La mobilité internationale des docteurs

Philippe Moguérou
(philippe.moguerou@ec.europa.eu)
Institute for Prospective Technological Studies, European Commission, Joint Research Centre

Matinée ANDèS « Expatriation des docteurs : un choix de carrière ? »
Institut de l'ENS, Paris – 10 novembre 2007

Contenu

1. Contexte : les migrations internationales
2. La mobilité internationale des doctorants
3. La mobilité internationale des post-doctorants
4. La mobilité internationale des chercheurs « confirmés »
5. Quelques éléments qualitatifs

1. Contexte : les migrations internationales

Overall picture (1): Migration to high-income countries has accelerated

- **The United Nations estimates that migrants account for some 3% of the world's populations i.e. about 175 million persons.**
- **The stock of immigrants to high income countries increased at about 3% per year from 1980 to 2000, up from the 2.4% pace in the 1970s.**
- **Immigration has had a particular impact on population growth in several high-income countries. For ex., without immigration Germany, Italy, and Sweden would have experienced a decline in population in the past few decades.**
- **By contrast, migration to developing countries rose by only 1.3% per year from 1970 to 2000.**

Overall picture (2): Traditional and changing flows

- **Migration continues to be heavily determined by:**
  - **Geographic proximity (from Mexico to the U.S., from North Africa to Southern Europe, and from Eastern to Western Europe);**
  - **By colonial ties (from Latin America to Spain and from a number of Sub-Saharan African countries to Belgium, France, Portugal, and the UK).**
- **But international migration is also changing, particularly in the direction of flows. For example:**
  - **More Asians are today seeking work in other Asian countries rather than in the Middle East**
  - **More Latin Americans are turning to Europe for work opportunities, in addition to North America.**
  - **Growing importance of certain nationality groups and in particular, of recent flows from Russia, the Ukraine, China and Latin America to European OECD countries.**

Skilled migrations (1)

- **Skilled workers are much more concerned with international migration. At the world level in 2000, highly skilled immigrants represented 34.6 percent of the OECD immigration stock, while only 11.3 percent of the world labor force had tertiary education. (Data: Docquier-Rapoport-Marfouk)**
- **Between 1990 and 2000, the percentage of skilled workers among immigrants increased by 4.8 percentage points (from 29.8 percent to 34.6 percent).**
- **In 2000, the number of migrants with tertiary education living in the OECD countries amounted to about 20.4 million.**
- **In most countries, the % of immigrants with a tertiary education exceeds the corresponding % in the native-born population.**

Skilled migrations (2)

- In 2000, in terms of absolute numbers, the Philippines, India, Mexico, China, Korea, Vietnam and Poland appear as the major sending countries.
- In terms of emigration rates (that is, as a % of the native born skilled labor force), the rankings are of course very different.
  - The brain drain appears very strong in small countries, with emigration rates as high as 80% in some Pacific or Carribean islands.
  - Skilled emigration appears particularly strong in Central American and African countries.
  - By contrast, Eastern-European and South-American countries exhibit relatively low brain drain levels.
  - Finally, it is noteworthy that China and India are among the least affected countries in relative terms.

Skilled migrations (3)

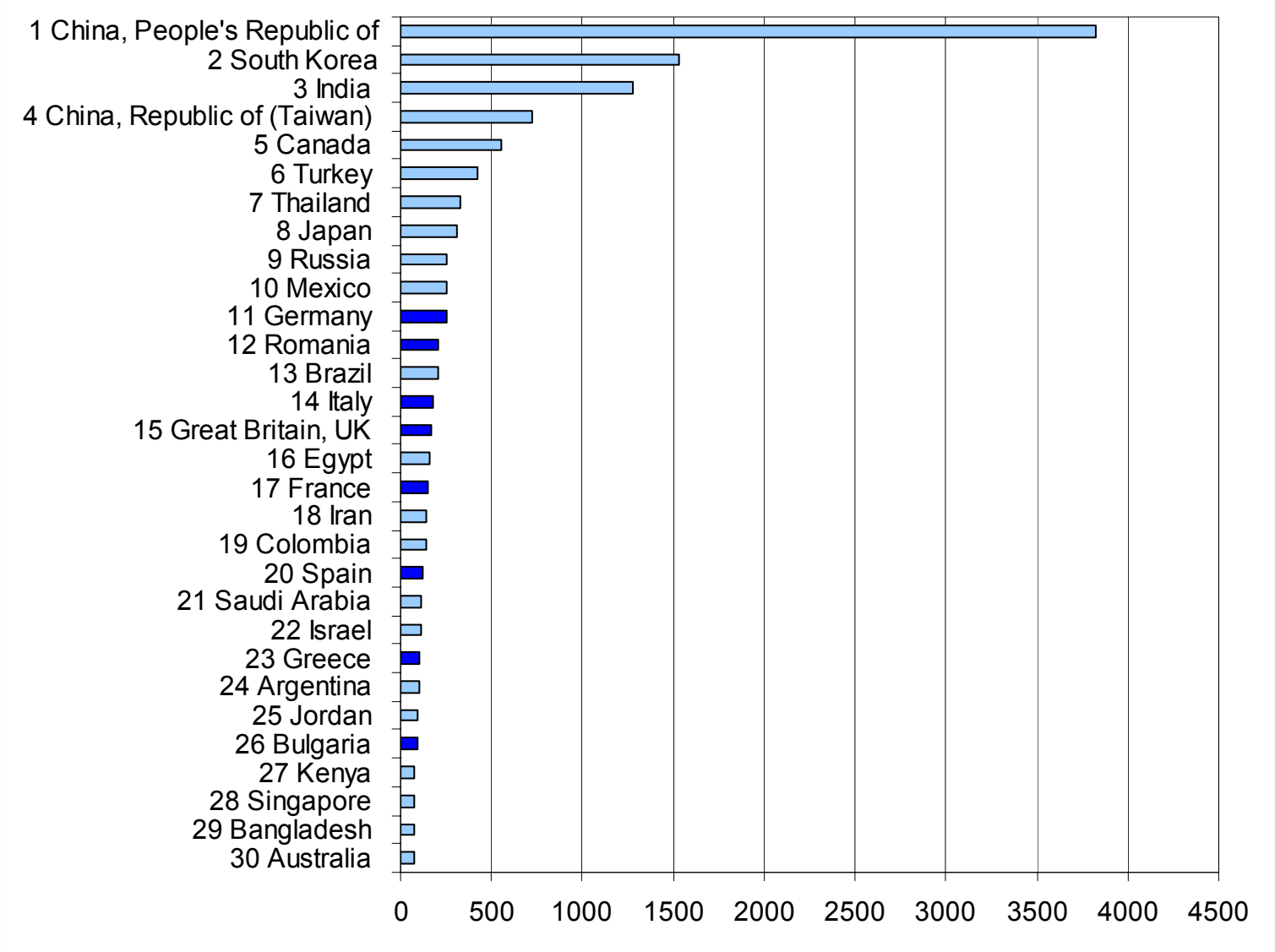
- **The net brain gain is defined as the net immigration of skilled workers, expressed in percentage of the working-age resident population.**
- **OECD countries benefit from the international mobility of skilled workers. The net gain amounts to 1.6 percent in 2000, compared with 1.0 percent in 1990. The net brain gain has globally improved in all OECD countries. The EU-15 deficit turned into a quasi-balanced situation.**
- **Net gain from migration of the highly educated:**
  - **Within OECD countries only in Australia, Canada, US, Luxembourg, Sweden and Switzerland**
  - **Immigration from the rest of the world reduce the negative balances or make them strongly positive in many OECD countries. Canada, France, Sweden and the US become strong net gainers**
  - **In 2000, in absolute numbers, the main winners of this brain gain are the U.S., Canada and Australia.**
  - **In relative terms, the main winners are Australia, Canada, and Luxembourg (followed by the United States, Switzerland, and New Zealand).**

2. La mobilité internationale des doctorants

USA: origine des diplômés de doctorat

- 43,300 doctorates were granted by U.S. universities in 2005. Of the 2005 doctorate recipients with known citizenships, about 35% were non-U.S. citizens. (Data: U.S. NSF *Survey of Earned Doctorates*)
- In the U.S., the top country in terms of the number of doctorates awarded to its citizens is China, which accounts for 27% of the number of doctoral recipients non-US citizens.
- The top following countries are: South Korea (2nd), India (3rd), Taiwan (4th).
- **Among the top 10 countries: no EU country.**
- **About 1,700 doctorates were awarded to citizens from the EU-27. EU27 at a whole accounted for about 12% of the number of non-U.S. citizens earning doctorates.** (Source: our estimations based on NSF data)

Top 30 countries of origin of non-U.S. citizens earning doctorates in the U.S. (2005)



Retour migratoire

- **In 2005, 72.7% of non-U.S. citizens planned to stay in the U.S. after earning the doctorate.**
- **Respectively 90% and 86% of U.S. doctoral recipients from China and India intended to stay in the U.S. after graduation.**
- **We calculated that this was the case of about three-quarters of U.S. doctoral recipients of EU origin. From 2000 to 2005, this percentage fluctuated between 70% and 75%. Translated into numbers, that gives approximately 1,300 of the 1,700 U.S. doctoral recipients of EU origin who intended to stay in the U.S.**

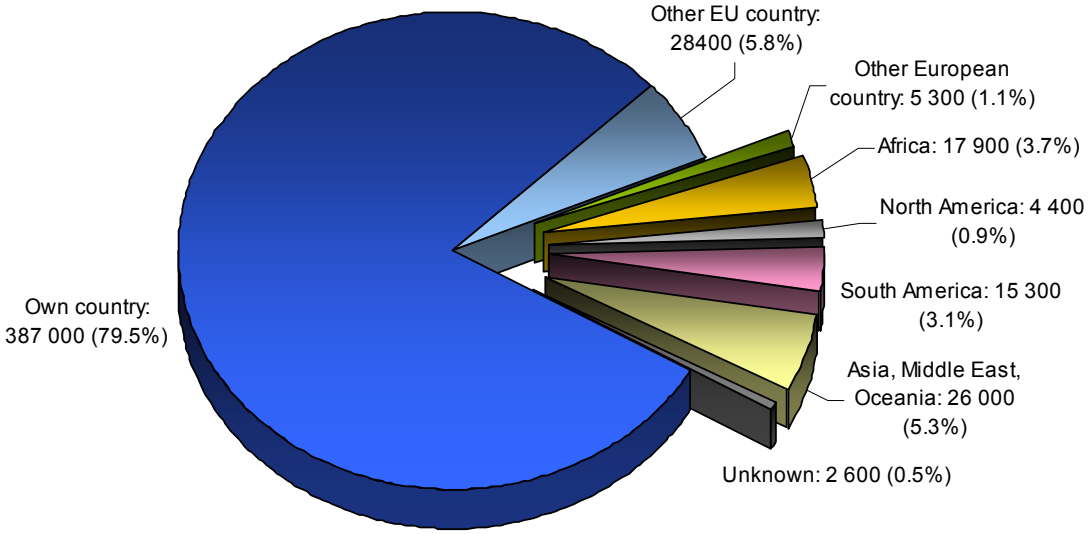
Out migration of U.S.-born doctorate recipients

- **American citizens tend to stay in the United States on a postdoc appointment rather than to go abroad. Ex: in 2002, about 300 U.S.-born S&E doctorate recipients planned to work or study abroad = about 3%**
- **Against 25% for S&E doctorate recipients on temporary visas (NSF 2004)**

UE: origine des doctorants (2005)

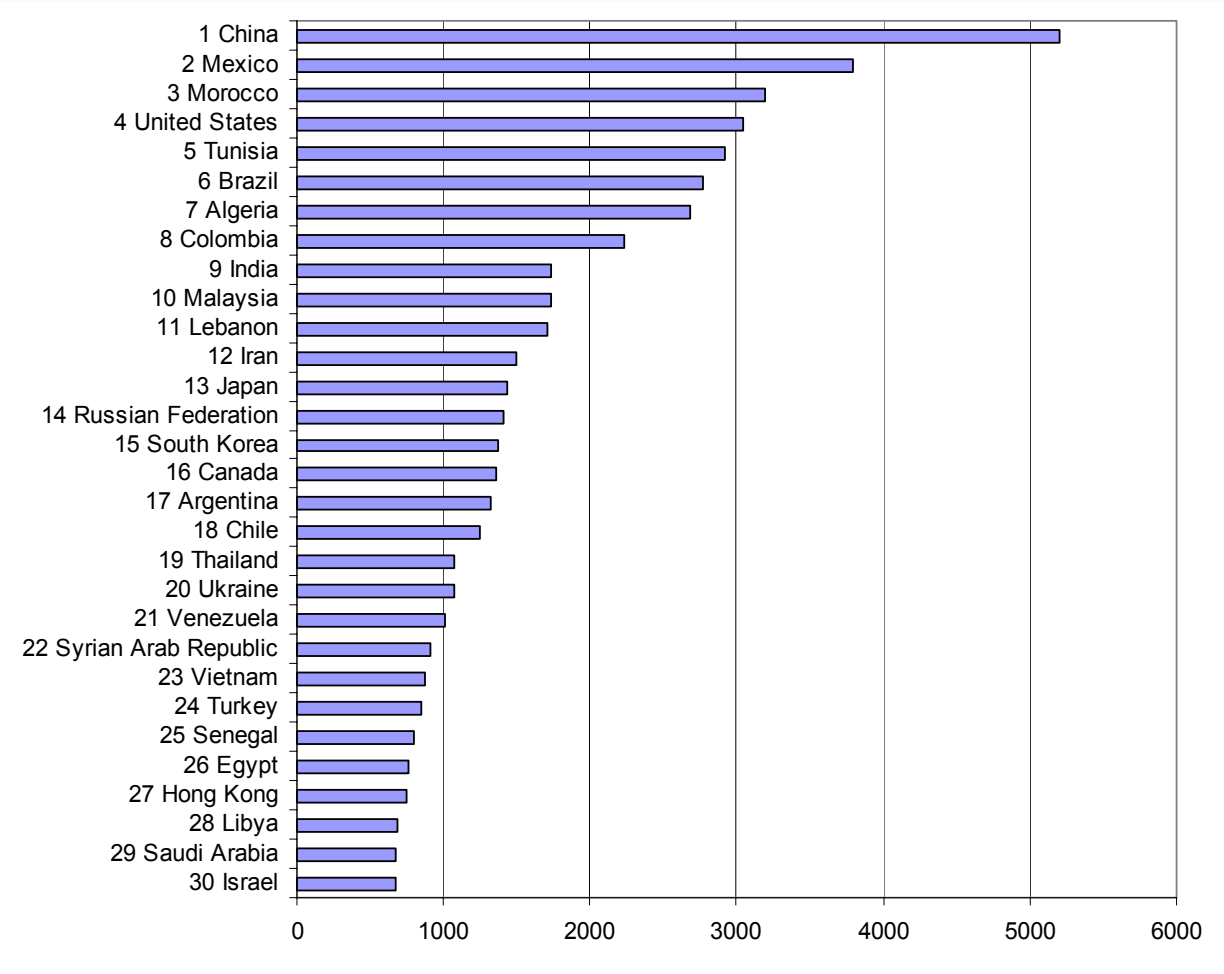
- Environ 650-700,000 doctorants dans l'UE27 en 2005 (estimation)
- Données sur l'origine des doctorants pour 21 pays = 487,000 doctorants (sauf Allemagne, Irlande, Grèce, Lettonie, Luxembourg et Pays-Bas)
- 69,000 are citizens of third countries (= 14.1%):
  - 5.3% are from Asia, Middle East and Oceania
  - 3.7% from Africa
  - 3.1% from South and Central America
  - 1.1% from other European countries (outside the EU-27)
  - 0.9% from North America
- 28,000 have the nationality of another EU Member State (= 5.8%)

(Source: our estimations based on Eurostat data)



Top 30 countries of origin of doctoral candidates in the EU

- China is the biggest sending country of doctoral candidates to the EU. Mexico and Morroco rank second and third
- The U.S. ranks fourth, with about 3,000 individuals, accounting for about 4.4% of doctoral candidates from third countries (or 0.62% of the total number of doctoral candidates) in the 21 Member States. The UK is top receiving country of U.S. citizens with 2,400 (followed by France and Spain, about 200 each).



"Gains" and "losses" of doctoral graduates between the U.S. and the EU-27 (2005): estimations

EU-27			U.S.		
	Numbers	%		Numbers	%
Doctoral graduates	93 000	100	Doctoral graduates	43 000	100
Foreign doctoral graduates	16 000	17	Foreign doctoral graduates	15 000	35
Inflows from the U.S.	600	0.6	Inflows from the EU-27	1 700	4
Outflows to the U.S.	1 700	1.8	Outflows to the EU-27	600	1.4
Net loss	1 100	1.2	Net gain	1 100	2.6

Source: our estimations based on NSF and Eurostat data

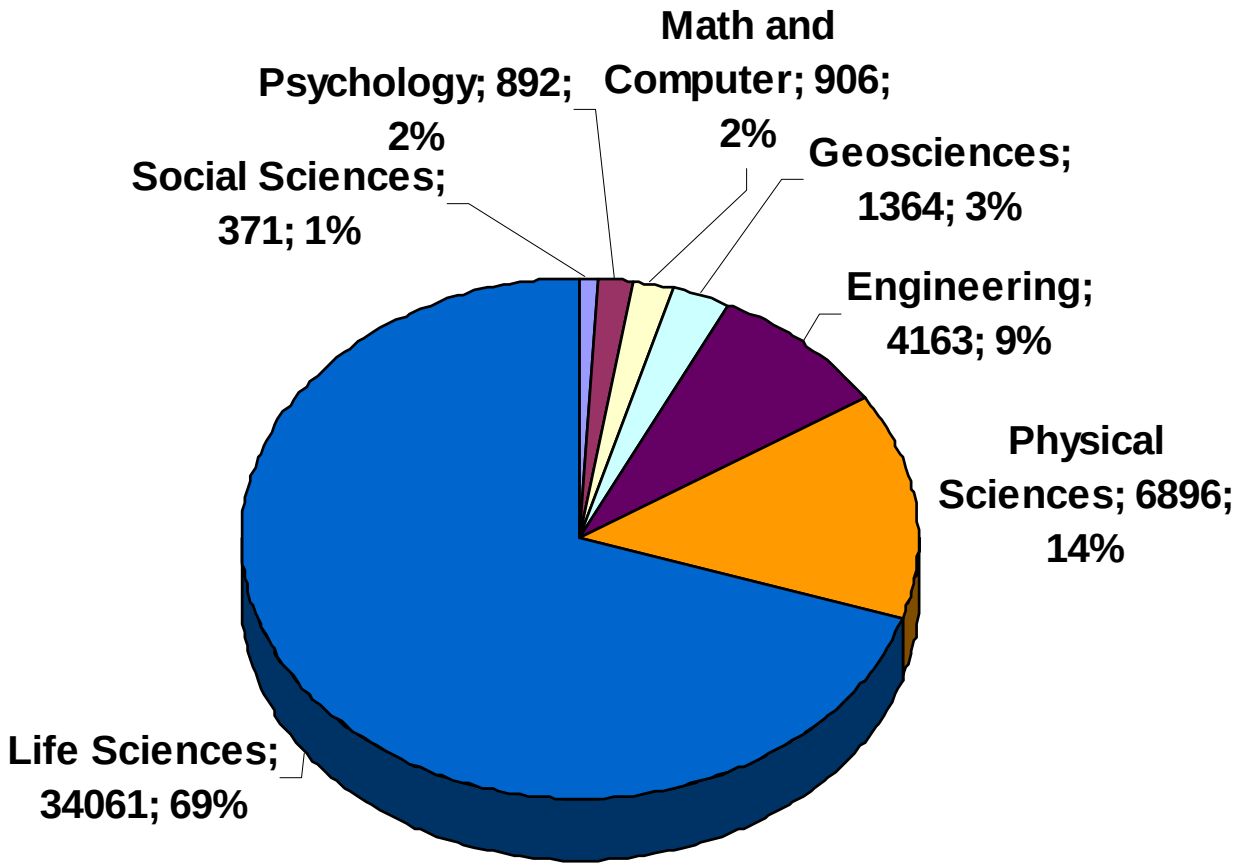
- **The U.S. "net gain" of doctoral graduates relative to the EU-27 was of about 1,100 doctoral graduates in 2005. It accounts for 2.6% of the total number of doctorates awarded in the U.S.**
- **The EU-27 experienced a corresponding "net loss" relative to the U.S., accounting for about 1.2% of doctoral graduates earned in the EU-27.**

3. La mobilité internationale des post-doctorants

U.S.: post-doctoral researchers (2005)

- **49,000 post-doctorates in S&E (science -including social sciences-, engineering and health) were working in U.S. universities in 2005; 55% non-US citizens (Data: NSF/SRS, GSS):**
  - **69% of this total in life sciences (34,000):**
    - *40% for biological sciences (20,000)*
    - *29% for health (14,000)*
  - **14% in physical sciences (7,000)**
  - **9% in engineering (4,000)**
  - **Other fields: 8% (3,500)**
- **By comparison, doctoral recipients in life sciences accounted for about 31% of the S&E total number of doctoral recipients in 2005**

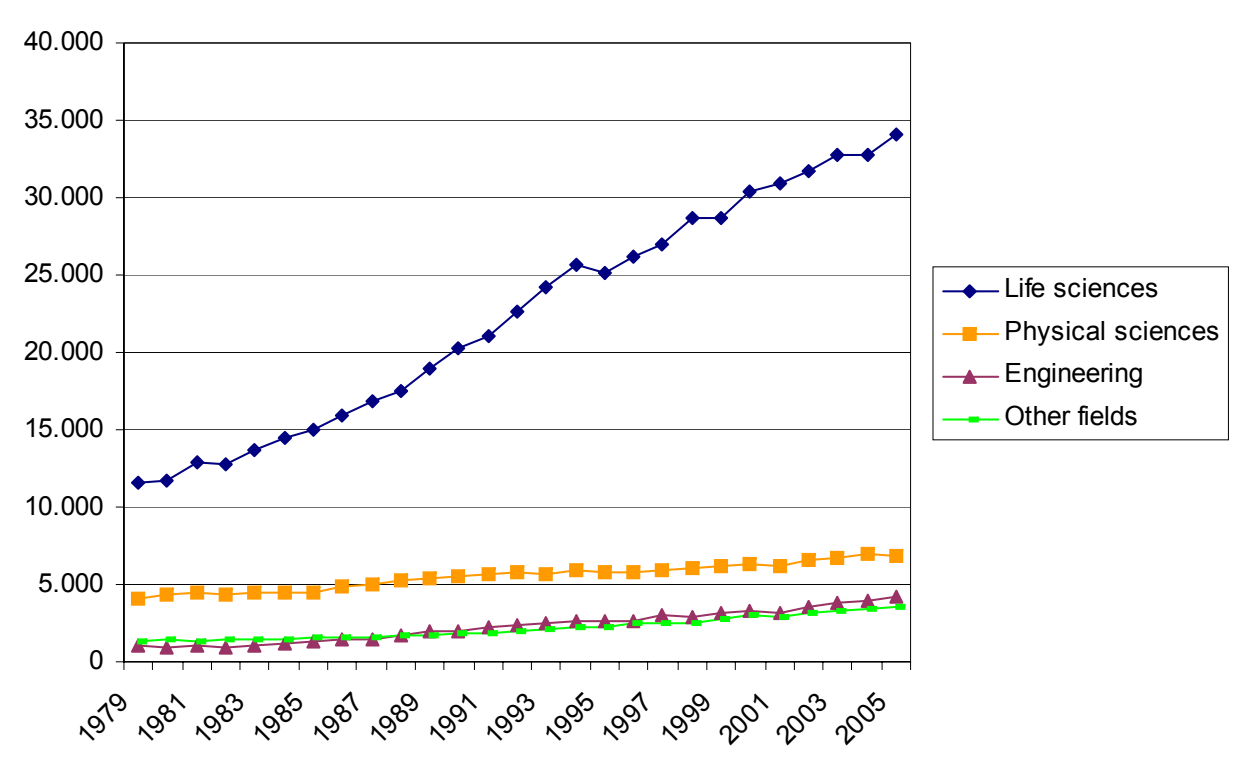
Distribution of postdocs in U.S. universities by broad disciplines (2005)



Source: Our calculations based on NSF/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Evolution of the number of postdocs in the U.S. (1): by fields

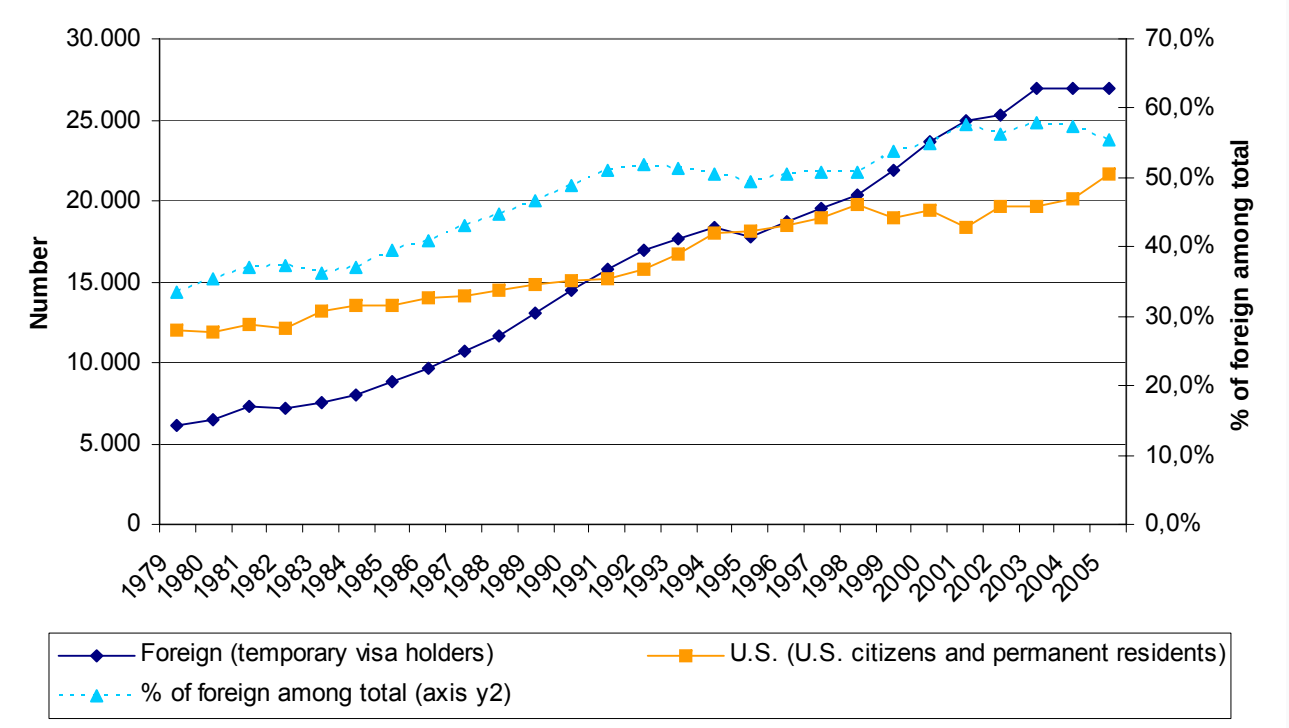
- The number of postdoctorates increased from 18,000 in 1979 to 49,000 in 2005.
  - All the growth is nearly concentrated in life sciences: from 12,000 to 34,000
  - Physical sciences: 4,100 to 6,900
  - Engineering: 1,000 to 4,200
  - Other fields: 1,400 to 3,500



Source: Our calculations based on NSF/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

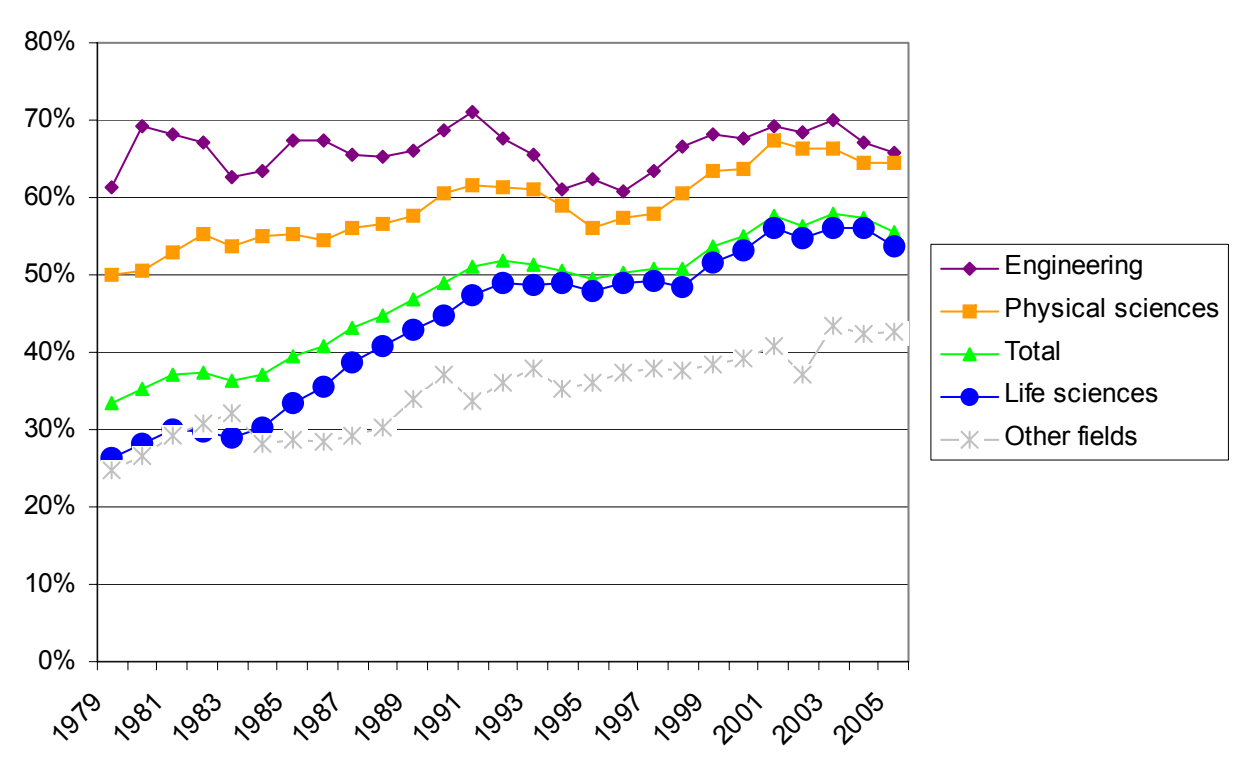
Evolution of the number of postdocs in the U.S. (2): by citizenship

- Temporary residents increased sharply from 6,000 in 1979 to 27,000 in 2005 (stable 2003-05)
- U.S. citizens increased as well but to a lesser extent (from 12,000 to 22,000)
- Therefore, foreign residents (temporary visa holders) account for an increasing portion of post-doc positions, rising from 33% in 1979 to 55% in 2005 (stable or slight decrease from 2001)



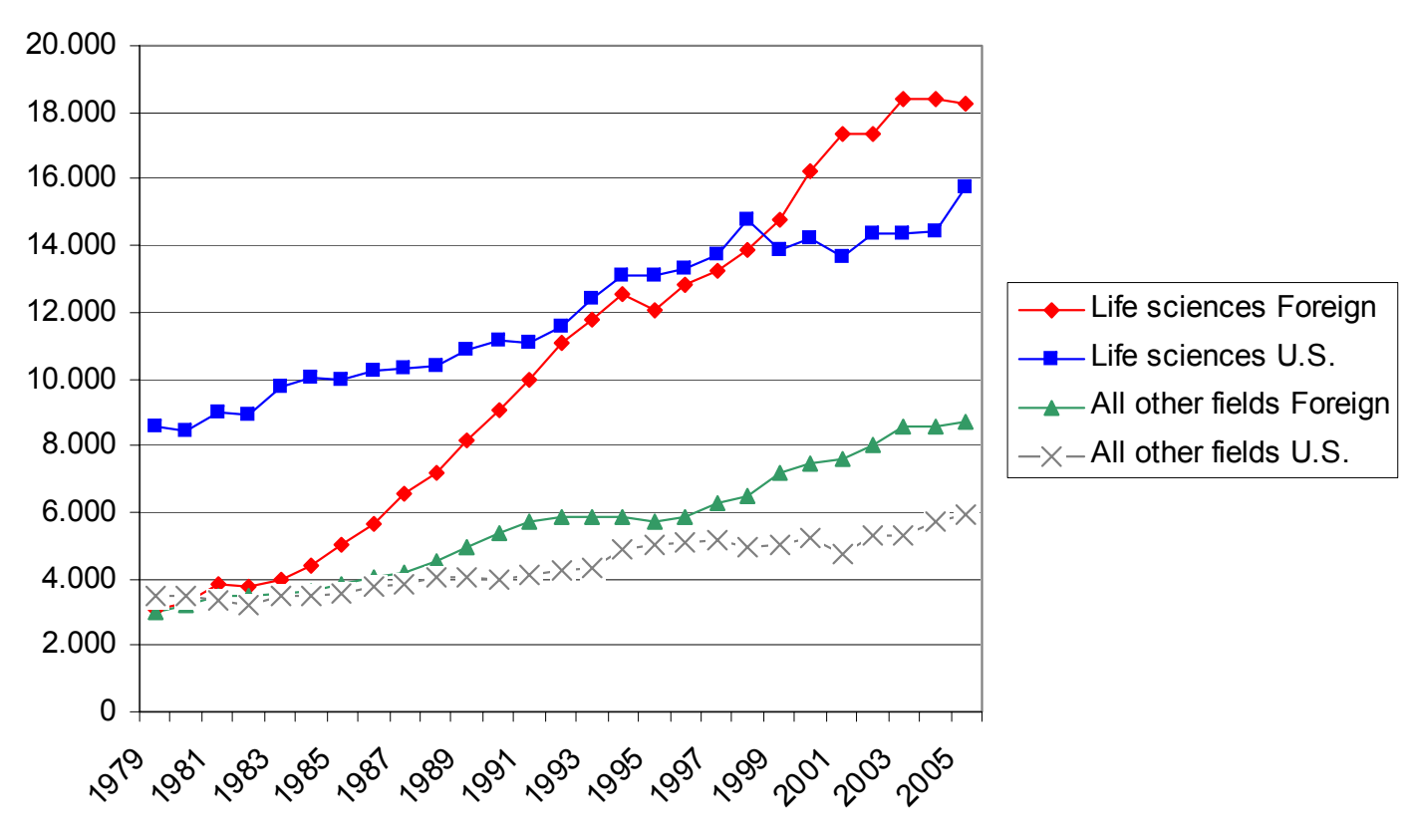
Evolution of the share of foreign postdocs in the U.S., by field

- **Life sciences: increase of the share of foreign postdocs (among total) from 26% in 1979 to 55% in 2005 (stable of slight decrease from 2001)**
- **Engineering: fluctuations around 60-70%**
- **Physical sciences: fluctuations but long-term increase from 50% to 65%**
- **Other fields: increase from 25% to 42%**



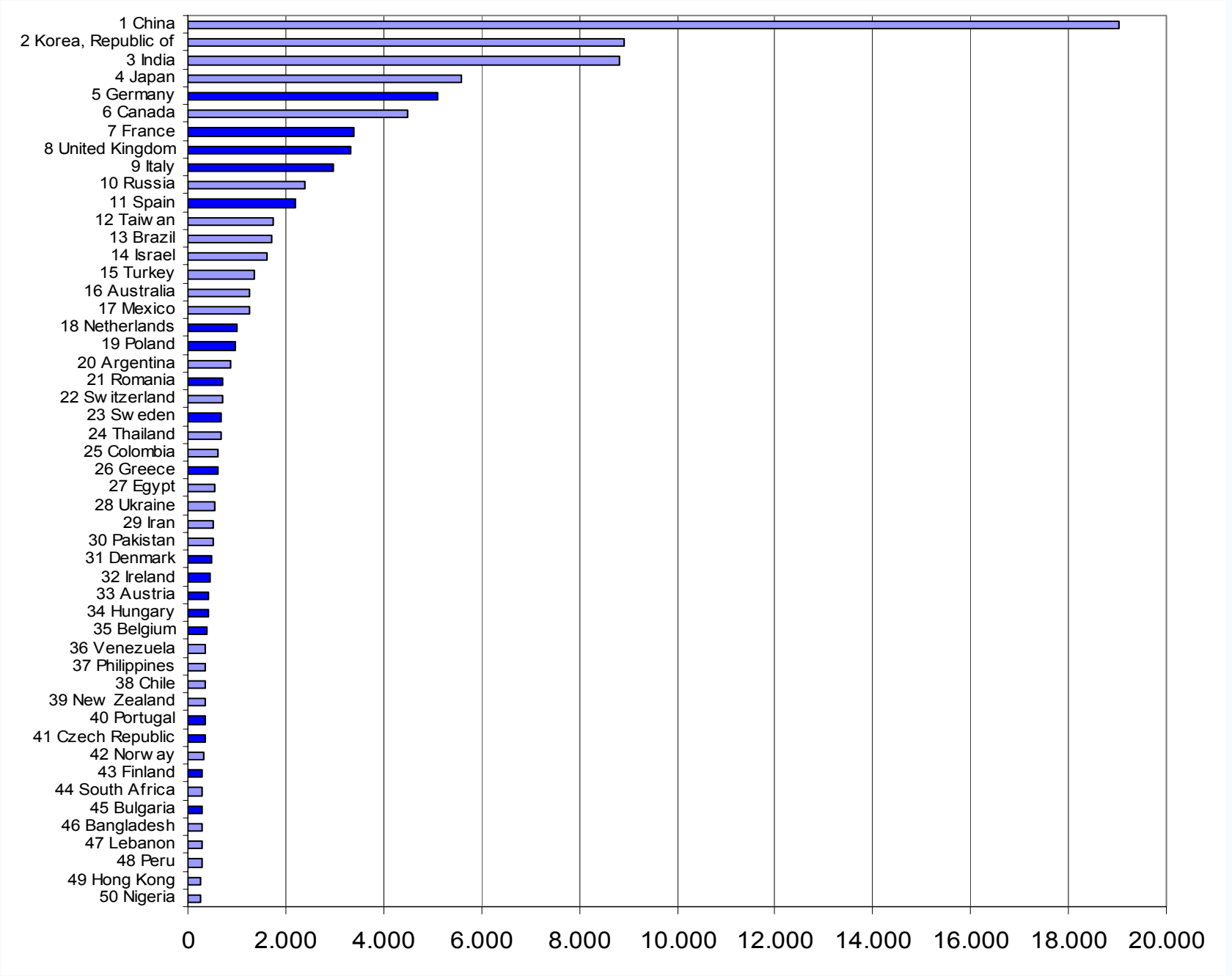
Number of postdocs in the U.S.: evolution over 1979-2005 by field and citizenship

- **Decomposition of the growth in the number of postdocs observed over 1979-2005:**
- **Life sciences:**
  - **Foreign origin: +501%**
  - **U.S. citizens: +84%**
- **All other fields:**
  - **Foreign: +188%**
  - **U.S. citizens: +70%**



Foreign scholars in the U.S.

- In 2005-06, nearly 97,000 foreign scholars were working in the U.S. (Data: *IIE Open Doors)*
- The top country of origin for foreign scholars in the U.S. is China with some 19,000 individuals, accounting for about one fifth of the total number of foreign scholars in the U.S.
- Top following countries are: South Korea (2nd), India (3rd), Japan (4th).
- **Among the top 10 countries of origin, there are four EU countries (Germany 5th, France 7th, the UK 8th and Italy 9th).**
- **Nearly 25,000 scholars hosted in the U.S. come from the EU-27. They account for about 29% of the total number of foreign scholars in the U.S.**


1 China
2 Korea, Republic of
3 India
4 Japan
5 Germany
6 Canada
7 France
8 United Kingdom
9 Italy
10 Russia
11 Spain
12 Taiwan
13 Brazil
14 Israel
15 Turkey
16 Australia
17 Mexico
18 Netherlands
19 Poland
20 Argentina
21 Romania
22 Switzerland
23 Sweden
24 Thailand
25 Colombia
26 Greece
27 Egypt
28 Ukraine
29 Iran
30 Pakistan
31 Denmark
32 Ireland
33 Austria
34 Hungary
35 Belgium
36 Venezuela
37 Philippines
38 Chile
39 New Zealand
40 Portugal
41 Czech Republic
42 Norway
43 Finland
44 South Africa
45 Bulgaria
46 Bangladesh
47 Lebanon
48 Peru
49 Hong Kong
50 Nigeria
0
2.000
4.000
6.000
8.000
10.000
12.000
14.000
16.000
18.000
20.000

Data on postdocs in Europe

- **No comprehensive data on postdocs for Europe**
- **Some evidence exist with national specific surveys or studies**

Some evidence (1): France

- **In 2000, the number of French post-doctorates in the United States was estimated between 2,000 and 3,000 (Cf. Seznec and Martin-Rovet 2001)**
- **In a survey we carried out in 2001, 30% of French doctoral graduates in natural sciences who held a post-doctorate appointment were located in the United States, 9% in Japan, 5% in the United Kingdom, 4% in Canada, 4% in Germany, 2% in Belgium and 2% in The Netherlands (Cf. Moguérou 2004)**
- **In France, according to a survey carried out by Céreq in 1999, 7% of the French Ph.Ds who qualified in 1996, were living abroad in 1999 (15% in natural and life sciences). "Among those living abroad in 1999, only 21% did not wish to return to France".**
- **Foreign post-doctorates (in chemistry and life sciences) in public research institutions make up between 30% and 50% of the staff of public labs. However, according to the authors, France experiences difficulties in attracting foreign post-doctorates from countries renowned for the quality of their research structures. Only few dynamic French public labs succeed in recruiting "à l'américaine". (Cf. Dedieu and Musselin 2005)**

Some evidence (2): Germany

- **72% of DFG post-doctoral fellows worked abroad during at least part of their fellowship. The United States was the first destination for 66.3% of those who worked abroad. 6.5% were in the United Kingdom, 4.8% in Canada, 4.6% in France, 2.8% in Switzerland and 1.5% in Italy. But only 15% of recipients were still living abroad at the time of the study, and, among them, 40% were in the United States and 40% in Western Europe. The percentages of individuals who did not return are, respectively, 19% and 17% for the natural sciences and biology/medicine.**
- **Survey carried out in December 2002 on 1,422 previous recipients of DFG post-doctoral fellowships in 4 fields (social sciences, biology and medicine, natural sciences, and engineering). (Cf. Enders and Mugabushaka 2004)**

Some evidence (3): UK

- **A qualitative study on academic careers and recruitment in ICT and biotechnology points out that "The 'Been to America' is an undeniably important factor in European research. […] The U.S. system is hugely attractive to EU researchers at the Ph.D. and post-doc level [but within Europe] the main destination of scientific researchers seems to be the top universities of the UK." (Cf. Casey et al. 2001)**

Some evidence (4): Europe

- **The impact assessment of the Marie Curie fellowships under the 4th and 5th Framework Programmes (2005) showed that the UK was the most popular destination for both postgraduate and post-doctoral fellows (28% of fellows), followed by France (17%), Germany (12%), the Netherlands (9%), Spain (6%) and Italy (6%). In taking into account the outflows, the country with the highest net inflow (relative to the S&T workforce) was the UK.**

2 surveys on young researchers in the EU (1)

- **Two pilot ad-hoc surveys commissionned by IPTS:**
  - **NetReAct survey (2005) – life sciences ("The Role of Networking in Research Activities", Empirica)**
  - **Rescar survey (2007) – engineering and social sciences ("Collection and Analysis of existing data on researchers careers and Implementation of new data collection activities", Empirica, FHNW, University of Wolverhampton)**
- **These surveys collected information on doctoral candidates and post-doctorates.**
- **Questionnaires addressed to the heads of university-based research teams.**
- **9 EU countries: Czech Rebpublic, Germany, Spain, France, Hungary, Italy, Portugal, Sweden and UK.**

2 surveys on young researchers in the EU (2)

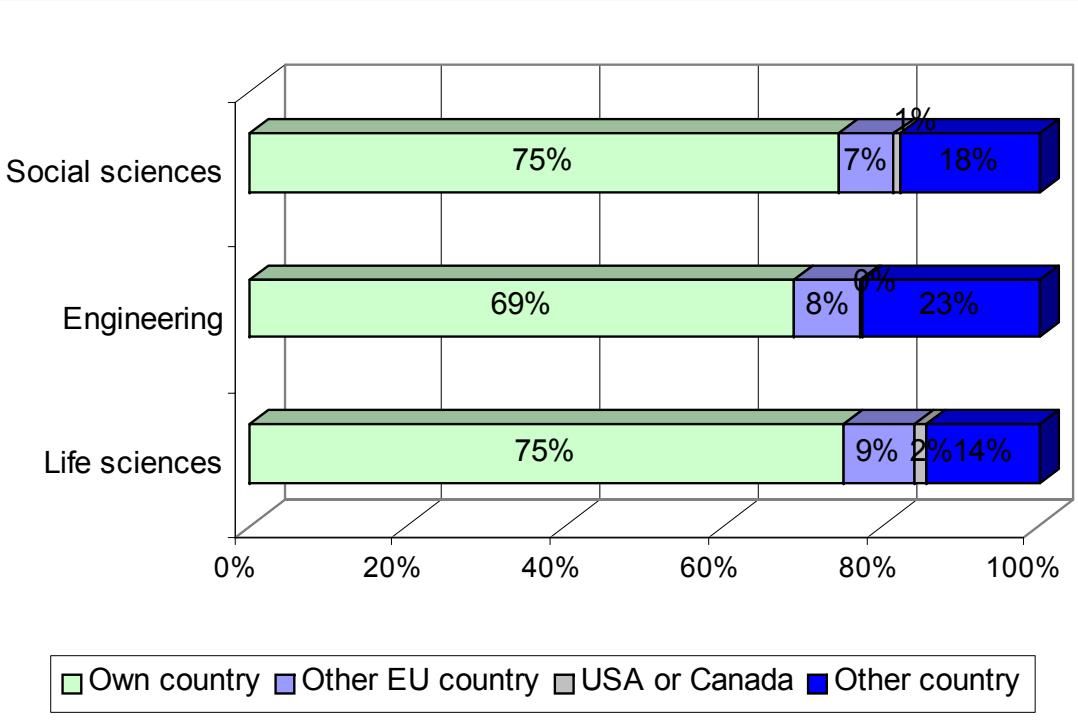
- NetReAct survey (life sciences):
  - Universe: the research population identified was 7,700 teams working in life sciences, from 359 universities.
  - Sample: 1,800 teams were selected for the sample (strata for sampling were built according to country and a simple importance indicator derived from the webometric analysis).
  - Number of usable questionnaire in the sample: 468 teams (after sampling and eliminating the not usable responses).
  - Response rate: 26% (of the respondents included in the sample).
- Rescar survey (engineering and social sciences):
  - Universe: research population identified = 5,500 university departments in social sciences and engineering, from 539 universities.
  - A sample of 1,200 departments was drawn using random stratified sampling.
  - In this sample, 4,700 teams were identified and approached.
  - Valid questionnaires: 595 teams.
  - Response rate: 13% (lower than expected).

Methodology

- **To construct an overall EU picture of the origin and destination of doctoral graduates and postdoctoral researchers, the method has consisted in applying weights, which are the Eurostat number of doctoral graduates/candidates or (estimations of) the number of postdoctorates, to various percentages extracted from the two surveys.**

Origin of doctoral candidates in the EU

- **75% of doctoral candidates in life sciences, 69% in engineering and 75% in social sciences come from the same country in which they study for the doctorate.**
- **Therefore, 25% of doctoral candidates in life sciences, 31% of doctoral candidates in engineering and 25% in social sciences are of foreign origin.**
- **That can be decomposed as:**
  - **From other EU countries: 9% in life sciences, 8% in engineering and 7% in social sciences**
  - **From the U.S. or Canada: 2% or less in the 3 disciplines**
  - **From all other countries: 14% in life sciences, 23% in engineering and 18% in social sciences**



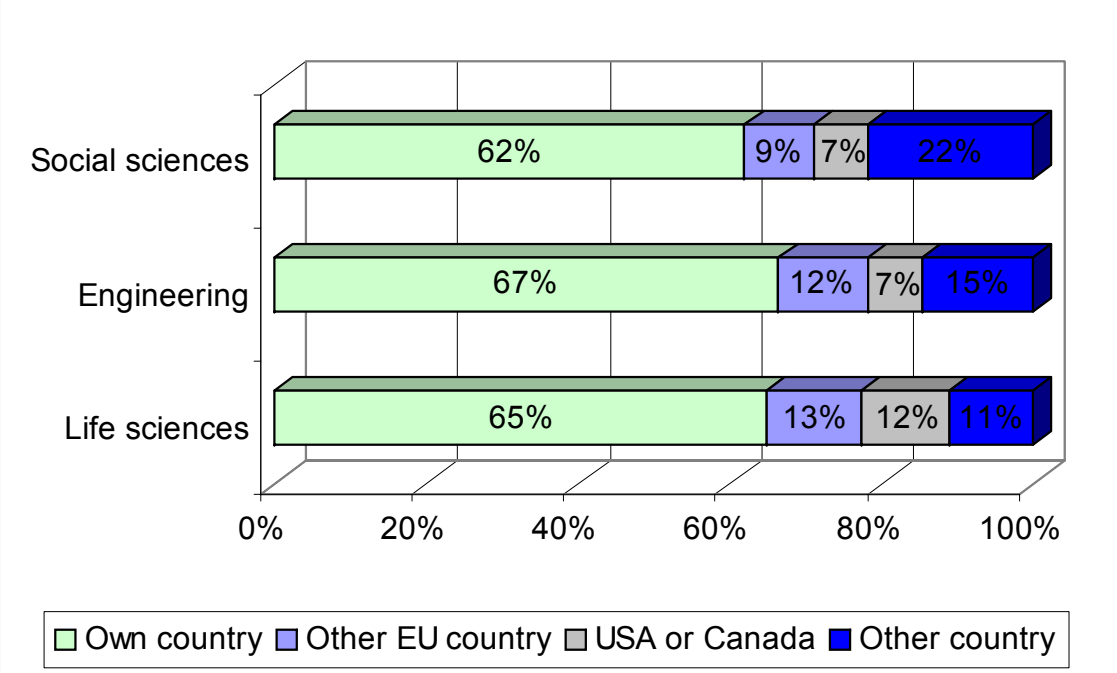
Source: our estimations based on NetReAct, Rescar and Eurostat data

France : origine des doctorants

	Own country	Other EU country	Other European country outside EU	USA or Canada	Other country
Life sciences	83	5	2	1	10
Engineering	60	8	4	0	29
Social sciences	70	7	0	2	22

Destination of doctoral graduates from EU teams

- About 65% of doctoral graduates awarded in the EU in life sciences, 67% in engineering and 62% in social sciences are working today in the country of their doctorate.
- 13%, 12% and 9% are working in another EU country.
- 12%, 7% and 7% are working in the U.S. or Canada.
- 11%, 16% and 22% are working in another country.
- France:

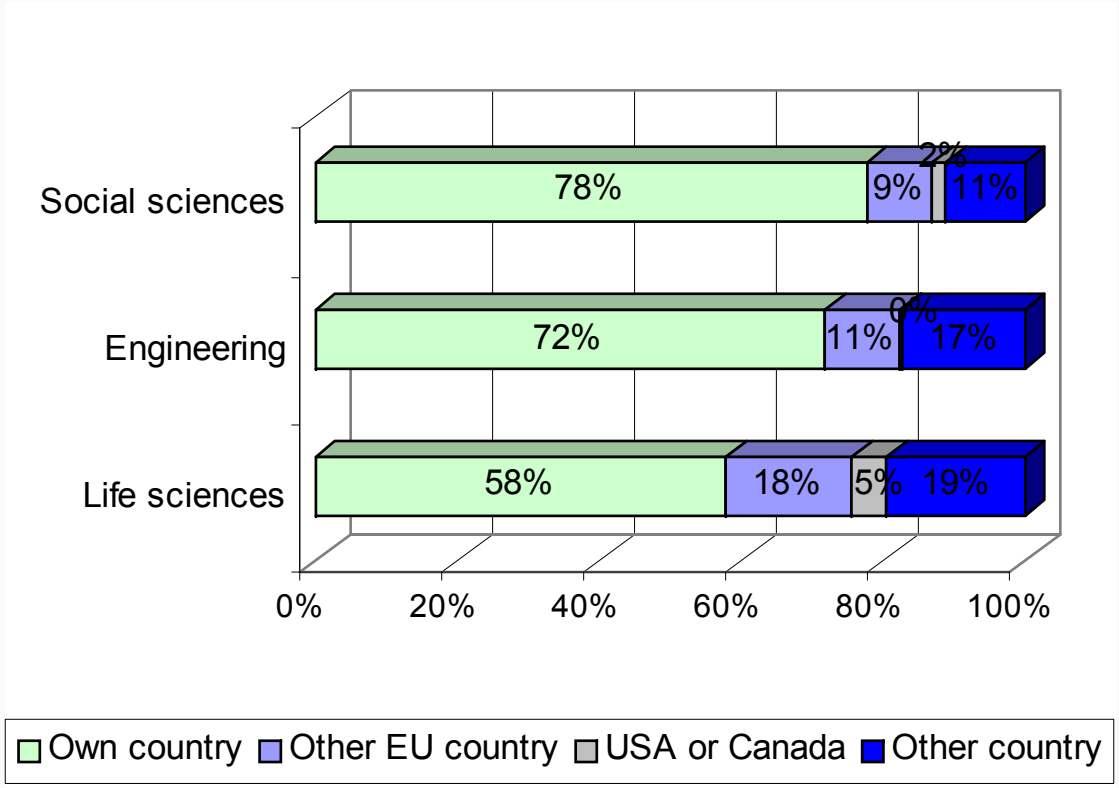


France : destination des diplômés de doctorat

	Own country	Other EU country	Other European country outside EU	USA or Canada	Other country
Life sciences	50	18	5	17	10
Engineering	82	9	2	1	7
Social sciences	56	12	0	15	18

Origin of postdoctoral researchers in the EU

- **58% of postdocs in life sciences, 72% of postdocs in engineering and 78% of postdos in social sciences work in their country of origin.**
- **Therefore, 42% of postdocs in life sciences, 28% in engineering and 22% in social sciences are of foreign origin.**
- **That can be decomposed:**
  - **From other EU countries: 18% in life sciences, 11% in engineering and 9% in social sciences;**
  - **From the U.S. or Canada: 5% in life sciences, less than 1% in engineering and 2% in social sciences;**
  - **From all other countries: 19% in life sciences, 17% in engineering and 11% in social sciences.**
- **The share of foreigners is higher among postdocs than among doctoral candidates in life sciences (42% against 25%). The share of foreigners of EU origin is as well higher among postdocs in life sciences (18% against 9%).**

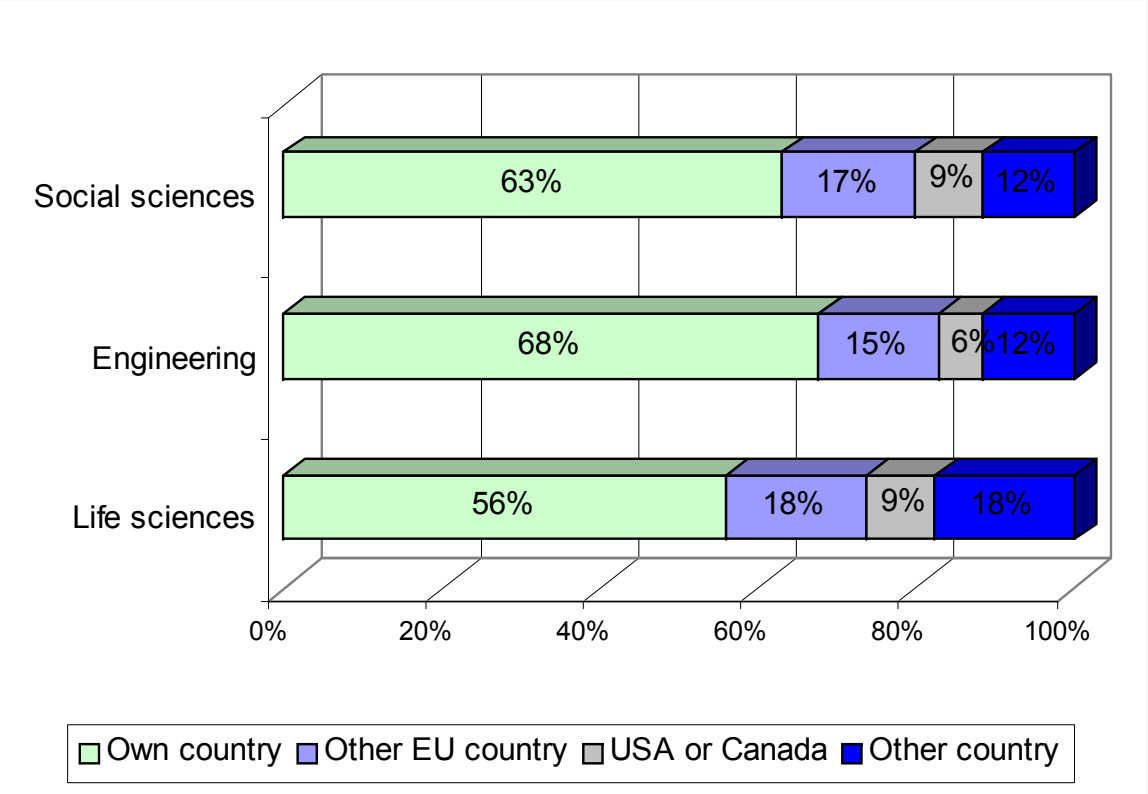


France : origine des postdocs

	Own country	Other EU country	Other European country outside EU	USA or Canada	Other country
Life sciences	40	21	7	12	19
Engineering	50	13	4	0	33
Social sciences	58	18	0	3	21

Destination of postdoctoral researchers from EU teams

- About 56% of postdoctorates in life sciences who finished their contracts with a EU team (respectively 68% in engineering and 63% in social sciences), are working today in the team's country.
- 18% in life sciences, 15% in engineering and 17% in social sciences are working in another EU country.
- 9% in life sciences, 6% in engineering and 9% in social sciences are working in the USA or Canada.
- 18% in life sciences, 12% in engineering and 12% in social sciences are working in another country.



France : destination des postdocs

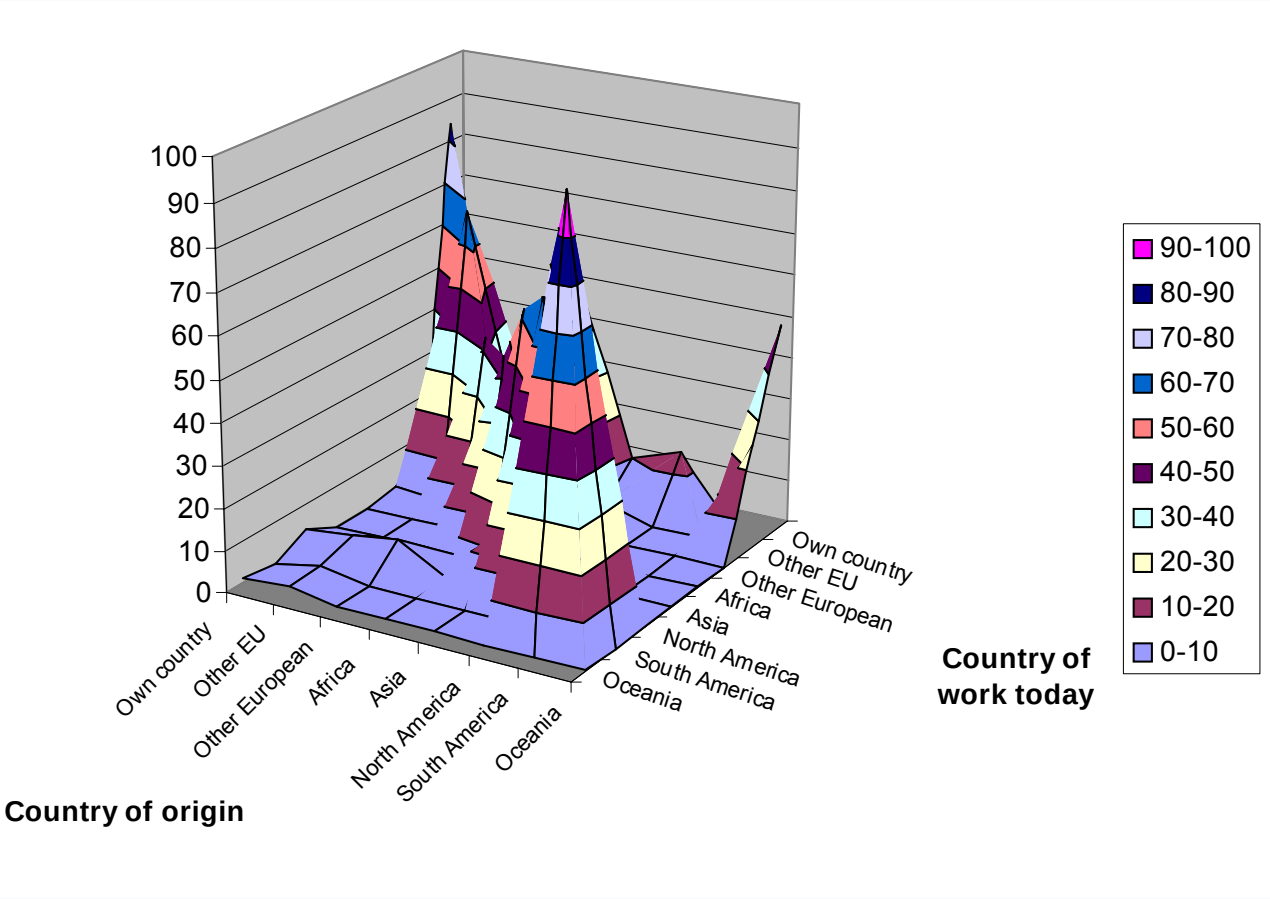
	Own country	Other EU country	Other European country outside EU	USA or Canada	Other country	Don't know
Life sciences	39	24	10	9	19	
Engineering	67	3	2	5	17	6
Social sciences	60	10	0	5	15	10

Other findings for former postdocs in engineering and social sciences
(1) International mobility

- **In analysing country of origin and country of current work, we found that many post-docs leaving the team seem to revert to their country of origin.**

Country of work today by country of origin for former post-doctoral researchers in engineering

Ex. 45% of the postdocs from Africa who had worked in EU teams are working today in Africa; 62% of postdocs from Asia who had worked in EU teams are working today in Asia; 71% of North Americans who had worked in EU teams are today working in North America.



Other findings (2) International and intersectoral mobility

- **Jointly inter-sectoral and international moves of post-docs are relatively rare:**
  - **Post-docs leaving the team to work in a university often move to another country in Europe or elsewhere.**
  - **Post-docs moving to the private sector more often remain in the country of the research team.**

Other findings (3) Temporary/permanent positions

- About 20% of post-doctoral researchers are reported to be in temporary positions after leaving the research team and 1% unemployed.
- When broken down by discipline and sector of employment, we find that the private sector is more likely than the public sector to offer permanent positions to former post-docs, particularly to engineers.

Shortcomings (1)

- In the Rescar survey, the response rate was low (13%).
- The definition of social sciences may be loose, compared to natural sciences and engineering, and subject to various interpretations in different data sources.
- The identification of departments and teams is uncertain, and probably more difficult in social sciences than in engineering.
- The definition of postdoctorate was not specified and was let to the interpretation of the heads of unit. Generally, there is not an agreement on a definition of postdoctorate. National and disciplinary traditions may vary considerably on that respect. If the term postdoc may be particularly obvious in some disciplines – notably in life sciences – and in some countries – notably in the UK – it is likely to lead to different interpretations in many countries and many disciplines – and particularly in social sciences. In the frame of these surveys, postdoctorates may be assimilated to non tenured, non permanent academic positions.
- Team leaders may not have a perfect knowledge on the origin and destination of their doctoral graduates and postdoctorates.

Shortcomings (2)

- **The results are broad estimations of the mobility of young researchers in the EU. They have to be interpreted with caution as they are based on the results of a surveys with limited response rates. In some cases, they are based on very few observations. This is particularly the case for the field of social sciences and for the distribution by country of destination.**
- **More precise and detailed results on the mobility of young researchers would require other types of data, such as cohort data, the collection of which is very costly in terms of time and money. Such data only exist in very few European countries.**

4. La mobilité internationale des chercheurs « confirmés »

Etude sur les chercheurs « confirmés » en sciences de la vie

- **Echantillon construit à partir des bases de publications (ISI-Thomson) et de brevets (EPO)**
- **9 pays UE + Norvège**
- **10 000 auteurs contactés**
- **1 900 réponses valides = taux de réponse de 19%**
  - **France: 178 réponses (15.7%)**

France : distribution par âge

- Under 35 9.0%
- 35-39 15.7
- 40-44 27.1
- 45-49 15.7
- 50-54 11.4
- 55-59 11.4
- 60-64 7.2
- 65 and over 2.4

Pays de naissance

- **Origine : pays de naissance**
  - **Italie, Espagne, République Tchèque, Hongrie : environ 90% des chercheurs travaillent dans le pays où ils sont nés;**
  - **France, Suède, UK: 70%.**

- **Résultats pour la France :**
  - **Nés en France: 70%**
  - **Nés dans un autre pays de l'UE: 16%**
  - **Nés dans tous les autres pays: 14%**
  - **5 pays de naissance les plus représentés: UK: 6%; Espagne: 3.1%; Belgique: 2.5%; USA: 1.9%; Canada: 1.2%**

Pays d'obtention des diplômes

- **Distributions relativement similaires à celle du pays de naissance.**
- **Pour la France :**
  - **Pays d'obtention de la licence :**
    - *France : 74%*
    - *Autre pays de l'UE : 16%*
    - *Autre pays :10%*
  - **Pays d'obtention du doctorat :**
    - *France : 79%*
    - *UE : 14%*
    - *Autre pays : 8%*
- **Pays d'obtention de la licence et du doctorat: en moyenne 10% indiquent un pays d'obtention de la licence différent de celui du doctorat.**
  - **France : 10%**

Au cours de leur carrière…

- **32% des chercheurs déclarent n'avoir jamais travaillé à l'étranger (dans un pays qui n'est pas leur pays de naissance).**
- **…Et donc 68% déclarent avoir travaillé à un moment ou à un autre à l'étranger.**

5. Quelques éléments qualitatifs

Facteurs expliquant pourquoi…

- …ils n'ont pas souhaité ou cherché à travailler à l'étranger (du plus important au moins important) :
  - Responsabilités familiales : 4.2
  - Bonnes opportunités d'emploi dans le pays de naissance : 4
  - Conditions de travail dans le pays de naissance : 3.6
  - Conditions de vie sociales et culturelles dans le pays de naissance : 3.2
  - Barrières administratives et légales : 2.5
  - Manque d'opportunités d'emploi à l'extérieur; Manque de liberté de recherche à l'extérieur; Manque d'incitations financières; Manque de réseaux; Manque de financements : 2.1-2.4

Facteurs expliquant pourquoi…

- …ils ont travaillé à l'étranger à un moment au cours de leur carrière :
  - Accès technologies : 4.1
  - Liberté de poursuivre opportunités de recherche : 3.8
  - Opportunités d'emploi : 3.6
  - Réseaux : 3.4
  - Financements : 3.2

Intentions d'aller travailler à l'étranger

- **30% expriment l'intention d'aller travailler à l'étranger dans le futur. Pourquoi ? Facteurs influençant ce choix :**
  - **Liberté poursuivre opportunités de recherche : 4.2**
  - **Accès technologies : 4**
  - **Réseaux : 4**
  - **Financements : 3.9**
  - **Opportunités d'emploi : 3.7**
  - **Salaires : 3.6**
- **70% n'envisagent pas d'aller travailler à l'étranger. Facteurs :**
  - **Raisons familiales : 4.2**
  - **Conditions de vie sociales et culturelles; Conditions de travail dans le pays actuel : 3.2**

Effet de la mobilité internationale sur la carrière

- **Avec l'enquête sur les docs et postdocs en sciences sociales et sciences pour l'ingénieur :**
  - **Pour les diplômés de doctorat : les "nationaux" auraient davantage de chances d'obtenir un emploi permanent rapidement après l'obtention du doctorat. Cet avantage des "locaux" serait plus important en sciences pour l'ingénieur qu'en sciences sociales.**
  - **Pour les post-doctorants : les anciens postdocs restant ou retournant dans leur pays ou région d'origine auraient davantage de chances d'obtenir un emploi permanent que ceux qui ont émigré.**
- **Enquête 2001 sur les diplômés de doctorat : effet de la localisation du post-doctorat sur l'accès à un poste de MCF ou CR.**

Etude canadienne sur les salaires : effets du retour migratoire

- **Comparison of individuals' earnings before leaving versus after their return.**
- **Results:**
  - **Overall, those who left the country for two to five years did best in terms of their subsequent earnings levels: their post-return earnings were 12% higher in their first five years back as compared to their last five years before leaving.**
  - **Those who were away six years or more were found to actually have lower earnings after their returns than otherwise might have been expected**
  - **Those who left for only one year: no significant effect**
  - **It was those individuals at the lowest earnings levels who left the country that experienced the greatest (relative) growth in their earnings upon their returns, while those at higher earnings levels experienced more moderate gains.**