Mental maps of students - Volume 4

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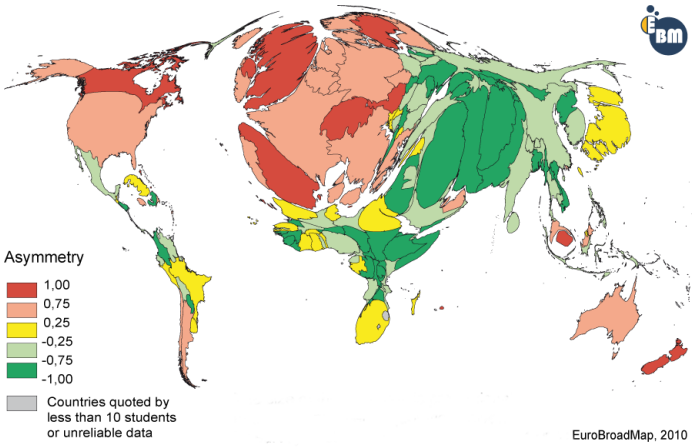
EuroBroadMap
VISIONS OF EUROPE IN THE WORLD

Cross Country Synthesis on Survey
(deliverable 2.6)



Volume 4

Part 2—Knowledge and attractiveness of cities and countries

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Socio-economic Sciences and Humanities
SEVENTH FRAMEWORK PROGRAMME

4 Knowledge and attractiveness of cities and countries

Question B of the EuroBroadMap survey was the following one:

> B.1.a) With the exception of the cities of the country, or countries, where you currently have citizenship, list up to five cities for each of the following questions...
>
> ...where would you like to live in the near future?
>
> ...where would you NOT like to live in the near future?
>
> B.1.b) With the exception of the country or country(ies) where you currently have citizenship, list up to five country(ies) for each of the following questions...
>
> ...where would you like to live in the near future?
>
> ...where would you NOT like to live in the near future?

The question was asked for both cities and countries as we expected different results according to the scale taken into account.

Introduction

According to the Lisbon Strategy, it is certainly of the utmost importance for the EU to evaluate its degree of attractiveness to external migrants—especially young graduate students—that can offer valuable inputs in terms of research, innovation, culture, and the arts. As a matter of fact, the questionnaire launched by the EuroBroadMap project could probably complete recent investigations launched by the European Commission on the perception of the European Union in third (non-European) countries. But it is important to explain immediately that the main objective of the EuroBroadMap project is not to measure the global attractiveness of the European Union but *to produce a non-Eurocentric vision of Europe in the world.* This distinction is crucial in the case of Question B of the survey where more than 9000 students of 42 places located in 18 countries were asked to list "cities or countries where they would like or not like to live in the near future", excluding the places located in the country where they currently have citizenship.

Unlike other studies launched by the EU in order to measure its attractiveness to international students (particularly (2004[1])), Question B of the EuroBroadMap survey is deliberately not related to a precise situation of choice where students would indicate their targets for study or work. The formulation of the question is more general and fuzzy, and tries to catch a general feeling of attraction or repulsion towards countries or cities, which

can depend on a variable mixture of objective and subjective factors. The only important constraints are (1) the fact that the students are not allowed to choose their country of citizenship and (2) the time restriction of choice to the "near future". Students are therefore invited to describe projects of life that are open in space (exclusion of national choice) and time (as the near future is not an immediate decision). Dreams are not reality... but are a component of it.

Last but not least, Question B does not focus only on attractive places (the "world") but also on repulsive places (the "Antiworld") which are also a crucial component of the pictures elaborated by students on the contemporary states and cities of the world. We can indeed imagine that negative choices are more likely to reveal differences between countries or group of countries than positive ones.

4.1 Rate of participation and other background information

Before detailing the content of the answers to the question, it is necessary to examine some background information on the rate of answers to the different sub-questions and the diversity of states and cities mentioned.

4.1.1 Level of participation by field and place of survey

The majority of students answered Question B, but the degree of participation was different according to the subtopic. Concerning states, 95.1% of students indicated at least one state where they would like to live and 92.8% at least one state where they would not like to live. For cities, the rate of participation was lower, with only 92.8% of students declaring a city where they would like to live, and only 85.4% a city where they would not like to live. Students were generally more likely to provide answers about states rather than cities, and were more reluctant to provide negative answers than positive answers, especially in the case of cities.

Looking at the variation of participation by place of survey, we can notice a relative homogeneity of the rates of participation and the same hierarchy of subtopics. If we exclude the exceptional samples of Baku (Azerbaijan) where the survey was not fully completed, we can observe a participation rate of 85% to 95% in the majority of places, except for the question of cities where students would not like to live, for which the participation is significantly lower and only about 80%–90% in the majority of places of survey.

4.1.2 Number of answers by topic and place of survey

We examine now the number of answers given by students to each topic, excluding the ones that did not provide any answer. Students were not supposed to rank their choices, but the maximum number of answers was

Figure 27: Participation of students for Question B

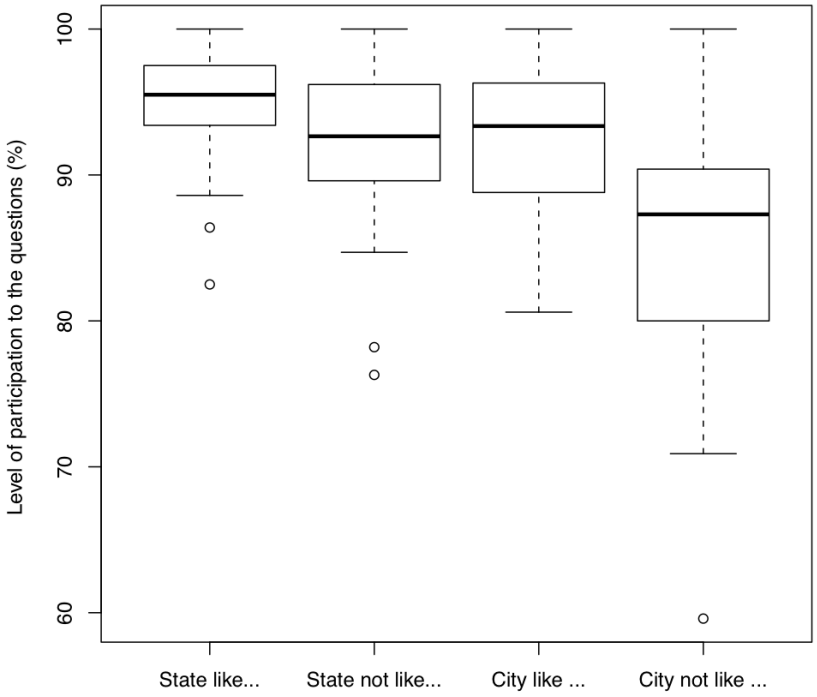


Table 2: Number of answers to the question about cities where students would like to live (horizontal) and not like to live (vertical) in the near future

	0	1	2	3	4	5	tot
0	5.40	0.70	0.30	0.30	0.20	0.30	7.20
1	1.60	1.50	0.60	0.30	0.20	0.20	4.40
2	1.60	1.40	1.30	0.70	0.30	0.30	5.60
3	1.50	1.70	1.80	2.10	1.00	0.80	8.90
4	1.30	1.40	1.80	1.90	1.70	3.00	11.10
5	3.10	2.70	3.30	5.30	7.10	41.30	62.80
tot	14.50	9.40	9.10	10.60	10.50	45.90	100.00

Table 3: Number of answers to the question about countries where students would like to live (horizontal) or not like to live (vertical) in the near future

	0	1	2	3	4	5	tot
0	3.40	0.60	0.10	0.10	0.10	0.50	4.80
1	0.60	1.20	0.40	0.20	0.10	0.30	2.80
2	0.50	1.00	1.20	0.70	0.30	0.50	4.20
3	0.60	0.80	1.30	2.20	1.10	1.50	7.50
4	0.60	0.70	1.10	1.50	2.00	5.30	11.20
5	1.50	1.20	1.50	2.40	4.70	58.00	69.30
tot	7.20	5.50	5.60	7.10	8.30	66.10	100.00

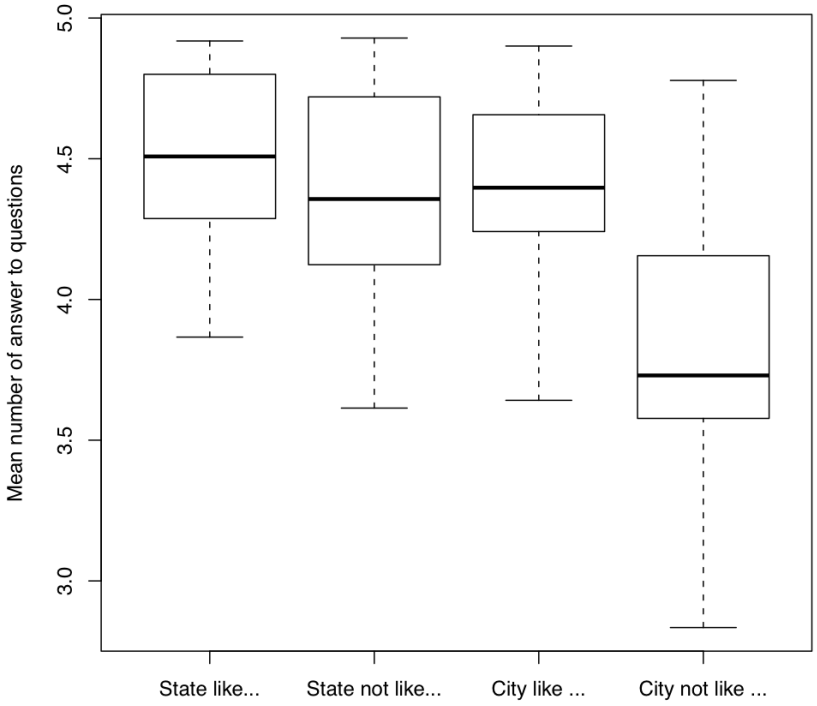
equal to five and it is interesting to examine, for each topic, whether they decided to mention the maximum potential destinations or if they preferred to limit their proposals.

In the case of cities, only 5.4% of the students did not mention any city, but 41.3% provided the maximum number of answers with five cities where they would like to live and five cities where they would not like to live. Generally speaking, the number of cities mentioned as a place to live is greater than or equal to the number of cities where students would not like to live.

In the case of countries, only 3.4% of the students did not mention any country, but 58.0% provided the maximum number of answers. The balance of positive and negative answers is more balanced than in the case of cities.

The variation in the number of answers by place of survey has been analysed in a reduced sample of 7427 students that have provided at least one answer to each of the four topics of Question B. What is at stake is

Figure 28: Average number of cities or states mentioned by students



therefore not the rate of participation but the choice of providing more or fewer answers to a topic. The conclusions that we obtain are similar: the number of answers is higher for countries than for cities. It is also higher for positive choices than for negative choices, especially in the case of cities.

4.1.3 Validation of the survey

The detailed analysis of the participation and number of answers has revealed a high level of interest from the students. The majority of them answered all the topics and provided a maximum of answers. It should therefore be noted that five places of the survey are characterised by significantly lower values on both criteria: Baku (Azerbaijan), Stockholm (Sweden), Beijing (China), Istanbul, and Izmir (Turkey). The two first cases can be explained by the difficulty of realising the survey, which was incomplete. But the three other cases concerned cities located in countries where other places have produced higher levels of answering and participation. In the following analysis, these five places will therefore be analysed carefully, because the students did not

answer exactly in the same way as in the other thirty-seven places.

A second conclusion is related to the originality of the topic of cities where students would not like to live. It appears that students have experienced more difficulties in answering this topic than the other questions. It is not only a question of knowledge, because students are able to provide the names of cities where they would like to live, and it is not only a question of preference for positive answers, because the difference between positive and negative answers exists but is not so huge in the case of states. One possible explanation could be related to the fact that the cities are more associated with a positive vision of the world than are states. Wars or conflicts are more often associated with states than with cities; cities are more perceived as nodes in the world archipelago and are probably more related to personal experience than states.

4.2 A critical approach to the "attractiveness" of states and cities of the world

4.2.1 The concepts of knowledge and asymmetry

The EuroBroadMap project has tried to propose an original and critical way to analyse the results of Question B. We consider, indeed, that positive and negative opinions about places where students would like or would not like to live should not be analysed in separate ways. We propose, therefore, a joint analysis of these opinions. The theoretical background of our approach is based on Simmel's work and, more precisely, the famous digression on the "Stranger" where Simmel introduces the crucial distinction made between "ignorance" and "strangeness":

> The unity of nearness and remoteness involved in every human relation is organised, in the phenomenon of the stranger, in a way which may be most briefly formulated by saying that in the relationship to him, distance means that he, who is close by, is far, and strangeness means that he, who also is far, is actually near. For, to be a stranger is naturally a very positive relation; it is a specific form of interaction. The inhabitants of Sirius are not really strangers to us, at least not in any social logically relevant sense: they do not exist for us at all; they are beyond far and near. The stranger, such as the poor and such as sundry "inner enemies", is an element of the group itself. His position as a full-fledged member involves both being outside it and confronting it. The following statements, which are by no means intended as exhaustive, indicate how elements which increase distance and repel, in the relations of and with the stranger produce a pattern of coordination and consistent interaction. From Kurt Wolff

(Trans.), *The Sociology of Georg Simmel*. New York: Free Press, 1950, pp. 402–408.

The transfer of Simmel's approach to our problem can be illustrated by the example of the perception of Russia by the Moldavian and Tunisian students. For the 242 students who answered Question B in Chisinau (Moldova), 34 declared they would to live in Russia in the near future, and 91 declared they would not so like. For the 244 students who took the survey in Sfax (Tunisia), the corresponding figures are six and 16. If we decided to analyse separately the positive and negative answers, we could compute a probability of attraction and a probability of repulsion. We would therefore conclude that, on the one hand, Russia is more attractive for Moldavian (14%) students than for Tunisian (2%). But, on the other hand, we would also conclude that Russia is more repulsive for Moldavian (38%) students than for Tunisian ones (7%). This analytical "push–pull" approach will not catch directly the most important information, which is the fact that Russia plays a major role in the vision of the world for the Moldavian students (more than half of them mention Russia) and a minor role in the vision of the Tunisian students (less than one out of ten mention Russia). Moreover, this analytical approach will also miss the fact that the Tunisian and Moldavian students that expressed an opinion about Russia provide the same ratio of 2.7 negative answers for each positive answer.

We propose, therefore, to analyse the answers under the dual concepts of knowledge and asymmetry. There are two successive steps to consider. Firstly, a country/city can be quoted or not—the positive or negative opinion does not matter at this point. The simple fact of getting a country/city often quoted shows that it counts in the students' perception of the world. We can build an indicator of knowledge by aggregating answers (positive plus negative) divided by the number of students that had participated (i.e., who indicated at least one answer). This knowledge index is a probability that ranges from 0 (no student mentioned the country or city) to 1 (all students mentioned the country or city).

$$Knowledge_i = \frac{\sum_P + \sum_N}{\sum_S},$$

where $\sum_P$ is the sum of positive answers, $\sum_N$ is the number of negative quotations, and $\sum_S$ is the number of students that answered the question.

Once a distinction is made between known and unknown places, we use a classical asymmetry index for each country and city:

$$Asymmetry_i = \frac{\sum_P - \sum_N}{\sum_P + \sum_N}.$$

The asymmetry index ranges from -1 (all answers are negative) to 1 (all answers are positive). We have chosen the neutral term of "asymmetry"

rather than "attractiveness" to describe the balance of positive and negative opinions because we consider—according to Simmel's Stranger—that a negative opinion is at least a form of recognition and a reduction of distance. The balance of negative and positive opinion about a country can change through time, but it is certainly more difficult to modify the level of knowledge. "Attractiveness" is in fact related to both indicators: asymmetry is useful to catch the popularity of a place among young students, but knowledge matters too. If the former was not considered, a place quoted positively by one single student among 9343 would become the most attractive place, which would obviously be meaningless.

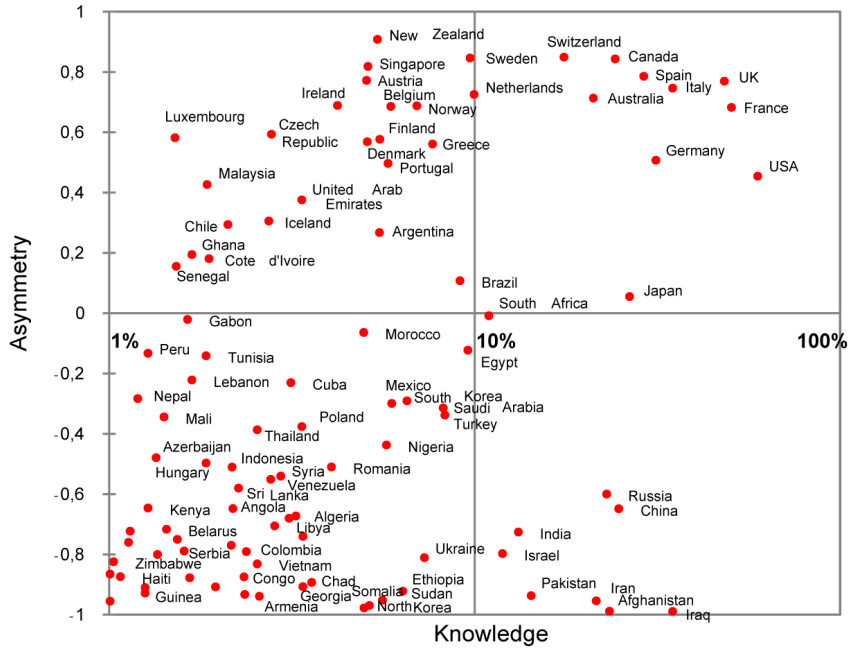
4.2.2 An impressive (but false) picture of global attractiveness of European states and cities

As explained in the introduction of this section, the main objective of the EuroBroadMap project is not to measure the global attractiveness of the European Union but *to produce a non-Eurocentric vision of Europe in the world*. It is therefore important to prevent some false interpretations of the results of our survey that could be derived from a naive quantitative vision of the "average" results obtained from the full sample of students, without considering the choice of sample places and the relative weights of the countries involved in the study. Let us therefore start with a very impressive (but false) vision of the attractiveness of the countries and cities of Western Europe for the world.

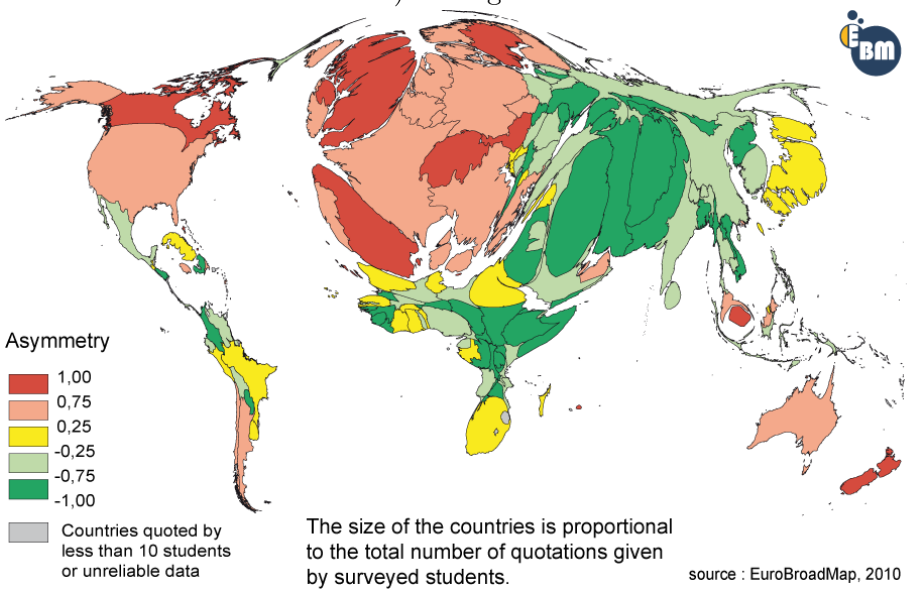
If we compute directly the average value over the sample of students considered as a whole, the global picture regarding knowledge and asymmetry of countries can be illustrated either by a graphic or a cartogram (Figure 29). The graph defines the position of the country as a combination of the degree of knowledge (on the horizontal axis) and the asymmetry of the balance between the students declaring they would like to live or not like to live in a particular country (on the vertical axis). For clarity, we have decided that countries with a low degree of knowledge (quoted by less than 1% of students) would not be represented and we adopt a logarithmic scale for the degree of knowledge. As a whole, the graph helps visualise easily the attractive countries (top right) which combine a high degree of knowledge and a positive asymmetry (France, UK, Germany, USA), and the repulsive countries, with high degrees of knowledge and negative asymmetry (Iran, Iraq, Afghanistan, Pakistan, China, Russia). It seems also possible to analyse the case of countries that are well known but with an equal balance of positive and negative opinions such as Japan, South Africa, or Brazil. Some countries appear very attractive but are not mentioned by many students (New Zealand, Singapore, Sweden), and the same is true for countries very repulsive but not mentioned by many students (Serbia, Chad, Niger, Bangladesh).

Figure 29: Two visions of undergraduate students' visions of world states

a) Statistical visualisation



b) Cartogram



The cartogram is less precise statistically speaking but offers a better vision of the spatial clusters of repulsive and attractive countries as well as a picture of the most known or ignored part of the world by the students. The surface area assigned to a country is proportional to the number of quotations (knowledge), and the colour is related with the asymmetry index.

On the whole, we can notice a very large cluster of attractive countries in northern and western Europe which appears bigger than the equivalent cluster in North America (USA and Canada) and eastern Asia (Japan). This "Great Triad" is completed by a symmetrical "Small Triad" of relatively attractive countries in the Southern Hemisphere (Brazil, Argentina, Chile, South Africa, Australia, New Zealand). The most repulsive part of the world for our sample of students is located in southern Asia, the Middle East, sub-Saharan Africa, and Central America. The countries often mentioned by the global media (newspaper, TV channels) as places of crisis or war are particularly visible (Israel, Pakistan, Iran, Iraq, Afghanistan). We can observe that poverty is related to ignorance, except in the case of tragedy. Most countries of Sub-Saharan Africa are simply ignored[8] and only the biggest ones are mentioned.

We can do the same exercise for cities, with the difference that knowledge is now represented by the size of the circle associated to each city and not the surface area, as with countries. Cities are well quoted worldwide and overall the knowledge rates follow the hierarchical structure of population of the cities. Nevertheless, as in the case of states, there is a significant concentration of the most quoted cities in Europe and especially Western Europe where the quotations are largely positives.

The margins of Europe (the Mediterranean basin and Eastern Europe) are less quoted and then almost completely in a negative way. In North America, the cities cited are mostly distributed near the coasts of the USA and Canada, the quotations are mostly positive. Outside of Western Europe and North America, some attractive cities can also be observed in Australia (Sydney, Melbourne) and the Middle East (Medina, Dubai). In the rest of the world, some cities mentioned positively by an important number of students are located in South America (Rio, Buenos Aires) and East Asia (Tokyo, Shanghai, Hong-Kong, Singapore). But the positive quotations are associated generally with an equivalent number of negative quotations and, as a whole, these cities have a more balanced asymmetry than in Western Europe, North America, or Australia. The capitals of China (Beijing), Russia (Moscow), and Mexico are also mentioned by many students, but with a large majority of negative quotations. There are also a lot of cities cited in

[8]Many students consider this area as a whole and simply answer "Black Africa" or "Sub-Saharan Africa" in their answers to the question. This means that, regarding mental maps, the majority of small states of sub-Saharan Africa do not exist as political entities and is considered as a "big whole".

West Africa, but these cities are mostly considered as repulsive or balanced.

As a whole, the three cities that appear to be the most attractive are Paris, London, and New York, because they have at the same time a high recognition level (at, respectively, 50%, 47%, and 45%) and a clearly positive asymmetry (Paris: 0.6, London: 0.7, New York: 0.4). This list of world cities is not exactly the same as the one that was proposed in the pioneer work of Friedmann (1986 [45]), or with the typology of global cities elaborated further by Sassen (1991 [94]). According to both authors, Tokyo would be better situated at the top of the hierarchy (actual knowledge: 25%). Looking at more recent works (Rozenblat, 1993 [89], 2003 [26], 2004 [88]; Taylor, Hoyler, Walker, and Szegner, 2001 [106]; Taylor, Catalano, and Walker, 2002 [104]; Taylor 2003), we can find some obvious similarities between the hierarchy of world cities established by these authors and the "mean attractiveness" for undergraduate students measured by the EuroBroadMap survey. But the fit is not perfect and there is an obvious advantage for the cities of Western Europe in terms of knowledge (compared to North America) and asymmetry (compared to East Asia).

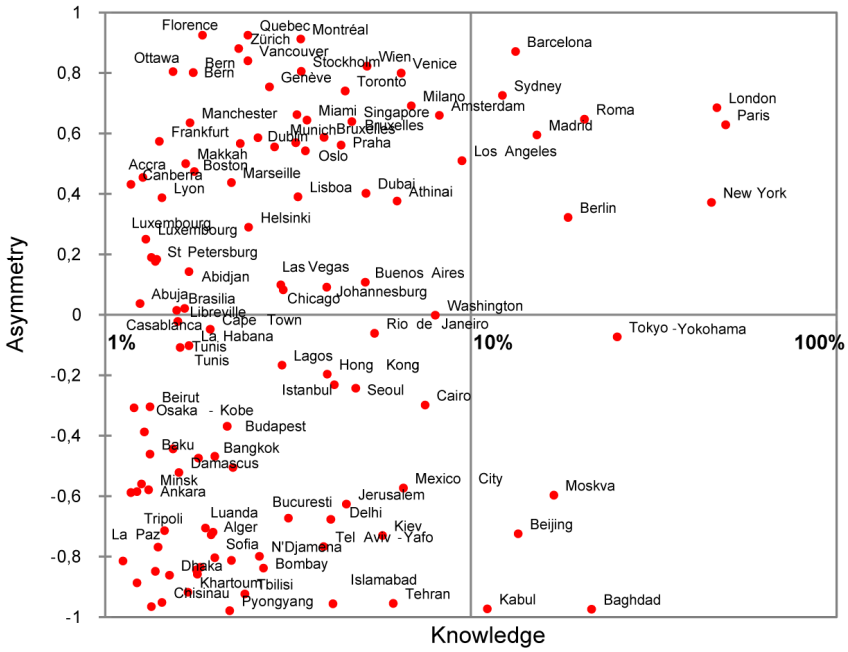
4.2.3 Critical approach I: Variation of mental maps according to places of observation

It is now important to observe that the results presented in the previous section were biased in the sense that they can certainly not be considered as representative at a world scale as the EuroBroadMap survey was limited to the 9343 students from 18 countries selected in a specific way. Moreover, the number of answers is not proportional to the number of students of the different countries and was built in order to benchmark different situations as regards the European Union: old members states (France, Sweden, Belgium, Portugal), new member states and candidate countries (Malta, Hungary, Romania, Turkey), eastern neighbours (Moldova, Russia, Azerbaijan), southern neighbours and former colonies (Egypt, Tunisia, Cameroon, Senegal), and remote emerging countries (India, China, Brazil). That is the reason why the choice to aggregate the results in synthetic maps or graphics is not a guarantee of objectivity. On the contrary, it is rather a typical "Eurocentric" attitude to consider that the more important is the observed sample, the more reliable are the results from a statistical point of view.

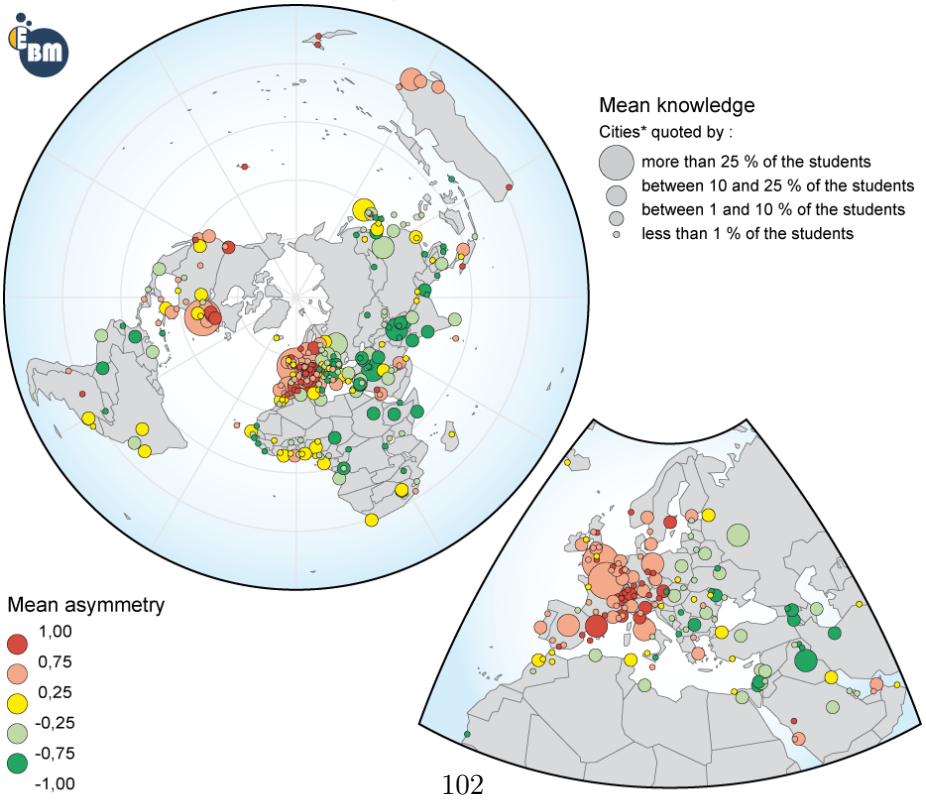
The correct way is rather to consider each place of survey as a singular part of humanity where the students are not necessarily likely to share the same vision of the world as students of other countries. This is the reason why the project EuroBroadMap has, firstly, delivered 18 national reports presenting a detailed analysis of the states and cities where students would like to live or not like to live. Each report was realised with a common template but the commentaries were done by project partners who had realised the survey and could provide an in-depth analysis of the specificities of the

Figure 30: Two visions of undergraduate students' visions of world cities

a) Statistical visualisation



b) Cartogram



mental maps of each place. In the majority of cases, the report was written by people living in the country of survey in order to avoid the risk of Eurocentrism in the interpretation of results. The "mean value" of the whole EuroBroadMap sample was used as an internal reference for the project, but only as a way to benchmark the results and not as a global norm.

Country reports are therefore the crucial elements for a sound and non-Eurocentric approach that can be illustrated by the example of a North–South transect of visions of the world that compares the results obtained in Belgium, Malta, Tunisia, and Cameroon.

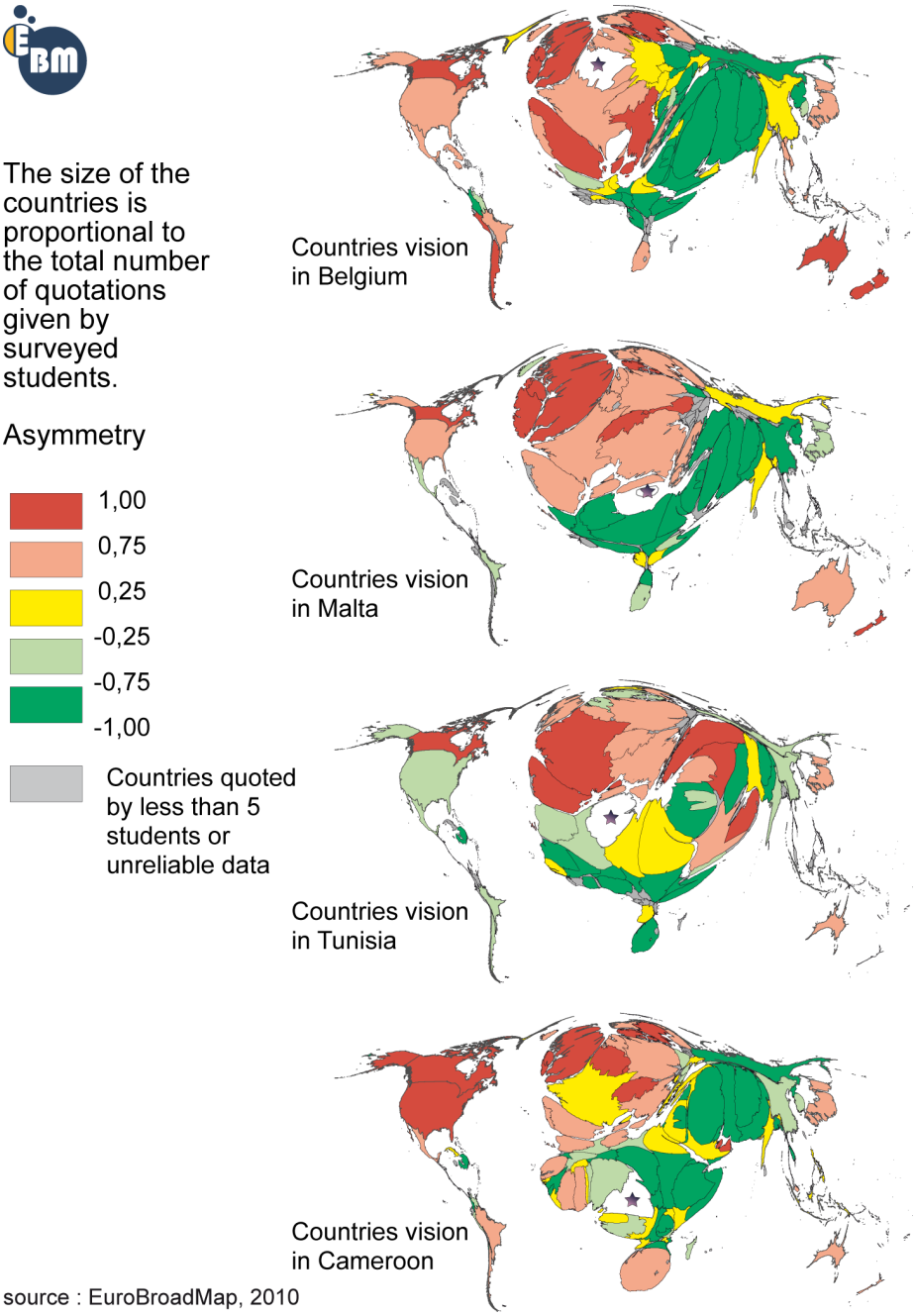
Starting from **Belgium**, an old EU member, we obtain a picture which is relatively similar to the "mean vision" described in previous section. The highest level of knowledge is observed in northern and western Europe, which appears as a giant cluster of attractive states, even if some interesting variations of asymmetry can be observed. As stated by the authors of the country report:

> When it comes to places where the students would like to live, neighbourhood countries except Germany, rich, large countries (USA, UK, Australia) and Mediterranean countries were the most positively quoted. In contrast, Belgian students have a far more negative perception of large, poor countries (Russia, China, India) and of all small or medium politically unstable countries (Iraq, Afghanistan).[...] Western Europe appears clearly as the geographical core of places where Belgian students would like to live in the near future. Of course, the degree of asymmetry is not always fully positive and many countries of this area are described by a minority of Belgian students as places where they would not like to live. Thus, the neighbourhood countries except France are less appreciated than Mediterranean countries (Spain, Italy) and Northern European countries (Sweden, Denmark, UK, Ireland). (Van Hamme and Pion, 2010, Mental Maps of Belgian Students)

In the case of **Malta**, a new member state that joined the EU only in 2005, the picture is different with a very spectacular focus on the Mediterranean Sea for both positive and negative opinions, but also a clear discontinuity concerning the asymmetry which is positive for the northern bank and negative for the southern one:

> Although the family spatial history of the students questioned appears very limited, this does not completely reflect on their experience of the world. Most students speak three or more languages and they are well travelled with only 6% declaring to never leaving Malta. However, this experience seems to be concentrated around the Mediterranean region, and other countries with

Figure 31: Variation of world visions between North and South



> strong emigrant links with Malta, such as the UK, USA, Canada and Australia. The most known and positively associated countries reflect the findings above, in that the countries most positively perceived include those that are geographically or culturally close to Malta, such as Italy, France, Spain and UK. Other Northern European countries are well perceived but less mentioned. Interestingly, the Mediterranean influence and geographical proximity is also reflected in those countries where students would not like to live. The negatively perceived countries include North African countries such as Libya, Egypt and Tunisia, but also politically unstable countries such as Afghanistan, Iraq, Iran and Israel. (Vella, Said, De Ketelaere, and Spiteri, 2010, Mental Maps of Maltese Students)

In the case of **Tunisia**, the vision is also focused on the Mediterranean countries (as in the case of Malta), but with a more important extension toward the east and a very different pattern of asymmetry:

> The Tunisian students (or at less the sample of students observed in Sfax) seem to share the same global vision than the students of the rest of the world, but with some variations related to their own culture and their economic and social conditions. Indeed, the countries or cities where they would like to live in the near future are common to most students of the rest of the world, with major attraction toward Western Europe and Northern America. The fact that they provide more negative advice on USA (Tunisian is the only country, out of 18 observed, where the balance is negative) seems to be more related to a negative perception of US foreign policy (invasion of Iraq, support to Israel) than to a negative perception of the country itself and its inhabitants (this is demonstrate by the variation in the perception of American cities). Accordingly, the fact that Tunisian students give more positive opinions than the other students of the survey to countries such as Libya, Syria or Saudi Arabia, is clearly related to historical and cultural relations or to religious convictions in the case of cities such as Meccah, Medinah and Jerusalem. On the other hand, the negative perception by Tunisian students of poor countries and countries subject to war and instability (Africa, Iraq, Pakistan, Afghanistan) is classical, even if the negative opinion of Israel and some other coloniser countries is a bit higher than usual. Finally, the fact that neighbouring countries are well known but relatively negatively appears has something classical that can be found in many other countries of the EuroBroadMap survey (India, China, Russia). (Bennasr and Grasland, 2010, Mental Maps of Tunisian Students)

The final example is the case of **Cameroon**, which is probably the African country with the most diversified historical experience of European colonisation (Portugal, Germany, France, the UK). What appears immediately original on the mental maps of Cameroonian students is the importance of the sub-Saharan countries in terms of knowledge, and the fact that many of them have a positive asymmetry. It is also very interesting to observe that Western Europe is mentioned less positively than usual, and it is the reverse for North America:

> Two blocks emerged: North America with the USA and Canada, followed closely by Western European where the survey emphasises the UK and Belgium. Paradoxically, France, Germany, and Spain are less positively appreciated. In contrast, the countries of which students have a more negative perception are at war or underdeveloped countries such as the last Soviet Union countries and the Middle East (Iraq, Afghanistan and Iran), followed by Asian countries such as China and India, but also sub-Saharan neighbours represented by Nigeria, Gabon, Sudan, and Chad. The favourite cities are New York, Quebec, London, and Johannesburg. This result shows a transfer in the Cameroonian perception of the world from Western Europe to North America and South Africa, which are English speaking countries. These survey results show that the questioned students have a superficial knowledge of the world. Their perception of the world's countries and cities seems to be closely linked to history and media information dissemination. Cameroonian students due to security and political knowledge have a general North (like to live) Middle-East South (dislike to live) patterned perception of the world's countries and cities. Taking into consideration the actual limited experience of the world (evidenced in the lowest number of visited countries), the conclusion that stands out is obviously that Cameroonian students' knowledge is an indirect one, mainly based on colonial history and information provided by the media and school, on the local and national sociocultural universe, the limited family mobility and also on the unstable situation in each country or city usually due to social or political conflicts and war. (Bopda, Tchindjang, Etouna, Isseri, and Taptue, 2010, Mental Maps of Cameroon Students)

These **transformations of the vision of the world from North to South** are of course more than a geographic problem of the location of students. It is certainly true that distance plays an important role in the degree of knowledge, but what is at stake here is rather related to North–South opposition in the metaphoric sense of an opposition between Rich/Poor,

Coloniser/Colonised, Centre/Periphery. In fact, the differences are probably more complex as it is clear that a semi-peripheral country such as Tunisia appears to have a mental map of the world completely different from that of a peripheral country such as Cameroon. We also need to admit that the "cultural" dimension in a wide sense (language, religion, landscape) seems to play a role in the degree of knowledge. But probably no more than more objective dimensions related to colonial inheritage, previous migrations and diaspora, trade flows, geopolitical alliances or oppositions.

4.2.4 Critical approach II: Variations of mental maps according to places surveyed

The second critical approach is based on a reverse analysis of perception. This approach starts from a target place (city and country) and tries to examine the variations of perception according to the geographical position of the observers. For this type of analysis, the 42 places of survey are used (rather than the 18 countries) because we want to check the homogeneity of perceptions between students located in different cities of the same country.

Positive consensus countries are characterised by a relative stability of a high level of positive asymmetry in the different places of survey. If we consider for example Switzerland, it is typically a country with a positive consensus because the level of asymmetry is always very high (more than + 0.6), except for students from inner Cameroon, Belgium, and France where the asymmetry remains nevertheless high (between +0.4 and +0.6). The only real outlier is Paris where the asymmetry was null which means that an equal number of positive and negative opinions were given about Switzerland. In the case of Switzerland, as in the case of some other countries such as Canada, the United Kingdom, and Singapore, we can consider that the attraction is global, and what really does matter is the level of knowledge that can be very different. For example, Singapore is considered as a very attractive state by students but only in the four places of survey in India and the five places of survey in China, in particular in Wuhan and Canton (more than 20% of the answers). But, outside of these countries, Singapore was not mentioned by more than 1% of the students, except in Paris (2.7% of the students). The UK offers probably the best example of a combination of a high level of knowledge (40% to 70%) and very positive asymmetry (+0.6 to +0.9) in all places of survey, with the only exception of Sfax (Tunisia) where only 10% of the students mentioned the UK and then with a smaller positive asymmetry (+0.3).

Negative consensus countries are characterised by the reverse situation: a relative stability of a high level of negative asymmetry in the different places of survey. If we consider for example Pakistan, we have a typical situation of negative consensus where the asymmetry is generally lower than -0.9 with a majority where all answers were negative ones (-1.0). But, as in

the case of Switzerland, some exceptions can be pointed to, in Baku (Azerbaijan), Erzurum (Turkey), and Alexandria (Egypt), where the asymmetry is only between -0.7 and -0.6, which means that a minority of students declared they would like to live in Pakistan in the near future... What is more interesting is the level of knowledge which reveals a strong specificity of India where Pakistan is mentioned regularly by 50% to 70% of the students. Outside of India, Pakistan is generally mentioned by only 5% to 15% of the students except in Southern China where Pakistan is mentioned by 18% of the students in Wuhan and Canton. The analysis of the case of North Korea or Iran reveals the same type of pattern, with a very high level of negative asymmetry but important variations in the level of knowledge. It is only in the case of Iraq that we can observe a perfect combination of high level of knowledge (15% to 65%) and very high negative asymmetry (-0.9) in all places of survey, except Alexandria (where the asymmetry is only equal to -0.71).

Consensus countries are interesting because they reveal the existence of some global milestones in the perception of undergraduate students. But they represent a minority of countries, and the situation of the majority of countries mentioned by the students is more complex. To illustrate this complexity, it is interesting to examine some cases of countries where the "mean value" is less and less relevant.

False consensus countries are characterised by the fact that the majority of countries attribute to them a given level of asymmetry (positive or negative), but important variations of the level of asymmetry is introduced by a strong minority of places. In statistical terms, the distribution of the level of asymmetry of these countries is uni-modal but with an important dispersion toward one side. For example, Denmark is apparently a positive consensus country like Sweden, with a general level of asymmetry which is very positive in the majority of cases and often equal to +1. But we can also observe very strong negative values of asymmetry in many Muslim countries (certainly related to the Muhammad cartoon controversy that took place in 2005 and was clearly not forgotten when the survey was carried out in 2009). And we notice that the vision of Denmark is also rather balanced between positive and negative opinions in many places of the survey located in France, Belgium, or Portugal. The case of Israel is also a situation of a false consensus country, but with the opposite situation of a general level of high negative asymmetry. In most places of survey, the majority of the students that mentioned Israel declared they would not like to live there in the near future, whatever the reasons (war, hostility to political actions of the government). But one more time, very strong exceptions appeared for places of survey located in Russia (Yekaterinaburg, Khabarovsk), and also in India (Pondicherry, Delhi), and even in Cameroon (Buea). Our purpose is not to examine in detail the reasons for these exceptions but it is clear, in the case

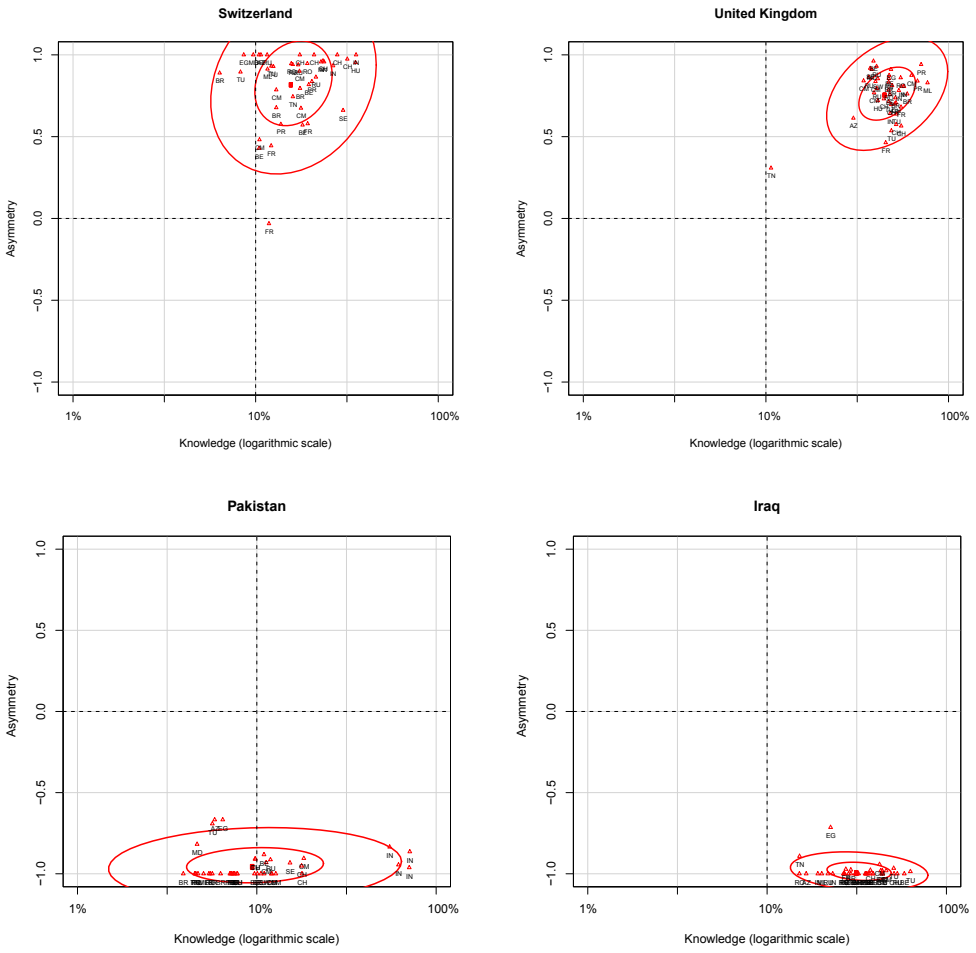


Figure 32: Consensus countries

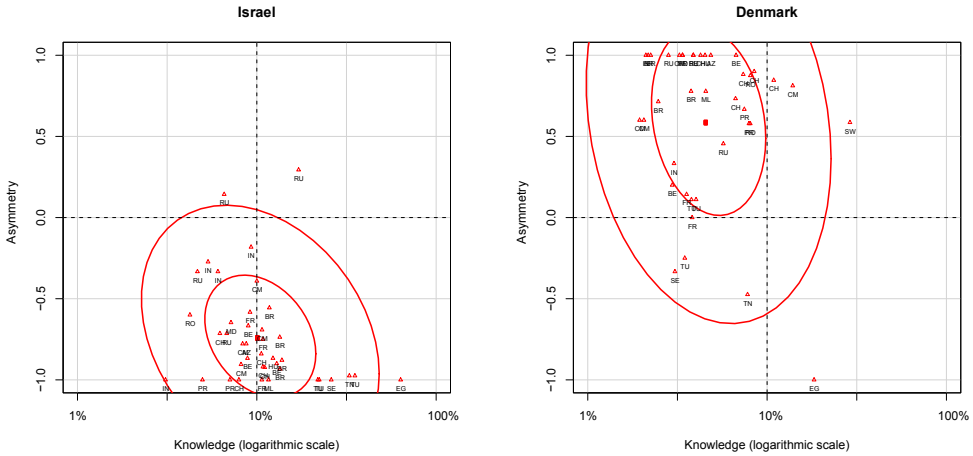


Figure 33: False consensus countries

of Denmark as in the case of Israel, that the "mean value" does not take into account the variability of answers in different places of the world. The same situation of "false consensus country" can be observed for other countries, in particular the USA and Russia (and to a lesser degree, France) which are characterised by important variations around a general situation of positive asymmetry (France or the USA) and negative asymmetry (Russia).

Complex countries are non-consensus countries characterised by the fact that the dispersion of answers is important for both the dimensions: knowledge and asymmetry. This situation is typically observed for the largest emerging countries (China, India, Brazil, and Russia) which are perceived very differently by students from rich and poor countries, and that are characterised by complex systems of attraction and repulsion between each other. These countries are typically quoted more positively by students from Cameroon, Senegal, Tunisia, Turkey, or Egypt than from students from the European Union and its eastern neighbourhood. A difference can be observed between China and India on the one hand, and Brazil and South Africa on the other hand. The two Asian giants are apparently more consensus and less positively appreciated, but this is probably an effect of the choice of our sample. The fact that Brazil is more open to external migration than China or India is certainly a major reason for their international attractiveness in southern countries. But, with the development of a major research centre and universities in China and India, we can easily imagine that the vision of the world of these countries could evolve toward a more positive perception. The common point of these large emerging countries is that extreme values of asymmetry are never observed on the positive or on the negative side. Even if the majority of students declare that they would

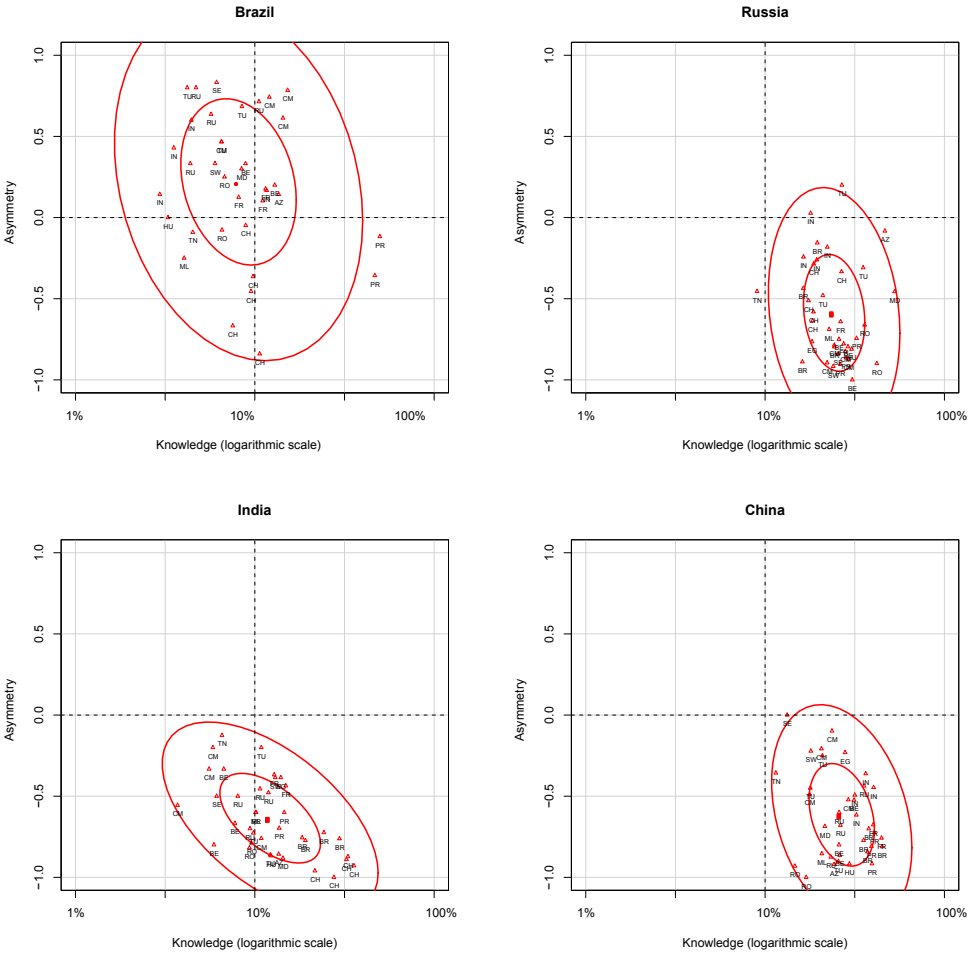


Figure 34: Complex countries

not like to live in Russia, India, or China, a minority of students, in each place of survey, declare that they would like to live there in the near future.

Mirror countries are also non-consensus countries with a strong multimodal distribution of knowledge and asymmetry, which produces clusters of choices separated by clear discontinuities. This situation is typically from countries located on political or economic interfaces ("shatterbelts" or "*espace d'entre-deuxi*") where they are considered as attractive on one side of the interface, and repulsive on the other side. A very good example of this "mirror" situation is given by Turkey which is obviously considered on the one hand as a well known and attractive place for students from Azerbaijan, Egypt, or Tunisia and, on the other hand, as a place which is perceived mainly as a repulsive place in the EU countries, Brazil, China, or Cameroon.

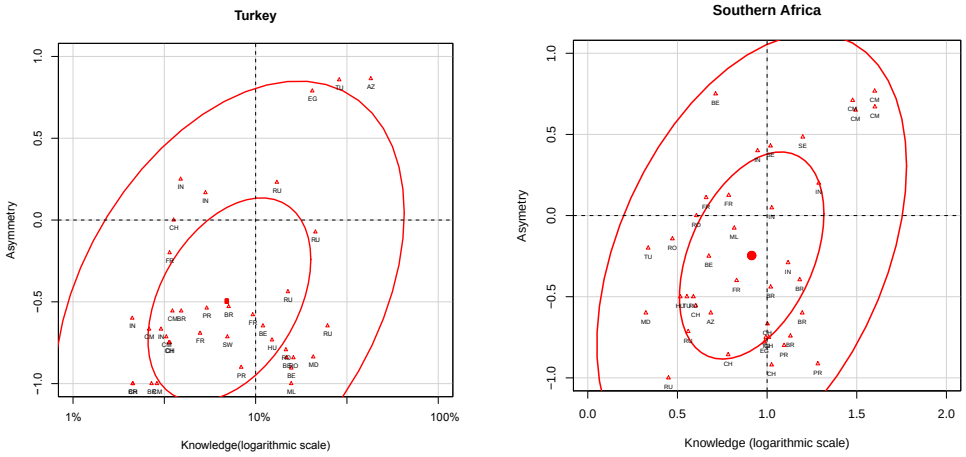


Figure 35: Mirror countries

It is also possible to distinguish a third group with students from Russia and India that are the only ones to provide an equal number of positive and negative opinions about Turkey. The EuroBroadMap survey took place in 2009, two years before the Tunisian and Egyptian revolts of 2011, and it is interesting to keep in mind that the so-called "Turkish model" was a crucial element of geopolitical and diplomatic debate during the revolts. Another example of a "mirror country" is South Africa which receives a very widely spread configuration of answers (as did the BRIC countries analysed in the previous section), but with clear clusters separated by discontinuities. In particular, it is very clear that South Africa has a specific attractiveness for the students from Cameroon and also—but to a lesser degree—from India and Senegal. As in the Turkish example, South Africa appears to some countries as a "model" from both the economic and political points of view (the liberation from apartheid, its economic development), but this positive image is especially true for countries that are able to send migrants (Cameroon and Indian students in South Africa). This country is clearly not perceived the same way by the students of more developed or distant countries.

4.2.5 Critical approach III: Cognitive dissonance in the perception of countries and cities

The third critical approach is based on the fact that the students do not necessarily appreciate places in the same way when they are asked to mention countries as when they are asked to consider cities. This changing perception of places is more than a simple question of geographical knowledge because it implies a crucial change of the grid of evaluation of the world by the

students. Looking at the world through the "country grid" implies focussing on political and economical dimensions of reality (wars, treaties, laws, social security). Looking at the world through the "city grid" implies focussing more on other dimensions such as culture, leisure, or social interaction. Of course, these two dimensions of reality are not separate and we can easily imagine that, for some students, the capital of a country is a clear consequence of their country choice ("I would not like to live in Iraq and therefore not in Baghdad") even if the reverse is possible ("I would like to live in London and therefore in the United Kingdom"). It is nevertheless possible (and we have many examples of this in the survey) that a student provides opposite choices that seem contradictory but are not. A student can for example mention USA as a place where they would not like to live but at the same time mention New York as a place where they would like to live. This is not a contradiction because it only proves that the criteria used by the students to evaluate countries are not the same as the criteria used for cities.

Different levels of **cognitive dissonance in world cities** can appear when the international influence of a city is much larger than that of the state in which the city is located. Dubai is an emblematic case of the full absorption of the country vision by a city vision, which is obviously related to the small size of the country as compared to the international influence of its city. Not surprisingly, the perception of Dubai is very positive in Muslim countries where it is an opportunity for migration with high employment or an opportunity for study in newly built universities (Egypt, Tunisia, Turkey). But it is also well known and positively appreciated by countries that are rather trade and business partners such as India, China, and Brazil. The less favourable opinions are rather observed in Northern and Western Europe (France, Belgium) which can consider the city as a global competitor in the world-city network. The case of *Jerusalem* displays the opposite situation of contradiction between the national perception of states (Israel, Occupied Palestinian Territories) and the perception of a world city that is historically related to successive levels of religious affiliation (Jewish, Christian, Muslim). The conflation of different levels of religious perception produces a complicated picture of Jerusalem which is generally perceived in a negative way (because of the assimilation to the Israeli–Palestinian conflict) but can also receive very positive notice from students with opposite perceptions of Israel.

Another case of **cognitive dissonance related to changing geopolitical situation** can be illustrated by the cases of Beijing and Hong-Kong in China. With some minor variations, the perception of Beijing appears to be very similar to that of China which has been discussed in a previous section. The assimilation between the country and the city is clear. But the situation of Hong Kong is clearly different. The level of knowledge is lower than for Beijing, but the asymmetry is generally higher and offers a clear

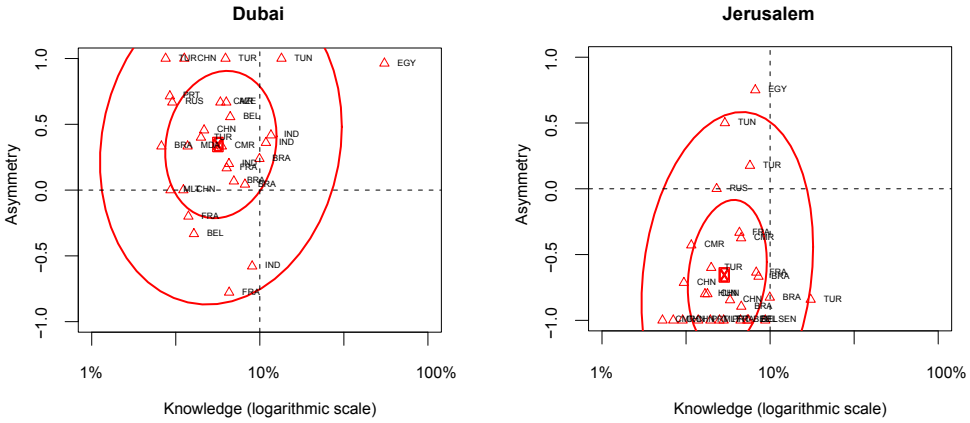


Figure 36: Examples of cognitive dissonance in the perception of world cities

division between two groups of students that provide positive answers and negative ones. It is therefore a typical "mirror city" which is consistent with the situation of political and economic interface of the city, before and after its reunification with China in 1997. Positive opinions on Hong Kong are especially high in the Indian places of survey where the students were more critical of China and Beijing. This is certainly related to the use of the English language and the development of links established before the handover of 1997. Of course, we can imagine that the picture of Hong Kong changes through time, and it would be of particular interest to compare the evolution of visions in a longer period of time in order to evaluate more precisely the consequences of geopolitical changes.

Finally we can also analyse the case of **cognitive dissonance inside the USA** which is a unique example of variation between the perception of a dominant world state and a great number of world cities located inside its borders with a great diversity of international connections. The first major discovery is the huge difference of perception between the political capital, Washington, and the most important world city, New York. It is clear that the perception of New York is more correlated with the general perception of the USA as a country, than the perception of Washington. The political capital is firstly less known than the economic capital, but it is also less appreciated, with an equal balance of positive and negative opinions. The perception of Washington is also more complex with important variations of asymmetry (from -0.9 to +0.9) as compared to New York (from 0 to +0.9). In other words, the opposition between New York and Washington reveals two opposite faces of the USA in the students' world perceptions: an attractive economic and cultural place (New York) against a state characterised by

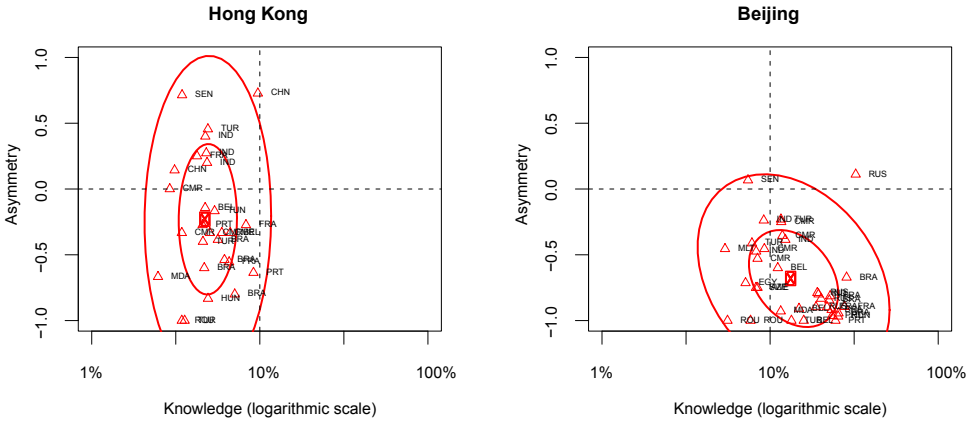


Figure 37: Examples of cognitive dissonance related to changing geopolitical situation

political violence inside and outside (Washington). The picture is even more complex if we introduce the case of other metropolitan areas that can be considered as "gateway cities" or nodes of a network linking the USA with Latin America (Miami) and Asian Pacific areas (Los Angeles). The vision of these cities is globally equivalent to New York (a medium level of positive asymmetry) but with a lower level of knowledge. What is interesting here is the position of the students from countries that are connected to specific gateways of the USA. Miami is clearly more mentioned by Brazilian students but with a higher proportion of negative answers. Los Angeles is on the contrary more mentioned by Chinese students, but also by Western European students from France and Belgium. It is not possible to analyse here in detail all the factors that contribute to this subtle differentiation between US cities (migratory channels, media, advertisement) but this analysis is sufficient to conclude that, in the case of the USA, a very important variation in the attraction and knowledge of major cities exists, and this state cannot be considered as a single unit of perception in the minds of world students.

4.3 Modelling mental maps: Structural and individual explanations

Many observations made in the previous section suggest that globalisation can not be considered only as an economic or financial issue, it also involves some cultural moves, especially regarding individual trajectories and perceptions. Dealing with this last aspect, we postulate that to analyse the spatial organisation of a phenomenon, it is mandatory to understand how people perceive space. The practices and actions of people or societies can

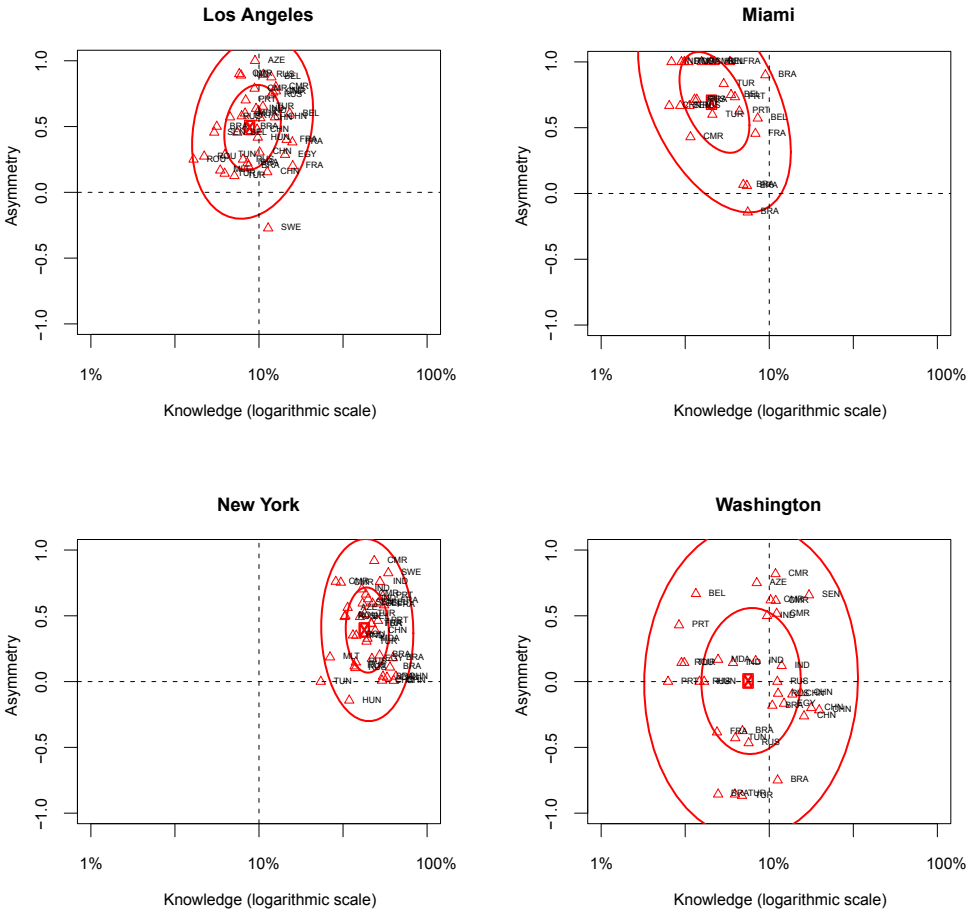


Figure 38: Examples of cognitive dissonance inside the USA

be understood only when one takes into account the partial and subjective representations of spaces that are embodied with cultural meaning. With this approach, mental maps appear as a powerful tool to investigate the attractiveness (and repulsiveness) of places. If they were first used to highlight perceptions of small areas, especially urban ones (Lynch, 1960 [74]), they were soon used to determine regional, national (Gould and White, 1974 [50]), and world perceptions (Saarinen, 1998 [92]; Saarinen and MacCabe, 1995 [93]). The two main objectives of this literature are to reveal the diversity of points of view and/or to test the geographical literacy of some segments of the world population. But it could also, and this is one of our objectives, be used in order to examine if some universal laws or regularities can be observed, despite the apparent diversity of perceptions.

The first hypothesis that we propose to test in this section is that, whatever the reduction of transport costs, whatever the reduction of political barriers, whatever the increase of information society. . . : distance, and more precisely the Euclidean one measured by the great circle between two points of the Earth, will remain for a very long time a major obstacle to social and economic interactions between individuals, groups, and societies. This affirmation is nothing more than the so-called "first law of geography" formulated by Waldo Tobler in the 70s that we consider as still accurate in the "Global World" of the 21^{th} Century [110]. At first glance, this defence of distance and the related models of spatial interaction based on gravity models could appear as provocative to the post-modern reader who has the feeling of living in a more connected planet where the creative class is living in an unbounded space of flows. But we will demonstrate by both theoretical considerations and empirical evidence that this is partly an illusion. The core of our demonstration aims to prove that even if material flows seem less and less related to physical distance, this is not the case with mental maps and representation: they are more resilient and definitively more influenced by gravity laws.

The second hypothesis that we propose to test is the idea that, despite huge variations of visions of the world related to the diversity of national situation, it is possible to observe some global regularities that are related to individual characteristics of students such as gender, field of study, or income. To be sure, we know that the perception of Japan (knowledge and asymmetry) is very different in China, Brazil, and France, but it is possible that in each of these countries, Japan is more mentioned and in a more positive way by men than by women. If this regularity is observed in the majority of the countries of the survey, it is a proof that mental maps can not be reduced to national visions but are also related to more universal factors.

4.3.1 Structural factor of choices: Gravity states versus network cities?

At the beginning of the 2000s, precisely at the moment where many economists rediscovered the importance of physical proximity and political borders, many geographers and sociologists (Sassen, 2002 [95]) adopted the reverse paradigm of neglecting the importance of spatial proximity and proposed studies focusing on linkages (air flows, connections between firms) without considering physical distance as a factor of interest. The decreasing use of spatial interaction models (Fotheringham and O'Kelly, 1989 [41], Fischer and Getis, 1999 [40]) and the increasing development of methods based on network analysis (Wasserman and Faust, 1994 [113]; Guimera *et al.*, 2005 [57]) were the clear signal of a deep conceptual change. This does not mean that the authors supporting the new paradigm assumed that distance decay effects have disappeared (Beaverstock *et al.*, 2000 [9]; Taylor, 2001 [101], Taylor *et al.*, 2007 [105]). But they were considered as residual in two senses: (i) a factor of decreasing importance in the history of humanity; (ii) a factor that should therefore no more be introduced *a priori* as an explanatory factor in the modelling of flows or networks. This decreasing interest in gravity models is not only related to a modification of a scientific paradigm, but is also related to the growing interest in cities (nodes) instead of countries (areas) in most recent research on globalisation. Taylor illustrates clearly this point through the analysis of the content of the weekly journal *The Economist*:

> the official vision of the world provided by statistical tables of the journal is still based on a territorial division of the world by States and continents, but the network vision of a world ruled by global cities is dominant if we analyse the most frequent geographical places mentioned in the advertisements published by this newspaper: And yet the magazine remains dominantly territorial in its view of the world, it provides its readers with reports on regions and countries. Its text describes an international economy as a space of places: I refer to it as *The Economist* World I. However, an alternative picture can be found in the magazine between the pages of text; the advertisements describe a network world. They engage with a global economy as a space of flows: I refer to this as *The Economist* World II.

To be sure, Taylor suggests that we are actually living a transition between two metageographies: "globalisation represents a metageographical moment, a time when the taken-for-granted way in which, collectively, we organise our knowledge of the world as spatial structures is being eroded. Globalisation challenges the mosaic metageography of States with a new putative network metageography of connections" (Beaverstock *et al.*, 2000 [9]).

The analysis of positive choices of destination made by the students offers the possibility of precising the theoretical debate through a comparison of the factors that determine the choice of countries and cities where the students would like (or not like) to live.

The students from a country of survey i who declare that they would like to live in another country of the world j are aggregated in order to build a matrix of flows $LIKE_{ij}$ with eighteen lines (the eighteen countries surveyed by EuroBroadMap) and 144 columns (countries mentioned by more than ten out of the 9343 students as possible destinations). Each cell of the matrix represents therefore the number of students from country i who declared that they would like to live in the near future in country j. In order to compare the positive choices made by the students for countries and cities, we have decided to apply exactly the same model to cities, with minor adaptations[9], in order to benchmark the values of the parameters explaining the choices made by the students. The matrix of flows is therefore presented under the name F_{ij}, representing either the countries or the cities where the student would like to live in the near future. The target model is formulated as follows:

$$F_{ij} = k.(POP_j)^{\beta_1}.(GNI/c_j)^{\beta_2}.(DIST_{ij})^{\alpha}.(\lambda)^{LANG_{ij}}$$

Size effect is measured by a combination of two parameters of elasticity describing the effect on choice of demographic size (POP_j: population of countries or cities) and economic development (GNI/c_j: gross national income per capita of the country). Here, we simply assume that students are more likely to choose the biggest and richest countries or cities of the world, and they are likely to ignore the majority of small and poor countries or cities[10] .

Geographic proximity is measured through a classical distance decay function based on a measure of mean distance between inhabitants of countries of origin and countries of destination ($DIST_{ij}$ measured in kilometres, source CEPII). The form of the decrease of knowledge with distance is a Pareto function (negative power) with exponent α as we have verified that

[9]In the case of cities, the same work is done for the matrix of positive flows ($LIKE_{ij}$) between countries of survey (i) and a subset of cities (j)(the seventy-one that are quoted by more than ten students and by at least 5% of the students of one country). In these models, the variable POP_j is the population of the urban agglomeration of the city in 2010, the variable GNI/c_j is the gross national income per capita of the country of the quoted city in 2008, the variable $DIST_{ij}$ is the distance in kilometres between the centre of the surveyed state and the city, and the variable $LANG_{ij}$ indicates the existence of a common official language between the state of the city and the state of the survey.

[10]We have introduced GDP per capita in order to make easier the distinction between the size effect and the development effect. If we introduce GDP not divided by population, the deviance explained by the model is the same, but the parameter of population is negative and the effect of GDP much more positive.

it provides a better fit than a negative exponential function. We assume here that, considering two countries with a similar size, students are more likely to mention positively (or negatively) the countries located at a short distance from the places where they live. The model has also been tested with the addition of a common border effect (boolean), but this parameter does not increase the explanatory power and complicates the interpretation of the results.

Cultural proximity is measured through the introduction of one dummy variable describing the existence of a common historical background. The variable ($LANG_{ij}$) is related to the existence of a common official language. If the condition is verified, the flows are supposed to be multiplied by a parameter λ. Colonial relations have also been tested but were not kept as they are strongly correlated with language, which make it difficult to distinguish their relative effects.

The evaluation of the parameter of such a model is ordinarily accomplished by Ordinary Least Squares (OLS) after a log-linear transformation of the equation (Linneman, 1966 [70]; Anderson, 1979 [2]). But a more convenient solution from the statistical and thematic points of view is offered by the family of Poisson regression models that uses a variant of Maximum Likelihood criteria on flows without a logarithmic transformation, making it possible to keep zero flows in the analysis, and insures a better representation of each flow as to the uncertainty of measure (Bröcker and Rohweder, 1990 [17]; Sen and Smith, 1995 [96]). An important point for the use of Poisson regression model (d'Aubigny *et al.*, 2000 [5]) is to introduce a scale parameter (internal to the model) that allows a stability of the results, independently from the unit of measurement of the trade flows ($, thousands of $, billions of $...). Accordingly, the model to be solved can be written as:

$$F_{ij} = exp[a_0 + a_1 lnPOP + a_2 lnGNI/c + a_3 lnDIST + a_4(LANG)] + \epsilon_{ij}$$

We have computed the model for the whole sample of students, but we also computed one sub-model for each of the 18 countries of survey in order to analyse the variations in definition of countries or cities where students would like to live or not like to live.

Regarding the **modelling of states where students would like to live**, all parameters of the global models are significant and the the explained deviance reaches 78.84%. The students surveyed quote more frequently than expected large and wealthy countries, close to them, and when a common language exists, the frequency of quotations is more important. Local models of state choice are more balanced. Population size and GNI/c are always positive and significant: in other words, in each country, the students surveyed declared more often than expected that they would like to live in large and wealthy countries. The distance effect is always significant and negative,

except for China and India. In these giant countries, students are therefore less influenced by spatial proximity in the choice of countries where they would like to live. Finally, the existence of a common language has a global effect of multiplication by two of the probability of mentioning a country as a place to live. This language effect can be much stronger (times 11 for Portuguese students and times five for Brazilian students) but it is not systematically significant (China, Russia, Romania), and sometime impossible when the language of the country is exceptional (Hungary). The Table 4 gives the detailed output for all countries and parameters.

Regarding the **modelling of cities where students would like to live**, all the parameters of the global models are significant, but the explained deviance reaches only 57.5%. It is visible for the global model as for the local models that some systematic differences appear in the values of the explanatory factor. Concerning the size effect, the parameter of population size (β_1) is systematically higher for cities as compared to states and it is the reverse for the parameter related to economic development measured by GNI per capita (β_2). This difference suggest that the attractiveness of a country is more related to its level of economic development than to its size. With equal GNI per capita, small states are more attractive than the largest ones, but it is the reverse for cities. Concerning geographical proximity, the distance-decay effect is generally significant (except for China and Brazil), and is clearly more important for cities than for countries. Concerning language, it is less frequently significant in the choice of city than for countries, and the multiplicative effect of common language is lower. These results mean that, between things with similar size and development, students are generally more able to mention a distant country than a distant city where they would like to live, and they are also more likely to use cultural proximities for the choice of countries than for the choice of cities. These two results contradict clearly the initial theoretical assumption and we observe rather "network states" versus "gravity cities" when we compare the structural criteria of choices.

Finally, the most important conclusion is that mental maps remain tightly related to geographical and cultural proximities in the contemporary world. Taylor's description of the "two metageographies" is finally not very far from the vision suggested by many economists specialising in international trade flows about the so-called paradigm of the end of geography formulated by O'Brien in 1992. Krugman (2004 [63]) is more balanced and considers that "What seems to have emerged from the empirical work of the past dozen years is a compromise vision. Distance matters a lot, though possibly less than it did before modern telecommunications. Borders also matter a lot, though possibly less than they did before free trade agreements. The space-less, border-less world is still a Platonic ideal, a long way from coming into existence" (see also Fujita and Krugman, 2004[47]). As explained by

HÃd'gerstrand 60 years ago, material flows are related to information flows and mental maps which are reciprocally interlinked and therefore change very slowly in time (Grasland, 2009 [51][11]).

4.3.2 Modelling individual choices

The gravity models described above took into account some structural parameters regarding country effects. Here, the aim is quite different as we want to investigate variations due to individual parameters. We took three individual variables to model knowledge and asymmetry: gender, field of study, and socio-economic level.

We tested the model on both countries and cities. Each time, two models are tested. The first one studies which parameters explain variation of knowledge (a country / a city is quoted or not by a student). The second one studies the asymmetry between positive and negative quotations. Of course, in the last model, only students who quoted the country / city in question are taken into account.

Figure 29 gives a first indication regarding potential countries of interest: these models are suitable for countries largely quoted, and in a balanced way. The USA, Germany, Japan, Brazil, and South Africa get this configuration. When a city from these countries was largely quoted, it was also tested with the same explanatory variables.

If the model fits properly the three first countries studied, unfortunately none of the two models appears significant for Brazil (and Brazilian cities) or South Africa (and South African cities).

Tables 6 and 7 give the results. The field of study and gender appear significant for nearly all countries and cities tested. Figure 39 shows the relative place of the different parameters (only significant ones are represented). Regarding cities, only Washington is quoted more positively by women than by men.

[11] Download at http://halshs.archives-ouvertes.fr, p. 8

Table 4: Structural factors of choice of countries where students would like to live in the near future

MODEL parameters	lnPOP β_1	GNI/c β_2	lnDIST α	LANG $log(\lambda)$	(x ...) λ	Deviance (% explained)
Global model						
	0.87	0.87	-0.78	0.71	(x 2.0)	78.8
Local models						
AZE	0.84	1.57	-0.82	–	–	75.6
BEL	0.66	1.57	-0.33	*n.s.*	–	81.3
BRA	0.65	1.72	-0.89	1.71	(x 5.5)	79.1
CHN	0.57	2.12	*n.s.*	*n.s.*	–	77.1
CMR	0.75	1.16	-0.92	1.14	(x 3.1)	78.5
EGY	1.05	1.76	-1.05	1.55	(x 4.7)	77.1
FRA	0.73	1.46	-0.23	0.60	(x 1.8)	80.0
HUN	0.55	1.83	-0.59	–	–	80.7
IND	0.63	1.38	*n.s.*	0.85	(x 2.3)	77.0
MDA	0.91	2.10	-0.87	1.46	(x 4.3)	85.7
MLT	0.67	1.83	-1.12	1.18	(x 3.3)	81.6
PRT	0.71	1.86	-0.93	2.40	(x 11.0)	87.4
ROU	0.80	2.32	-0.92	*n.s.*	–	85.1
RUS	0.82	1.63	-0.93	*n.s.*	–	81.6
SEN	0.82	1.17	-1.29	1.52	(x 4.6)	78.6
SWE	0.76	1.82	-0.53	*n.s.*	–	80.2
TUN	0.92	1.08	-0.79	1.75	(x 5.7)	80.3
TUR	0.79	1.50	-0.68	*n.s.*	–	80.2
Variations						
Minimum	0.55	1.08	-1.29	0.60	(x 1.8)	75.60
Mean	0.76	1.66	-0.82	1.42	(x 4.2)	80.40
Median	0.75	1.68	-0.91	1.49	(x 4.4)	80.22
Maximum	1.05	2.32	-0.23	2.40	(x 11.0)	87.36

Table 5: Structural factors of choice of cities where students would like to live in the near future

MODEL parameters	lnPOP β_1	lnGNI/c β_2	lnDIST α	LANG $log(\lambda)$	(x ...) λ	Deviance (% explained)
Global model						
	0.87	0.87	-0.78	0.71		57.5
Local models						
AZE	1.17	1.00	-1.48	–	–	61.9
BEL	0.94	1.08	-0.59	*n.s.*	–	78.7
BRA	0.82	1.02	*n.s.*	*n.s.*	–	58.3
CHN	0.80	1.34	*n.s.*	*n.s.*	–	63.4
CMR	0.81	0.39	-0.87	1.05	(x 2.9)	51.9
EGY	1.18	2.05	-1.23	2.27	(x 9.7)	62.9
FRA	0.96	0.99	-0.49	*n.s.*	–	71.8
HUN	0.85	1.34	-0.88	–	–	75.5
IND	0.89	1.24	-0.97	0.99	(x 2.7)	65.2
MDA	1.12	1.27	-1.00	*n.s.*	–	67.7
MLT	1.01	1.55	-1.53	1.27	(x 3.56)	76.0
PRT	0.94	1.27	-0.90	*n.s.*	–	73.6
ROU	1.16	1.77	-1.22	–	–	77.9
RUS	0.69	1.14	-1.06	–	–	48.8
SEN	0.77	0.59	-1.07	1.05	(x 2.9)	46.6
SWE	1.17	1.34	-0.81	*n.s.*	–	70.8
TUN	1.01	0.53	-1.09	1.37	(x 3.9)	64.2
TUR	1.08	1.20	-1.18	–	–	63.0
Variations						
Minimum	0.69	0.39	-1.53	0.99	(x 2.7)	46.6
Mean	0.97	1.17	-1.01	1.33	(x 4.3)	65.5
Median	0.95	1.22	-1.03	1.16	(x 3.2)	64.7
Maximum	1.18	2.05	-0.49	2.27	(x 9.7)	78.7

Table 6: Knowledge logit models

	Number	Field	Gender	Income
GERMANY	8340	***	**	*n.s.*
Berlin	8517	**	*n.s.*	*n.s.*
JAPAN	8340	***	***	*n.s.*
Tokyo	8517	***	*n.s.*	**
USA	8340	***	**	*n.s.*
New York	8517	*n.s.*	*n.s.*	*n.s.*
LA	8517	***	**	*
San Franc.	–	***	*n.s.*	**
Washington	–	**	*	**
Miami	–	***	***	*n.s.*

Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*'

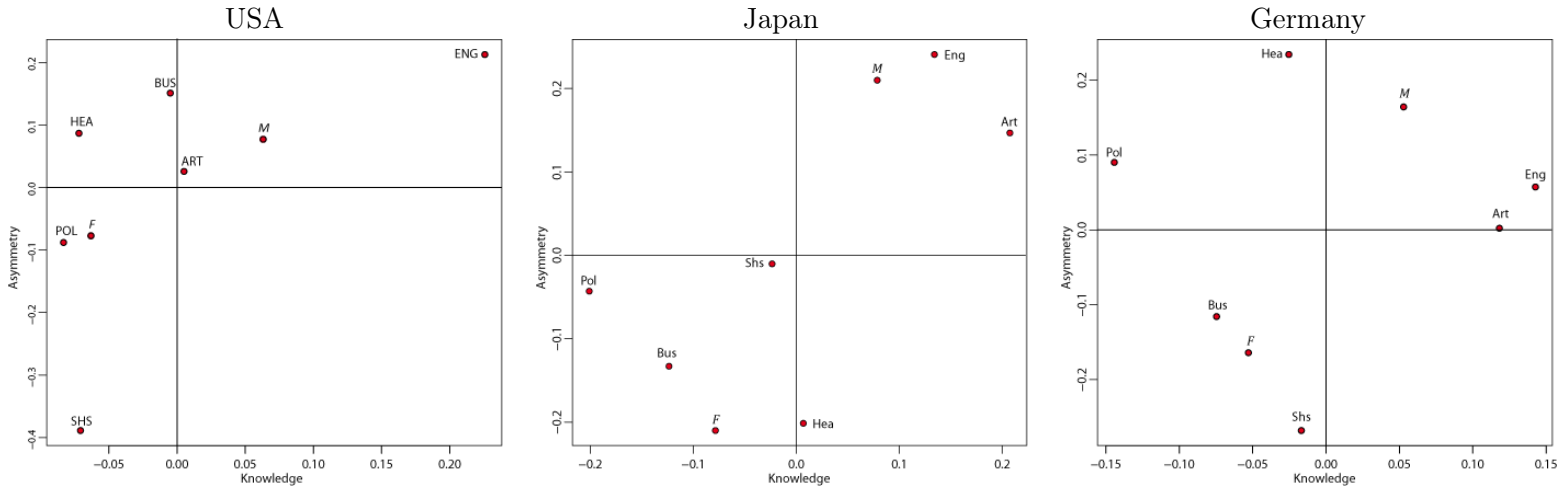
Table 7: Asymmetry logit models

	Number	Field	Gender	Income
GERMANY	2616	**	***	*n.s.*
Berlin	1551	**	*	*n.s.*
JAPAN	2246	***	***	*n.s.*
Tokyo	2127	***	**	*n.s.*
USA	4958	***	*	***
New York	3833	***	**	***
LA	795	*	*n.s.*	*n.s.*
San Franc.	283	*n.s.*	*n.s.*	*n.s.*
Washington	673	*n.s.*	**	*n.s.*
Miami	301	*n.s.*	***	*n.s.*

Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*'

The gender effect is especially strong in these models, and, with the notable exception of Washington, all the cities above are quoted more positively by men than by women.

Figure 39: Relative positions according to logit models



The three countries presented here have some strong similarities. All are quoted positively by men rather than by women, and by engineering students rather than by social science students.

4.4 Regional visions of the world?

The major conclusion of the previous analysis of the answers of the students to Question B is that the mental maps of the students are (still) not global and that Eurocentrism is a (particular) case of a "Regional" vision of the world. It is not possible to derive from the EuroBroadMap survey any relevant measure of "world attractiveness", neither is it possible to conclude that the countries and cities of Western Europe are or will remain attractive for students from the rest of the world in the long run. But it is possible to analyse the correlation between the vision of the world produced by the students in the 18 countries of survey. And it is also possible to analyse how cities or countries of the rest of the world are associated or not in the heads of the students of these 18 countries.

4.4.1 Synthesis of the regional perceptions of attractive and repulsive countries

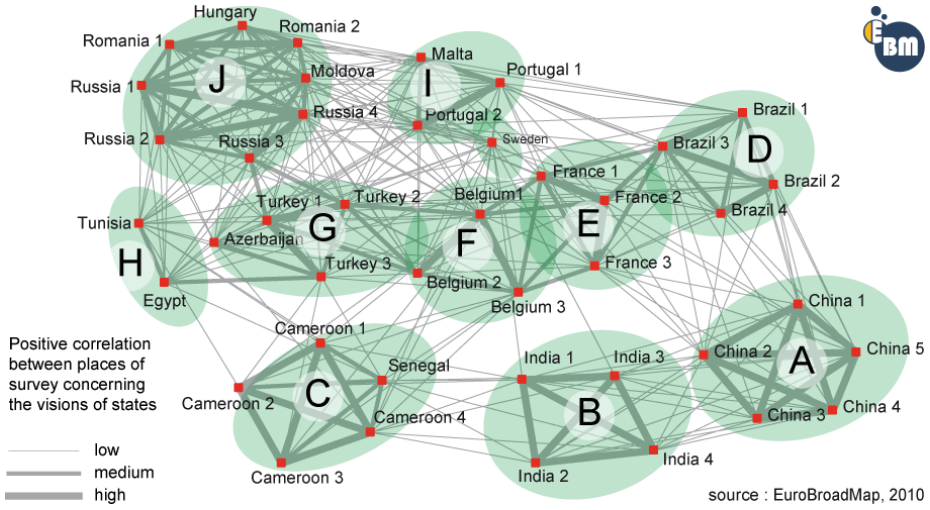
In order to compare the correlations between the mental maps of the students, we firstly built a random model of allocation of positive and negative answers to the question of countries where the students would like or not like to live[12]. Then we computed the residuals of this model, and finally computed the correlation between the vectors of the residuals describing countries that are more or less mentioned, positively or negatively, by students of a given place[13]. We have also computed the correlations between countries that are mentioned by the students, using the same matrices of residuals. It is therefore possible to derive a double classification: (1) a classification of the 42 places of survey, according to the 163 countries that they mentioned more or less than expected; (2) a classification of the 163 countries of the world according to the 42 places of survey that mentioned them more or less than expected.

This reveals firstly a very strong disposition of answers according to the national dimension. The graph of the correlation always reveals strong national clusters in the shape of diamonds, which means that the country plays a major role in the production of visions of abroad. But the national dimension does not exclude the existence of supranational clusters that reveal a common vision of places located in different countries. One of the most im-

[12] We use a double constraint model based on the number of answers sent by each place of survey and the number of answers received by each country. This model take into account the constraint introduced by the fact that students can not mention their own country. For example, 188 students from Sfax (Tunisia) declared they would like to live in France when the expected value was only 102, which means a positive residual of +82 answers. For the opposite question, five students from Sfax declared they would not like to live in France when the random estimate was 18, which means a negative residual: -13.

[13] The correlation between places of survey is therefore a combination of excesses and deficits of answers for both the criteria of attraction and repulsion.

Figure 40: Classification of 42 places of survey according to residual attraction or repulsion of 163 world countries



pressive supranational clusters appears in Eastern Europe where the places of survey located in Russia, Moldova, Romania, and Hungary are all strongly correlated. The same is true for Turkey and Azerbaijan, for Cameroon and Senegal, for Malta and Portugal, and for Tunisia and Egypt. This result confirms that geographical proximity (location within short distances), cultural proximity (language or religion) and common historical experience (colonisation, socialism) are important factors of explanation of similarities or differences in visions of the world. But it is also possible to observe more general clusters of similarities.

The **correlation between places of survey** are not obvious. For example, we can notice a kind of continuum between the visions of the world of Brazilian and French students, French and Belgian, Belgian and Turkish, Turkish and Azeri... We can finally observe that the ten clusters AH presented in Figure 40 can be reorganised at a higher level into three groups: remote emerging countries (A,B,C), Western Europe and Latin America (D,E,F), Eastern Europe and the Mediterranean (G,H,I,J).

The classification of countries of the world associated with mental maps of the EuroBroadMap students helps to explain what are the differences between the previous clusters of places of survey and how their mental maps differ.

Region I (Arabia and the Gulf) defines a group of countries that are more mentioned by students from India and also from Tunisia and Egypt. In terms of asymmetry, the students are much more positive than usual in

Tunisia or Egypt and also, to a lesser degree, in Turkey or Cameroon.

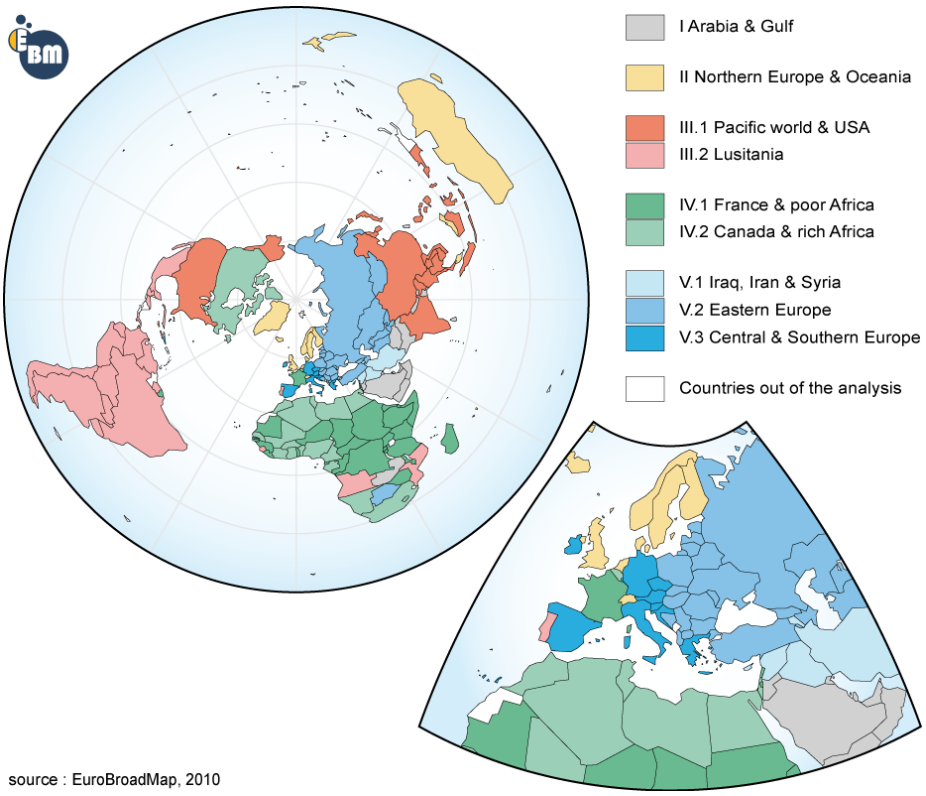
Region II (Northern Europe and Oceania) defines a group of countries characterised by a general use of the English language, universities at a high international level, and a very high level of development. These countries are typically more mentioned than usual by students from China, India, Sweden, or Malta. They are also more appreciated than usual in these countries. On the contrary, they are less mentioned in Cameroon and less appreciated in France and Northern Africa.

Region III (American–Asian world) is a major factor of differentiation between the students from the 18 countries observed in the Euro-BroadMap survey. Region III.1 (the USA, southern and eastern Asia) defines precisely the group of countries that are less mentioned than usual by European students because of their Eurocentric vision of the world. These countries are typically more mentioned by the students from China, even if the appreciation of the Chinese students is less positive than in the rest of the world. Region III.2 (Latin America and Lusitania) is more specifically related to the answers of the students from Brazil and Portugal, which mention more than usual this part of the world for linguistic and historical reasons. Among the Euro-Mediterranean countries, the students from France, Belgium and Turkey are the most open to this Pacific world, both in terms of knowledge and positive appreciation. Students in Cameroon and Senegal are also relatively attracted toward this part of the world.

Region IV (Africa and Francophonia) is based on a mixture of criteria of geography, language, and, probably, religion and history. What is very interesting is the fact that in the eyes of many students, rich countries from the "North" such as France, Belgium, and Canada are associated with Muslim and sub-Saharan countries from the "South". The reason for this association is firstly related to the knowledge of the students from Africa about their own continent but also the French speaking countries from the North. But a clear distinction appears between two subgroups. France and the poorest countries of Africa (IV.1) are clearly more rejected than usual by students from Cameroon and Senegal, who attach a more positive opinion than usual to South Africa, northern Africa, Canada, and Belgium (IV.2). This is the opposite from students from Northern Africa, Turkey, Malta, or Portugal. The situation of France is very complex as it is also a country more appreciated than usual by students from China, India, Brazil, and Eastern Europe, but with a relatively low level of knowledge.

Region V (Eurasia) is symmetric to Region III. It is clearly a part of the world that is less mentioned by the students from remote countries (China, India, Senegal, Cameroon, Brazil, France) and that is characterised by cross-citation of countries of survey located inside (Russia, Romania, Hungary, Turkey, Moldova, Azerbaijan). This area is therefore a typical example of a "world region" where places are strongly related by flows of

Figure 41: Classification of 163 world countries according to the residual attraction and repulsion from the students of 42 places of survey



knowledge and imagination. It does not mean that all countries located in this area appreciate each other and internal differences are related to the more or less favourable balances of asymmetry. For example, Arab students are more positive (or less negative) than usual for Iraq, Iran, and Syria (V.1); Turkish and Indian students are more positive than usual for Russia and Eastern Europe (V.2); French, Belgian, and Cameroonian students are more negative than usual for Eastern and Mediterranean countries (V.3).

4.4.2 Synthesis of the regional perception of attractive cities

As we have seen that cities can produce different visions than countries, we have elaborated a second classification of regional preferences for the criteria of cities where the students would like to live. We have excluded here the criteria of negative choice (a city where the students would not like to live) because we have noticed in the preliminary analysis that the students had some difficulty answering this question. And also because the fact of

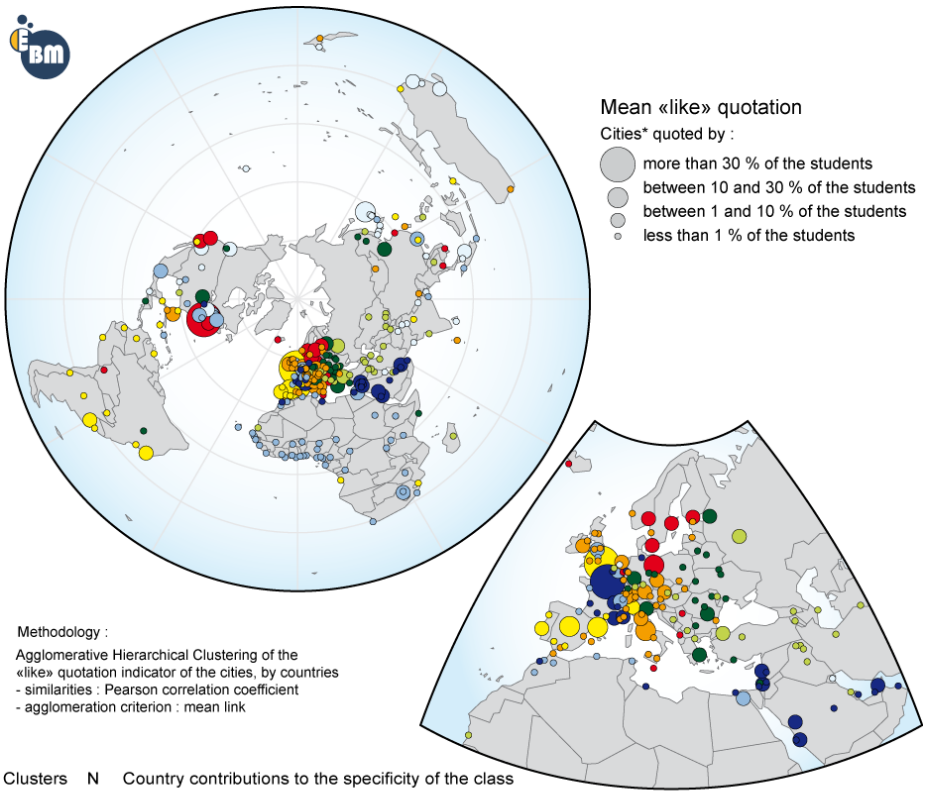
focussing only on positive signals avoids a complete repetition of what has been done for the nation-state in the previous section.

Considering the 292 cities that have been quoted by more than 10 students, knowing that they have not the same global potential of attraction, and that this potential is different in each country of the survey, we can try to characterise and sort these cities by their origins of selection. We have conducted an Agglomerative Hierarchical Clustering analysis on the positive knowledge rates. This kind of analysis (with these parameters: similarities using Pearson's correlation coefficient and mean link as agglomeration criterion) does not reflect the level of attractiveness of the cities (see Figure 30) but it reflects the similarities in the national designation of cities. In this analysis, cities are clustered by their similarities. If some cities are quoted the same way in different countries, then they will appear in the same cluster. Each cluster is characterised by a statistical profile in which we can see the representative countries of survey that contribute to the cluster. The clustering of the cities tends to group into the same cluster those cities which have representations strongly structured regarding the places of survey. The clustering process leads to eight clusters of comparable size. In the following comment (Figure 42), we have to keep in mind the fact that the level of attractiveness is not considered here.

Cities of clusters (1), (2), and (3) are based upon a narrow set of preferences, and they tend to depend quite clearly on a principal regional area. The first **cluster (1)**, where Cameroon and Senegal contribute the most, comprises the African cities. This regional group seems to illustrate the regional preferences of these countries of the survey. We can also see some North American cities (such as Washington or Quebec City). It is Egypt and Tunisia which contribute to the specificity of the second **cluster (2)**. Cities belonging to this cluster are those of the Arabian Peninsula (including the holy cities of Mecca and Medina), those of the Near East (including Damascus, Beirut, and Alexandria) and also most of the big French cities including the harbour city of Marseille and Paris. The **cluster (3)** reflects Chinese and Indian preferences. We can see here the space of the Pacific cities (Vancouver, Sydney, Melbourne, Seoul, Tokyo). Some of the continental Asiatic cities near India also belong to this cluster (Islamabad, Lahore, Karachi, Katmandu).

The next two clusters, (4) and (5), are determined by the contribution of the East European countries. **Cluster (4)** is oriented by countries like Azerbaijan and Turkey and is composed of a set of cities in the countries of the former Central Asian soviet republics (Kazakhstan, Georgia). And **cluster (5)** oriented by Moldova, Russia, and at a lower level, Romania and Turkey. Cities in this second cluster are those of the former European socialist republics (all cities in Romania, Ukraine, Belarus, and Latvia), we can also notice a few cities in Germany (Dresden, Leipzig, and Frankfurt).

Figure 42: Regionalisation of city visions



Clusters	N	Country contributions to the specificity of the class
1	64	Cameroon, Senegal
2	27	Egypt, Tunisia
3	30	China, India
4	24	Azerbaijan, Moldova, Turkey
5	29	Moldova, Russia, Romania, Turkey
6	18	Sweden, France, Belgium, Portugal, Russia
7	51	Hungary, Romania, Malta
8	31	Brazil, Portugal

* these cities are quoted by at least 10 surveyed students

source : EuroBroadMap, 2010

In the three last clusters, we can find almost all the big Western cities quoted in the survey (except the French ones that belong to cluster (2)). And the most contributing countries are those who are members of the EU, plus Brazil. **Cluster (6)** comprises the North European capital cities (Stockholm, Oslo, Helsinki, and Copenhagen) and some large cities in the USA (New York, Los Angeles, and San Francisco). This cluster is the one that has the higher level of global positive knowledge. This cluster is well characterised by the Swedish, French, Belgium, and Portuguese answers. **Cluster (7)** is characterised by the peripheral European countries such as Hungary, Malta, or Romania. The cities in this cluster are the ones of Central Europe (Vienna, Prague, Munich, Basel, and Bern) and also Rome and Florence. These cities belong to the secondary level of the European urban hierarchy. **Cluster (8)** is the Lusitanian one. We can find in this cluster most of the South American cities (near Brazil), also Porto and Lisbon, Barcelona and Madrid. The presence of the cities of the former Portugal colonial dependencies is not very surprising (Luanda in Angola, Maputo in Mozambique, Macau in China, Dili in East Timor).

4.5 Conclusion: Neither Eurocentrism nor Postmodernism!

The exploration of the results of Question B has been very rich and is certainly not finished. It is nevertheless possible to deliver some important messages for the general objective of the EuroBroadmap project.

Eurocentrism is clearly an obstacle for the external action of the EU in the world. Our research supports nicely the result obtained by Lucarelli and Fioramonti in a previous survey on *The External Image of the European Union* (GARNET - FP6-2002-Citisens-3). The vision of the world shared by the students located in the EU or in the neighbouring countries is clearly different from the vision of the world of students located in remote countries such as China, India, or Cameroon. Moreover, important differences can be observed inside the EU, with various networks of knowledge related to language, colonial relations, political history... The sample of countries analysed during the project is sufficient to demonstrate the variability of world visions, inside and outside the EU. But further investigation is needed to propose a general picture of students' visions in the world.

Universal rules of perception can nevertheless be observed: *pace* the dominant post-modern gurus, our results demonstrate that some general rules govern an important part of the choice made by students all around the world in terms of attractive and repulsive countries or cities. Distance, size, level of development, common languages... all these factors considered together explain regularly more than 70% to 80% of the answers made by the students. This does not mean that regional specificities do not exist, on the contrary. But the mental maps should not be explained only by *ad hoc*

factors specific to each local situation. The existence of such a universal rule is important as it supports the idea of the universality of human behaviour against the theoreticians of the "clash of civilisations".

Individual factors related to gender, field of education, or level of income should finally not be neglected, even if they are difficult to capture. Mental maps are obviously strongly related to national visions, induced by ideology, education, or the media. But we have found some insights into transnational common attitudes related for example to individual criteria. This means that if the EU tries to attract students from abroad, it should take into consideration not only the bilateral relations with external countries, but also the social and economic specificities of potential migrants. Women are more attracted by France, Italy, or the UK than by Japan, Germany, or the USA. Germany is more attractive for engineers than for social scientists.