

ON THE ERASMUS STUDENT MOBILITY FOR STUDIES

Kristijan Breznik

International School for Social and Business Studies, Slovenia
kristijan.breznik@mfdps.si

Vesna Skrbinjek

International School for Social and Business Studies, Slovenia
vesna.skrbinjek@mfdps.si

Kris Law

The Hong Kong Polytechnic University, Hong Kong
kris.lau@polyu.edu.hk

Goran Đaković

University of Twente, the Netherlands
goran.dakovic@gmail.com

Abstract:

The Erasmus programme has made a significant contribution to mobility in European higher education, enabling almost 3 million students and 300,000 academic staff to be mobile within the borders of Europe since 1987. In the paper, we deal with Erasmus mobility flows, in particular Erasmus Student mobility for studies (SMS), between 32 European countries in the last Erasmus phase (from 2007/08 to 2010/11). For this purpose we used program R for statistical analysis and Pajek program for analysis of networks. The data was conducted from official European Commission website on Erasmus-Statistics. First, we provided some general overview on Erasmus mobility trends and then we defined Erasmus SMS network. Network analytic methods revealed 3 groups of countries: good importers and exporters (Spain, Italy, France, Germany and Portugal), good importers only (Denmark, Finland, Sweden, United Kingdom and Ireland) and good exporters only (Belgium, Netherlands, Austria, Czech Republic and Poland). Based on our results further research can be done.

Keywords: Erasmus, students, mobility, network

1. INTRODUCTION

Globalisation, internationalisation, Europeanization and marketization are all highly debated concepts on today's political and research agendas. The most important factor being cross border mobility, influencing students and higher education institutions at both ends of migration channels (Sackmann, 2006). Within the borders of Europe, student mobility, and Erasmus mobility in particular, is seen by the European commission as instrumental for the Europeanization of the member states not only through the development of European dimension but also as the development of intercultural competencies, which are seen as essential for economic development in a globalising world (Sackmann, 2006). Subsequent communications from European policy makers have only strengthened the belief that higher education institutions are becoming crucial to Europe's future well-being, and that cooperation between countries and universities in this endeavour is an almost necessary condition for success.

Erasmus programme was set to improve people's skills and competences in order to develop highly skilled labour force, gradually modernize education systems and straighten Europe's position as a knowledge-based economy (Gonzalez, 2011). But at the beginning, this European level policy initiative was mostly a student exchange programme, aiming to "increase the number of higher education students spending an integrated period of study at another member state" (De Witt & Verhoeven, 2001; in Huisman, 2004). Erasmus programme has now been in place for 26 years and it has enabled almost 3 million students and 300,000 academic staff to be mobile within 33 European countries¹. Over the years it has been constantly expanding in its scope and contribution, developing new ways to stimulating cooperation and supporting higher education not only for academic but also economic and cultural reasons (Sackmann, 2006, p. 4; Beerkens and Vossensteyn, 2011, p. 46). For instance, since 2007 Erasmus gained three additional components as part of Lifelong Learning programme: student mobility for placements (SMP), staff mobility for teaching assignment and staff mobility for training. The most common action is still Erasmus student mobility for studies (SMS), temporary mobility enabling students to spend a period of 3 to 12 months in another Europe 32 country (European Commission, 2012, p. 5).

Various studies also confirm indirect effects of Erasmus programme, exceeding students' and staffs' benefits, which is congruent with a general trend of internationalization (Beerkens & Vossensteyn, 2011, p. 46-48). The changes that internationalisation inspires concern from system level (fostering internationalisation policies), institutional level (teaching, research, organisational structure and management) to individual level (academic and personal development, soft skills) (Vossensteyn et al., 2008, pp. 4-10). However, there are significant differences in the quantity of Erasmus mobility flows among countries due to different determinants influencing student's decision (Gonzalez et al., 2011). In the paper, we will deal with Erasmus mobility flows, in particular Erasmus SMS, between 32 European countries² in the last Erasmus phase (from 2007/08 to 2010/11). The data was conducted from official European Commission website on Erasmus-Statistics (European Commission, 2013). We structured the paper as follows. First, we provided some general overview on Erasmus mobility trends. Then we defined Erasmus SMS network and finished the paper with concluding remarks.

2. GENERAL OVERVIEW OF ERASMUS STUDENT FLOWS

With time, Erasmus student mobility has grown substantially. In the academic year 2010/11 there were 231,408 students in 32 countries participating in Erasmus SMS or SMP, covering 1% of all students in these countries, but there is still potential for further growth. Currently, the ERASMUS programme has set its target at reaching three million students by the end of the 5th Erasmus phase until the end of 2012/13 (Vossensteyn et al., 2010, p. 17), and the launch of a new Erasmus for all phase (2014–2020), enabling opportunity to study, work or train for about additional 5 million students.

Picture 1 covers 11 year long period from 2000/01 to 2010/11 illustrating increasing trend in the number of Erasmus students and share of Erasmus students in relation to all students in 32 European countries. Erasmus students more than doubled (by 108%) in this period, which is due to a growth in

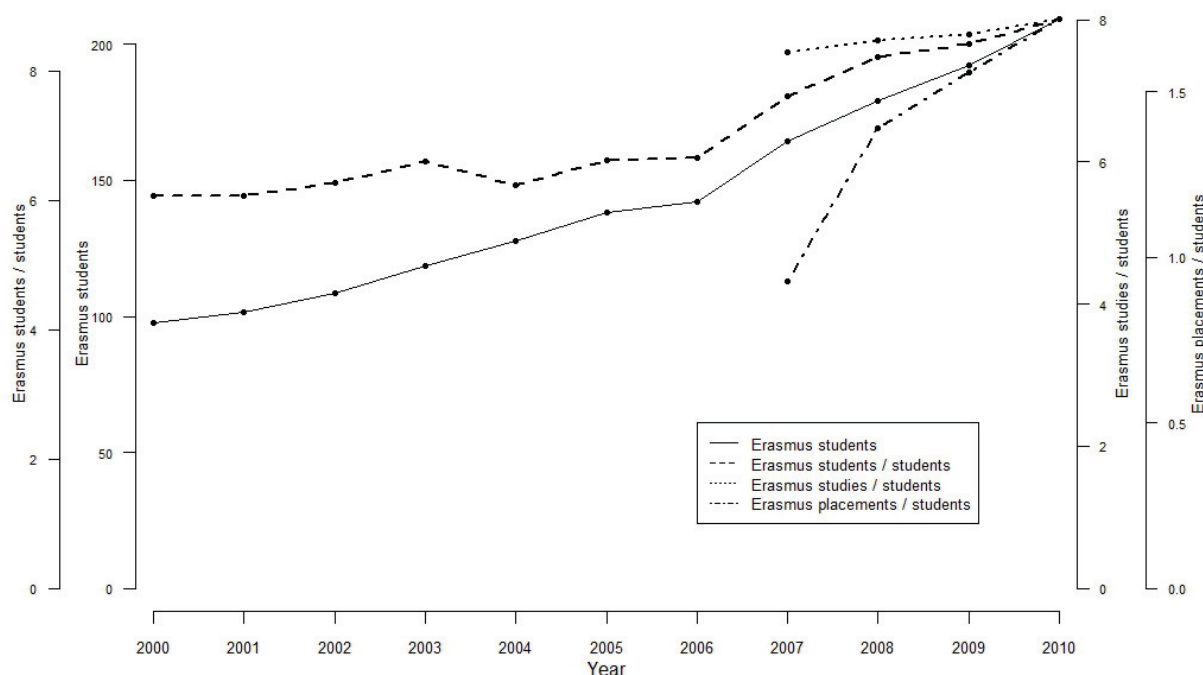
¹ 33 countries include EU 27, Iceland, Liechtenstein, Norway, Turkey, Croatia and Switzerland.

² Our analysis includes 32 countries, excluding Switzerland, which joined Erasmus programme only in 2011. On the other hand, Croatia is a part of Erasmus Programme for only two years, 2009/10 and 2010/11 of our observation period.

the number of participating countries and an overall increase in the Erasmus budget (Wachter & Ferencz, 2012, p. 405). The shares of SMS and SMP are shown separately from the start. Among Erasmus students, 190,495 or 82% SMS were supported in 2010/11, which means an increase of 7.2% on the previous year (European Commission, 2012, p. 5).

The programme has made a significant contribution to mobility in European higher education, but nevertheless in several countries, quantity of participating students appear to have peaked and even declining (Vossensteyn et al., 2010, p. 21). This is the case in some 'older' EU Member states, which record the highest numbers in absolute terms, while the participation rate in 'new' and smaller-size member states tend to be the fastest, suggesting a catching-up trend (Wachter & Ferencz, 2012, p. 405; Vossensteyn et al., 2010, p. 25). Several studies have suggested that the reasons for this underperformance are a set of financial and personal barriers for students (Vossensteyn et al., 2010, p. 21).

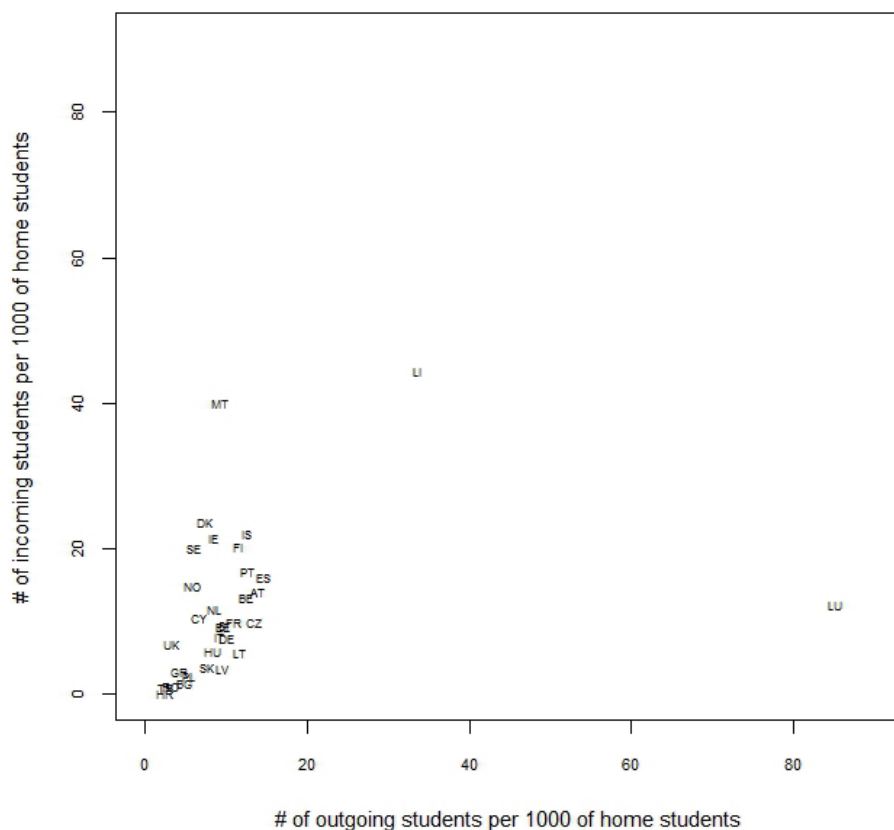
Picture 1: Number of Erasmus students in the period 2000-2010



Spain has been in the lead position of top exporting countries, followed by France, Germany, Italy and Poland, on the other hand the most popular destinations for Erasmus students are Spain, France, Germany, United Kingdom and Italy (Wachter & Ferencz, 2012, p. 404; Erasmus-facts, figures & trend, 2012, p. 6).

By explaining the differences between exporting and importing countries, we conducted Picture 2, which is based on the year average shares of incoming and outgoing Erasmus SMS in the period from 2007/08 to 2010/11. The coordinates of each country's label in Picture 2 was obtained in the following way. We calculated the average of individual country's SMS outgoing (incoming) students. Then we divided both by the average number of students in the country and multiplied them by 1000.

Picture 2: Shares of incoming and outgoing SMS from 2007/08 to 2010/11



Some interesting details can be observed from Picture 2. Three small countries, Luxembourg, Lichtenstein and Malta, can be considered as outliers. Luxembourg is a good exporter of SMS students in relative terms (as the number of outgoing students in each country is divided by the number of all students in the country). On the other hand, Malta is a good importer. The position of Lichtenstein can be interpreted as both a good exporter and importer. The position of other countries is not so clear although Scandinavian countries, Denmark, Sweden and Norway, can be considered as better importers.

It should be emphasized that the position of countries in Picture 2 does not rely on relations between individual countries but only it takes into account only the total number of incoming and outgoing students and the total number of students within each country. To use additional information of number of incoming and outgoing students from each country to every other country, we use the concepts of network analysis which is presented in the next session.

3. ERASMUS SMS NETWORK

In general, a network is usually defined with a group (or groups) of actors and a relation (or relations) between them (Wasserman & Faust, 1994). In Erasmus mobility SMS network all 32 countries which participated in Erasmus programme between 2007/08 and 2010/11 (for at least one year) form a group of actors. A relation is defined as the number of students studying abroad in Erasmus SMS. Specifically, we create a direct link from a country A to a country B if students from the country A were included in Erasmus SMS in the country B over the observed period of time. However, the weights on direct links require our special attention.

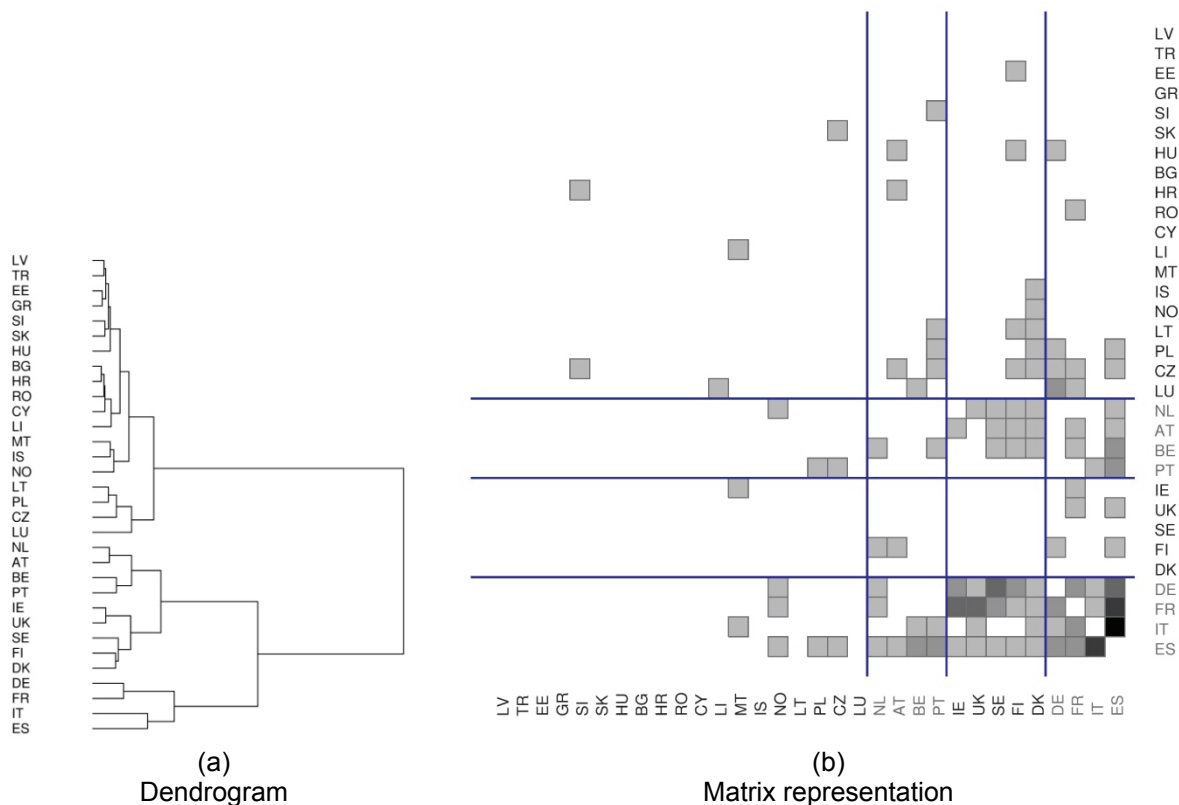
It is expected that the higher number of students is coming from and is going to the countries with larger study population. To exclude this fact, we divide the number of outgoing/incoming students with the square root of the product of the number of students in the linking countries. For instance, in the period from 2007/08 to 2010/11 on the average 191.25 Erasmus students per year (765 in all four years) from Slovenia were studying in Spain and 3.50 students (12) in Estonia. On the contrary, in the same period 147.25 students (589) from Spain and 2.25 students (9) from Estonia were studying in Slovenia. To obtain the normalised weights on the links between Slovenia and Spain, we divide the actual number of students with the square root of 68,580 and 115,163 – the average numbers of all

students in both countries over the observed period. According to the number of students in observed countries it is obvious that division with smaller numbers was performed between Slovenia and Estonia.

All 32 countries of the Erasmus SMS network are presented in the matrix in Picture 3b. Cells in the matrix are coloured with six shades of gray colour. The lowest weights on links between countries are presented with white, the strongest with black. Each cell of the matrix indicates the mobility of Erasmus students from the country in the row to the country in the column.

Position of countries in the matrix was additionally obtained using the Ward method of agglomerative hierarchical clustering. Based on the dendrogram (Picture 3a) we decided to divide the countries into four clusters. In the bottom right cluster we can find four countries, Spain, Italy, France and Germany, all of them exchanging many Erasmus students. Students from countries in the bottom cluster are visiting countries in the second cluster but not vice versa. Countries in the second cluster are not cooperating among themselves in terms of Erasmus student mobility. There is another almost full block in the matrix (Picture 3), namely countries in the second cluster are very popular with students from countries in the third cluster.

Picture 3: Matrix display of normalised Erasmus SMS network



In the matrix representation of SMS network (Picture 3b) countries with many darkened cells in their row can be perceived as good *exporters* of Erasmus students. In this context, Spain can be considered as the best exporting country among all since it has 15 darkened cells in the row. On the other hand, countries like Denmark and Spain can be considered as the best importers as they have the most darkened cells in their column (12 and 11, respectively).

To obtain the consistent overview of exporting and importing countries we use the specific network analytic technique, called hubs and authorities (Kleinberg, 1999). Good hubs in the network are countries which are pointing to many good authorities and similarly good authorities are countries which are pointed to by many good hubs. This method provides two vectors, first vector is called a hub vector and second vector is an authority vector. High vector value of individual country indicates its hub and/or authority tendency. In the context of Erasmus SMS network hubs are representing good exporting countries and authorities good importing countries. Both vectors of SMS network by countries are provided in Table 1.

Table 1: Hub and authority vectors of SMS network by countries

| Country | Hubs vector | Authorities vector | Country | Hubs vector | Authorities vector |
|---------|-------------------|---------------------|---------|-------------------|---------------------|
| BE | 0.20627800 | 0.1900856120 | MT | 0.02315763 | 0.0881117860 |
| BG | 0.05058200 | 0.0152537670 | NL | 0.17527320 | 0.1953423860 |
| CZ | 0.20040249 | 0.1229168110 | AT | 0.20223440 | 0.1582292530 |
| DK | 0.07786916 | 0.2475690010 | PL | 0.18479990 | 0.0731912450 |
| DE | 0.40515873 | 0.2484956050 | PT | 0.16061835 | 0.2254925580 |
| EE | 0.06429992 | 0.0509530250 | RO | 0.06656858 | 0.0227259410 |
| GR | 0.07771748 | 0.0510049850 | SI | 0.07961007 | 0.0670241650 |
| ES | 0.42383671 | 0.4600468990 | SK | 0.08037261 | 0.0334026160 |
| FR | 0.41213959 | 0.3060427170 | FI | 0.14371466 | 0.2551399220 |
| IE | 0.09110015 | 0.2273921780 | SE | 0.08468237 | 0.3019856950 |
| IT | 0.34001358 | 0.2556232680 | UK | 0.12298177 | 0.2559867210 |
| CY | 0.02199389 | 0.0361686740 | IS | 0.05019406 | 0.0656856350 |
| LV | 0.08118015 | 0.0259904180 | LI | 0.02805170 | 0.0346554950 |
| LT | 0.13255236 | 0.0489214040 | NO | 0.06646554 | 0.1607290230 |
| LU | 0.12017838 | 0.0207239300 | TR | 0.08553577 | 0.0340153730 |
| HU | 0.11890575 | 0.0742371000 | HR | 0.01958405 | 0.0003878911 |

Countries in Table 1 can be divided into 3 groups:

- Good importers and exporters: Spain, Italy, France, Germany and Portugal.
- Good importers only: Denmark, Finland, Sweden, United Kingdom and Ireland.
- Good exporters only: Belgium, Netherlands, Austria, Czech Republic and Poland.

First group is dominated by Mediterranean countries (except for Germany), which are good importers as well as good exporters of Erasmus SMS. Nevertheless, these are also countries that have embarked on the Erasmus program since its inception in 1987 and can be termed the 'long runners', resulting in already well-established contacts and good tradition of Erasmus flows.

Second group are representing countries of the Northern Europe, which are good importers of Erasmus SMS. Denmark, United Kingdom and Ireland are also first participating countries (the long runners), whereas Finland and Sweden joined the Erasmus at the first enlargement in 1992/93.

Third group consists of countries of the Continental Europe, which are good exporters of Erasmus SMS. In this group we find Belgium and the Netherlands, which are the 'long runners', Austria which joined in 1992/93 and two additional West European countries Czech Republic and Poland, which joined the Erasmus only in 1998/99 and can be therefore labelled 'short runners'.

4. CONCLUSION

In the present paper we revealed 3 groups of countries: good importers and exporters, good importers only and good exporters only. The results are in some way consistent with previous studies, although we think that network analytic methods offers the more detailed view on the level of individual countries.

Our future work will include the analysis of other components of Erasmus mobility: student mobility for placements (SMP), staff mobility for teaching assignment and staff mobility for training.

The programs for data editing and producing networks were written in R (R Development Core Team, 2013). Likewise, program R was used for statistical analysis. For analysis of networks we used the Pajek program (Batagelj & Mrvar, 1996-2013).

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