based on a two-step analysis developed by Jusko and Shively (2005). This method was designed to exploit increasingly popular and powerful cross-national datasets. In the first step, country-level scores are generated based on each country sample’s coefficients. These country scores then become the unit of analysis in the second step of the analysis – the system level of analysis. In this paper, the Programme for International Student Assessment (PISA) dataset was employed to generate country coefficients in the first step.

*2.2 Dataset for the first step: PISA 2015*

The Programme for International Student Assessment (PISA) is a triennial international survey which evaluates the skills and knowledge of representative samples of 15 year-old students across the world. It is run by the OECD, and in its first sweep in 2000, it was mainly confined to members of the OECD (largely the wealthiest countries in the world). However, by the 2015 sweep, it included 72 countries, or regions within countries, with a variety of both wealthy and poorer countries involved; typically a sample of around 5,000 15 year old students completed the two-hour test in each participating country or region.

* 1. *Independent and dependent measures from PISA*
		1. *Dependent Measure of Reading and Mathematics Ability (MARA)*

PISA presented its respondents with a subset of test items from a larger total item pool in each domain. Because different groups of respondents answered different but overlapping sets of items – to avoid ‘ceiling’ and ‘floor’ effects due to variation in ability - it was difficult to produce traditional outcome scores. Item Response Theory (IRT) scaling was used to generate multiple imputations based on an individual’s set of responses. These ten multiple imputations were the ‘plausible’ scores in the domain. See PISA technical report (OECD, 2017).

Based on Item-Response Theory, 20 ‘plausible scores’, ten in mathematics ability and ten in reading ability were generated for each participant (by the PISA researchers, see OECD, 2017). For the analysis in this paper, a principal component analysis was carried out on these 20 plausible scores to create a single score for each individual, and labelled ‘MARA’ (Mathematics and Reading Assessment). This latent score explained 83.97% of the variance in the 20 scores. Mathematics and reading are core educational skills, requiring ability in recognition, retrieval, quantification and reflection. The skills are important in their own right, as well as being predictive of performance in other academic subjects.

PISA 2015 sampled 72 countries or regions. The regions included areas like Massachusetts, or regions within Argentina. In total, there were 63 countries and one Special Administrative Region (SAR) in China (Hong Kong) for which there were both MARA scores available from PISA, 2015, as well as country level data – see below. Thus, MARA was calculated for 453,170 participants, from 64 countries; the overall mean, by design, for MARA was 0.000, and it had a standard deviation of 1.000. Survey weights were provided by PISA to use for student comparability across countries, and these weights were applied for the analysis.

*2.3.2 Independent Variables from PISA*

*2.3.2.1 Parental Education Attainment*: PISA gathered information on the participants’ background including their parents’ educational attainment. Parental education was categorised according to ISCED (International Standard Classification of Education). This ranged from 1 (only primary), to 6 (third level postgraduate). Of the entire sample of parents, 23.8% were ‘ISCED 3A, 4B’ (upper secondary and non-tertiary post-secondary education), and 26.2% were ISCED 5A, 6 (third level education). In the analysis below, the MARA score of children both of whose parents were ISCED 3A, 4B were compared to the MARA score of children both of whose parents were ISCED 5A/6. In other words, this provided a comparison of the children of highly educated parents versus those with moderate levels of education.

*2.3.2.2 Parental Occupation:* PISA gathered information on the occupation of the parents. This was coded according to the ISEI (International Socio-Economic Index of Occupational Status, see Ganzeboom and Treiman, 2003). Hundreds of occupations are coded in this index, and these are ranked higher if they are of higher status. The scores range from 11 (low status occupations) to 89 (high status occupations). In the analysis, the MARA of children of fathers in the highest-ranked occupations (scoring 70-89, 18.7% of sample) were compared to the MARA of children of fathers in the low-medium ranks (scoring 20-39, 44.3% of sample). Ideally, the occupational status of mothers would also have been included, but the participation rate of mothers varies significantly by country (for example, is very low in some developing countries, and even considerably lower in southern European countries compared to northern ones); thus, this would have introduced a substantial gender-bias country-confound. The list of occupations in the professional/managerial versus low-medium skill occupations are presented in table 1 below. The purpose of using this variable was to permit the comparison in performance of children of fathers in high status occupations with those in low-middle status occupations.

*2.3.2.3 Family wealth*: PISA created a derived variable, Family Wealth, based on survey data assessing the possessions in the participant’s home, such as whether the participant had a room of their own, if the family had a car, a link to the internet, number of televisions, rooms with baths and showers, computers, electronic tablets, or E-readers. These parameters were transformed into a numerical score of wealth based on Item Response Theory.

Table 1 – high-status paternal occupations (ISEI codes 70-89) versus low-to-medium status occupations (ISEI codes 20-39).

|  |  |
| --- | --- |
| High Status Occupations | Low-to-Medium Status Occupations |
| CEOs, Legislators, Senior Government officials, Managing directors, Business and administrative managers, Policy planners, PR managers, R&D managers, IT managers, Scientists, Mathematicians, Actuaries, Engineers, Architects, Town planners, Medical doctors, Paramedics, Vets, Dentists, Speech therapists, Optometrists, Teachers, University lecturers, Business professionals, Accountants, Financial analysts, Software developers, Medical sales professions, Systems analysts, Lawyers, Judges, Psychologists, Philosophers, Social workers, Religious professionals, Authors, Journalists, Translators, Finance brokers, Graphic designers | Armed forces (non-officer), Mining supervisor, Construction supervisor, Chemical plant workers, Incinerator supervisors, Energy refining operator, Metalworkers, Veterinary assistants, Information clerks, Market researchers, Transport clerks, Hotel receptionists, Switchboard operators, Receptionists, Mail sorters, Service workers, Cooks, Waiters, Bartenders, Cleaning supervisors, Housekeepers, Undertakers, Pet groomers, Caretakers, Driving instructors, Street salespersons, Shop assistants, Service station attendants, Food service, Child care workers, Health care assistants, Security guards, Dairy producers, Forestry workers, Gardeners, Poultry producers, Builders, Carpenters, Glaziers, Plumbers, Mechanics, Welders, Painters, Toolmakers, Bicycle sales and repairs, Printers, Electricians, Potters, Electricians, Butchers, Bakers, Garment workers, Divers, Plant operators, Shoemakers, Assemblers, Drivers, Taxi drivers, Bus drivers, Machine operators, Rail workers, Refuse workers |

*2.3.3 Independent variables at country level*

*2.3.3.1 Country development*: The UN Human Development Index is a measure created to assess key dimensions of human life in a country – it is a “summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and a decent standard of living” (United Nations, 2019). The United Nations (2017) provided data for 2015. The countries ranked highest in development were Norway (0.953), and Switzerland (0.944). Those ranked at the bottom were the Central African Republic (0.367) and Niger (0.354). Thus, people living in Norway and Switzerland should typically expect to live long, healthy lives, with high levels of educational achievement, and in material comfort. The countries and their respective UN HDI score are presented as columns in appendix 1, columns A and B.

*2.3.3.2 Cumulative spending per child’s education (6-15) by country in USD – PPP.* The OECD calculated the cumulative spend per child in US dollars in Purchasing Power Parities (PPP) by country. This allowed like-for-like comparisons in educational spending per child per country. OECD estimates are available for 49 of the 64 countries. See appendix 1, column C, and see OECD (2016) for original data.

1. **Results**

The goal of the analysis was to examine the MARA scores of children of parents with different backgrounds (in education or occupation), and to assess whether the gap between comparable groups of children was widening or narrowing in societies of different levels of development.

* 1. *The gap in performance between children of parents of different educational attainment.*

The goal of the analysis was to compare the MARA scores of the children of high versus medium educated parents. The gap in achievement of the two groups of children in each country was correlated with the level of that country’s human development (as assessed by the UN HDI score for 2015). The mean MARA data for the children of both educational groups are presented in appendix 1, (column E and F), along with the difference within each country between the groups (column G).

The difference in mean country MARA between the children of highly educated parents (university) and moderately educated parents (non-university) was 0.308, for a score whose standard deviation in the entire sample was 1.000. The gap between the performances of the two groups of children was greater in countries which were more developed – the Pearson’s r for the 64-country correlation between UN HDI and MARA educational difference was 0.323 (p = 0.009). The Spearman’s rho measure was significant also but slightly lower at 0.275, (p = 0.028).

* 1. *The gap in performance between children of fathers of different occupational status.*

The MARA scores of the children of fathers in professional/managerial occupations were also compared to the children of fathers in low-to-medium skilled occupations. The mean MARA scores by country for children of low-to-medium occupational status are provided in appendix 1, column H and for children of fathers of high occupational status in column I, and the within country difference is in column J. The overall difference in mean country MARA between the children of fathers in professional/managerial occupations, and children of fathers in low to middle skill occupations was 0.562, again where the standard deviation of MARA in the overall population is 1.000. The difference between the MARA scores of children of fathers in high occupational status versus those in low-to-medium was greater in countries which were more developed – the Pearson’s r for the 64-country correlation between UN HDI and MARA occupational difference was 0.392 (p = 0.001). The Spearman’s rho was lower at 0.349, p = 0.005.

* 1. *General MARA dispersion and country development.*

The standard deviation by country of the participants’ MARA scores was greater in more developed countries. The country MARA standard deviations are presented in appendix 1, column K, and range from a low of 0.605 (Algeria) to a high of 1.127 (Malta). The correlation between the standard deviation by country and UN HDI was 0.478 (Pearson’s r, p < 0.0001), or 0.438 (Spearman’s rho, p <0.001). The mean MARA by country also correlated very highly with the UN HDI - which is to be expected, as one of the three dimensions of the UN HDI assesses educational levels - with r = 0.839 (p < 0.0001). The mean MARA also correlated with the standard deviation of MARA (r = 0.321, p = 0.010). This suggests that more developed countries are successful in raising the educational performance of children, but possibly at the cost of a greater divergence in educational performance. This is despite the fact that more developed societies spend much more on education. Cumulative spend on a child’s education from ages 6-15 averaged 39,018 PPP dollars for the least developed 20 countries compared to 102,194 PPP dollars for the most developed 29 countries (OECD data only available for 49 of the countries represented in this analysis).

1. **Discussion**

The analysis examined the gap in performance on a derived measure of core educational performance between children of parents who differed either by education or occupation (fathers). The key finding was that countries characterised by higher levels of human development – as assessed in the United Nations Human Development Reports – tended to have statistically significantly greater divergences between children of parents of medium levels of education versus high levels of education, or children of fathers in high status occupations versus fathers in low-medium status occupations. The analysis benefitted by drawing in a wide variety of countries, including not just the more developed OECD members, but also less economically developed countries.

Greater disparity between children of different family backgrounds in *more* developed societies is a counter-intuitive finding. Highly developed countries, as was demonstrated, spend a lot more of their resources on education than less developed countries, and many have explicit policies in place that seek to divert resources towards raising the standards of children considered to be socio-economically disadvantaged.

It is possible that the pattern of greater divergence in MARA scores is some artefact of PISA. The fact that a similar pattern emerged for both occupational and educational contrasts makes it less likely that it is some simple artefact of either. Assuming that it is not an artefact, and higher development is associated with greater educational attainment divergences between children of varying social backgrounds, how might the pattern be explained? Erola et al. (2016; 34) summarise the distinction often made between two possible pathways of parental influence – endowments and investments. Endowments are “any parental resources or characteristics that children can potentially benefit from [including] human or cultural capital, social status, networks, as well as aspects of the genetic background.” Investments on the other hand refer to *intentional* behaviour by the parents to benefit their children such as paying for types of special educational support, living conditions, or investing time in helping their offspring. Following this distinction, one possible explanation for an association between country development and greater gaps in the educational attainment of children is that in more developed societies, with a greater emphasis on success through formal educational credentials, parents from a more advantaged educational or occupational background consciously invest disproportionately more time and money into their children’s education than their less advantaged peers. This additional parental investment is strong enough to offset the attempt by the state to support moves towards a greater convergence of educational attainment.

A completely alternative, although not necessarily contradictory explanation, could be made based on unconscious parental endowments. The Scarr-Rowe hypothesis (also known as the Gene x Socioeconomic Status interaction, see Tucker-Drob & Bates, 2016) claims that heritability of cognitive ability is lower among children that are raised in greater economic hardship. Scarr-Salapatek (1971; 1286) proposed that “IQ scores within advantaged groups will show larger proportions of genetic variance and smaller proportions of environmental variance than IQ scores for disadvantaged groups”. Conversely in poorer environments, Woodley, Pallesen, and Sarraf suggest that “adverse bioecological conditions restrict the variance in developmental opportunities among those with low SES” (2018; 495). Less privation, the hypothesis predicts, should facilitate people’s ‘natural’ potential to be expressed.

While the analysis here does not permit assessing the merits of these explanations, nonetheless the possibility that greater human development in a country may act to accelerate social disparity is a concerning one. The positive finding that greater development is associated with overall higher educational performance may have to be tempered if it appears that this comes at a cost of widening the attainment gap between children of differing social backgrounds. Powerful datasets such as PISA can provide a vital tool for assessing fundamental trends in the academic performances of children across country, class, and parental characteristics.

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Appendix 1

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** |
| **Country** | **UNHDI** | **Educ. Spend $** | **Country MARA** | **Med Ed MARA** | **High Ed MARA** | **Df Ed MARA** | **Dad LMJobMARA** | **Dad HJobMARA** | **Df Job MARA** | **SDMara** |
| Algeria | 0.754 |  | -1.036 | -0.879 | -1.026 | -0.147 | -1.056 | -0.744 | 0.312 | 0.605 |
| Australia | 0.939 | 92316 | 0.491 | 0.339 | 0.984 | 0.645 | 0.385 | 0.955 | 0.570 | 0.936 |
| Austria | 0.908 | 132955 | 0.411 | 0.501 | 0.980 | 0.479 | 0.233 | 0.965 | 0.732 | 0.950 |
| Belgium | 0.916 | 110316 | 0.538 | 0.585 | 0.943 | 0.358 | 0.348 | 1.157 | 0.809 | 0.972 |
| Brazil | 0.759 | 38190 | -0.639 | -0.400 | -0.222 | 0.178 | -0.619 | -0.064 | 0.555 | 0.879 |
| Bulgaria | 0.813 | 29980 | -0.167 | -0.216 | 0.237 | 0.453 | -0.229 | 0.541 | 0.770 | 1.023 |
| Canada | 0.926 | 94254 | 0.733 | 0.615 | 1.017 | 0.402 | 0.594 | 1.181 | 0.587 | 0.853 |
| Chile | 0.843 | 40607 | -0.125 | -0.003 | 0.401 | 0.404 | -0.180 | 0.406 | 0.586 | 0.834 |
| China, Hong Kong SAR | 0.933 |  | 0.906 | 0.930 | 1.246 | 0.316 | 0.893 | 1.183 | 0.290 | 0.835 |
| Colombia | 0.747 | 24395 | -0.479 | -0.337 | -0.236 | 0.101 | -0.527 | -0.073 | 0.454 | 0.802 |
| Costa Rica | 0.794 | 46531 | -0.409 | -0.456 | 0.019 | 0.475 | -0.459 | 0.015 | 0.474 | 0.683 |
| Croatia | 0.831 | 50722 | 0.246 | 0.170 | 0.786 | 0.616 | 0.149 | 0.946 | 0.797 | 0.862 |
| Czech Republic | 0.888 | 63576 | 0.400 | 0.469 | 1.049 | 0.580 | 0.243 | 1.109 | 0.866 | 0.936 |
| Denmark | 0.929 | 103852 | 0.567 | 0.650 | 0.810 | 0.160 | 0.433 | 0.915 | 0.482 | 0.798 |
| Dominican Republic | 0.736 | 24264 | -1.165 | -1.131 | -1.022 | 0.109 | -1.133 | -0.661 | 0.472 | 0.730 |
| Estonia | 0.871 | 63858 | 0.714 | 0.618 | 0.997 | 0.379 | 0.611 | 1.234 | 0.623 | 0.803 |
| Finland | 0.920 | 101527 | 0.707 | 0.657 | 0.960 | 0.303 | 0.587 | 1.098 | 0.511 | 0.844 |
| France | 0.901 | 89435 | 0.467 | 0.716 | 0.858 | 0.142 | 0.333 | 1.069 | 0.736 | 1.017 |
| Georgia | 0.780 | 11704 | -0.528 | -0.712 | -0.144 | 0.568 | -0.622 | -0.028 | 0.594 | 0.933 |
| Germany | 0.936 | 92214 | 0.588 | 0.753 | 1.113 | 0.360 | 0.500 | 1.207 | 0.707 | 0.913 |
| Greece | 0.870 |  | 0.086 | 0.067 | 0.452 | 0.385 | -0.038 | 0.629 | 0.667 | 0.902 |
| Hungary | 0.838 | 47229 | 0.223 | 0.343 | 0.558 | 0.215 | 0.127 | 0.939 | 0.812 | 0.934 |
| Iceland | 0.935 | 107811 | 0.347 | 0.323 | 0.616 | 0.293 | 0.254 | 0.632 | 0.378 | 0.914 |
| Indonesia | 0.694 |  | -0.644 | -0.426 | -0.004 | 0.422 | -0.581 | -0.132 | 0.449 | 0.706 |
| Ireland | 0.938 | 91171 | 0.638 | 0.662 | 0.946 | 0.284 | 0.512 | 1.078 | 0.566 | 0.802 |
| Israel | 0.903 | 64973 | 0.235 | 0.057 | 0.720 | 0.663 | 0.076 | 0.719 | 0.643 | 1.060 |
| Italy | 0.880 | 86701 | 0.373 | 0.465 | 0.614 | 0.149 | 0.251 | 0.905 | 0.654 | 0.889 |
| Japan | 0.909 | 93200 | 0.766 | 0.587 | 1.166 | 0.579 | 0.654 | 1.147 | 0.493 | 0.863 |
| Jordan | 0.735 |  | -0.618 | -0.469 | -0.429 | 0.040 | -0.639 | -0.338 | 0.301 | 0.824 |
| Kosovo | 0.739 |  | -1.040 | -1.011 | -0.918 | 0.093 | -1.024 | -0.812 | 0.212 | 0.708 |
| Latvia | 0.847 | 59899 | 0.349 | 0.287 | 0.577 | 0.290 | 0.270 | 0.755 | 0.485 | 0.774 |
| Lebanon | 0.757 |  | -0.857 | -0.584 | -1.028 | -0.444 | -1.008 | -0.581 | 0.427 | 1.031 |
| Lithuania | 0.858 | 48389 | 0.247 | 0.138 | 0.537 | 0.399 | 0.219 | 0.684 | 0.465 | 0.868 |
| Luxembourg | 0.904 | 187459 | 0.334 | 0.397 | 0.838 | 0.441 | 0.039 | 1.063 | 1.024 | 0.980 |
| Malta | 0.878 | 112780 | 0.112 | 0.400 | 0.552 | 0.152 | -0.017 | 0.634 | 0.651 | 1.127 |
| Mexico | 0.774 | 27848 | -0.389 | -0.221 | -0.079 | 0.142 | -0.395 | 0.005 | 0.400 | 0.716 |
| Montenegro | 0.814 | 25786 | -0.317 | -0.286 | -0.194 | 0.092 | -0.376 | 0.125 | 0.501 | 0.848 |
| Netherlands | 0.931 | 99430 | 0.589 | 0.592 | 1.002 | 0.410 | 0.379 | 0.999 | 0.620 | 0.952 |
| New Zealand | 0.917 | 80890 | 0.532 | 0.592 | 0.951 | 0.359 | 0.404 | 1.055 | 0.651 | 0.944 |
| Norway | 0.953 | 135227 | 0.587 | 0.661 | 0.695 | 0.034 | 0.415 | 0.954 | 0.539 | 0.876 |
| Peru | 0.750 | 20114 | -0.640 | -0.398 | -0.254 | 0.144 | -0.581 | -0.016 | 0.565 | 0.825 |
| Poland | 0.865 | 67767 | 0.562 | 0.612 | 1.010 | 0.398 | 0.518 | 0.981 | 0.463 | 0.855 |
| Portugal | 0.847 | 83050 | 0.454 | 0.837 | 0.890 | 0.053 | 0.273 | 0.977 | 0.704 | 0.905 |
| Qatar | 0.856 |  | -0.532 | -0.606 | -0.346 | 0.260 | -0.634 | -0.075 | 0.559 | 1.025 |
| Republic of Korea | 0.903 | 79517 | 0.729 | 0.763 | 1.120 | 0.357 | 0.645 | 1.105 | 0.460 | 0.940 |
| Republic of Moldova | 0.700 |  | -0.364 | -0.253 | -0.012 | 0.241 | -0.347 | 0.171 | 0.518 | 0.865 |
| Romania | 0.811 |   | -0.142 | -0.180 | 0.345 | 0.525 | -0.198 | 0.559 | 0.757 | 0.853 |
| Russian Federation | 0.816 | 51492 | 0.448 | 0.325 | 0.712 | 0.387 | 0.421 | 0.749 | 0.328 | 0.768 |
| Singapore | 0.932 | 130611 | 1.037 | 0.936 | 1.566 | 0.630 | 0.704 | 1.377 | 0.673 | 0.945 |
| Slovakia | 0.855 | 58382 | 0.125 | 0.165 | 0.566 | 0.401 | 0.099 | 0.726 | 0.627 | 0.972 |
| Slovenia | 0.896 | 92850 | 0.589 | 0.560 | 0.877 | 0.317 | 0.413 | 1.040 | 0.627 | 0.869 |
| Spain | 0.891 | 74947 | 0.409 | 0.436 | 0.851 | 0.415 | 0.278 | 0.847 | 0.569 | 0.818 |
| Sweden | 0.933 | 110733 | 0.476 | 0.521 | 0.768 | 0.247 | 0.318 | 1.051 | 0.733 | 0.921 |
| Switzerland | 0.944 | 173151 | 0.581 | 0.556 | 0.948 | 0.392 | 0.366 | 1.067 | 0.701 | 0.940 |
| Thailand | 0.755 | 27220 | -0.424 | -0.544 | 0.024 | 0.568 | -0.339 | 0.204 | 0.543 | 0.756 |
| The former Yugoslav Republic of Macedonia | 0.757 |  | -0.963 | -0.966 | -0.720 | 0.246 | -0.922 | -0.777 | 0.145 | 0.899 |
| Trinidad and Tobago | 0.784 |  | -0.319 | -0.090 | -0.403 | -0.313 | -0.347 | 0.113 | 0.460 | 0.962 |
| Tunisia | 0.735 |  | -0.938 | -0.857 | -0.694 | 0.163 | -1.009 | -0.412 | 0.597 | 0.750 |
| Turkey | 0.791 | 32752 | -0.296 | -0.204 | 0.022 | 0.226 | -0.309 | 0.300 | 0.609 | 0.777 |
| United Arab Emirates | 0.863 |  | -0.231 | -0.466 | 0.040 | 0.506 | -0.353 | 0.011 | 0.364 | 0.974 |
| United Kingdom of Great Britain and Northern Ireland | 0.922 | 114920 | 0.457 | 0.449 | 0.841 | 0.392 | 0.360 | 0.840 | 0.480 | 0.908 |
| United States | 0.924 | 115180 | 0.329 | 0.283 | 0.712 | 0.429 | 0.279 | 0.828 | 0.549 | 0.916 |
| Uruguay | 0.804 | 31811 | -0.266 | -0.011 | 0.280 | 0.291 | -0.292 | 0.402 | 0.694 | 0.878 |
| Viet Nam | 0.694 |  | 0.409 | 0.620 | 1.184 | 0.564 | 0.470 | 0.820 | 0.350 | 0.747 |