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**“WHY ARE THEY DOING SO WELL WHILE WE
ARE DOING SO BADLY?
A COMPARISON BETWEEN THE CANADIAN AND
ITALIAN UNIVERSITY SYSTEMS”**

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Why Are They Doing So Well While We Are Doing So Badly? A comparison between the Canadian and Italian university systems

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Abstract

The Italian university system is in a profound and dangerous crisis. The below par performance of Italian universities is compared with the increasingly successful accomplishments of Canadian Universities. The paper identifies the major source of this performance differential in the hiring and promotion procedures. Funding methods also facilitate the success of Canadian Universities. The paper recommends a radical reform of the Italian system and a move towards a more decentralized, independent, flexible and transparent system like that of Canada.

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1. Introduction

This paper deals with the gloomy state and decaying performance of the Italian university system (IUS, henceforth) vis-a-vis the much more successful Canadian one (CUS, henceforth). The paper identifies the major source of the *"Italian academic disease"* in the hiring process and its related institutions. Disease which reflects the ethos and substance of the crisis of "System Italy". Whilst in Canada the University hiring processes and career incentives are akin to the US ones, Italy is still anchored to an archaic, inefficient and harmful set of arrangements.

This paper proposes three basic reforms which would favour a pragmatic meritocracy (as opposed to a spurious meritocracy superimposed from the top), would increase flexibility and so help to reverse the current downward trend of the Italian University performance. The work suggests that the major opposition to such reforms would come from inside an academic body used to the advantages and privileges of an insular and self-referential system. This academic body has often been supported by a closed alliance and cultural affinity with a political class also adept at reaping the advantages of easy rents.

2. Performances of the Canadian and Italian University systems.

Once in a while the columns of Italian newspapers are filled by articles debating the decline of Italian Universities and the current Italian Government is trying to introduce a radical reform to reverse this tide through the so-called "Riforma Gelmini" (Gelmini's Reform). This paper tries to assess the extent of the Italian University crisis and see if the current proposed reform represents a breakthrough for a brighter future. The analysis is carried out through a comparative assessment between the performance and organization of the Canadian and Italian University systems. The comparison does not aim to be detailed but will touch only those items of the two systems which would be relevant to explain the performance differential.

The choice of Canada as a benchmark for this paper's evaluation is twofold. The Canadian framework reflects a successful model and Canada and Italy are not too far apart in terms of economic size and institutional arrangements. The organization of Canada's Universities has been moulded by the U.S. experience which has been hugely successful vis-a-vis the European one over the last 60 years. The US could have offered a natural yardstick for such a comparison. However the conspicuous economic, social and political differences between Italy and the US would have cast a doubt about the relevance of the exercise. Instead the size of the Canadian and Italian Economies are not too different and the forms of government in the two countries are reasonably similar.

According to the Central Intelligence Agency (CIA) "World Factbook" the 2008 estimated GDP's per Capita (2008 US\$ on a purchasing power parity basis) for Canada and Italy amount to \$39,300 and \$31,000 respectively, the GDP composition by sector is also quite close (Canada: agriculture: 2%, industry: 28.4%, services: 69.6%; Italy: agriculture: 2%, industry: 26.7%, services: 71.3%) and both countries are small open economies. Though with inevitable differences (e.g. the electoral mechanisms, the Canadian Federal structure) both countries are characterized by a Parliamentary Government and committed to extensive public welfare policies through direct public intervention. The major differences between Canada and Italy are in terms of territorial size, population density, ethnic composition of the population, federal organization of the provinces and

raw materials endowment. None of these factors seem to be sufficiently relevant to affect the analysis below.

Notwithstanding the economic and institutional similarities, Canada and Italy have **University** systems with structurally profound differences which are mirrored in their respective scientific, training and organizational performances.

The performance of the two countries can be easily evaluated by looking at the 2008 and 2009 World university rankings of "The Times of Higher Education Supplement" (THES). Tables 1-3 in the Appendix summarize the results of the THES rankings. It can be immediately noticed that no Italian University has ever entered in the top 150 universities. In the 2008 and 2009 rankings only one Italian university, Bologna, ranked 192nd in 2008 and 174th ² in 2009, is present. In the 2007 THES rankings there were two: the University of Bologna ranked 173rd and the University of Rome ranked 183rd. Thus between 2007 and 2008 the University of Rome exited the rankings while Bologna's rank position deteriorated and dropped twenty places and then came back to 172nd in 2009.

While Italy hangs on close to the bottom of the THES rankings in all three years (23rd in 2007, 29th in both 2008 and 2009), Canada is fourth in 2007, third in 2008 and fourth in 2009. In all three years Canada has eleven Universities in the top 200. What is more remarkable is that three Canadian universities are constantly in the top fifty universities in all the three years. In the top 100 and 150 universities Canada could count six and ten respectively in 2007, five and eight in 2008 and four and nine in 2009. The lowest ranked Canadian University in 2007 (Calgary, 166) is ranked higher than the highest ranked Italian one. In 2008 only one Canadian university (Dalhousie) University is ranked lower than Bologna, while in 2009 is only Simon Fraser which lags behind Bologna.

The methodology used by the THES to draw these rankings is based on six measures: the peer review score, the employer review score, the staff/student score, the citations/staff score, the international staff score and the international students score. Bologna University's scores are quite good for the first two indicators, but are very poor for the other four. Among these indicators, the "citations/staff" score (css henceforth) is the measure more closely related to research performance. In 2007 only two universities, both from the U.S., obtain a maximum css of one hundred, while the University of Toronto is ranked 14th with a score of ninety-three. The Universities of Bologna and Rome score sixty-two (170th) and seventy-one (131st) respectively. The subsequent year ten Universities could score one hundred. Of these universities nine are from the US while the tenth is Canadian (University of Toronto). The University of Bologna has a score of forty and is ranked 173rd in this category. In 2009 again the leading universities are ten and again nine of these are from the US and one from Canada (Calgary). Bologna's score of 34 is lower than the score of the lowest ranked Canadian (Simon Fraser, 53). From tables 4-5 is also possible to see that Canada has consistently 2-3 universities in the top fifty and 8-10 in the top one hundred and fifty. Thus there are clear signs of research excellence for Canadian universities.

From the THES outcomes it clearly emerges that the CUS is performing quite well and with clear indications of improvement in an international perspective. Instead the IUS is performing badly. In addition there are alarming signals of possible further decline with a high risk of not having any institution in the top 200 in the near future.

These disturbing warnings for the IUS are further confirmed by the Field rankings for Italy and Canada published by the THES (2009c, 2009d). Italy (Table 7) has only nine fields out of twenty-one which are above the world average. Summing up the percentages deviations from the

world averages we have a total of -38% or a -1.81% per field on average. All the twenty fields considered for Canada (**Table 8**) are above the world average with a total positive score of +333% or +16.65% per field on average.

The difference in performance is dramatic but perhaps not surprising. If we look at the fields rankings of Scotland and Sweden (THES 2009a, THES 2009 b), both two small open economies with a University structure closer to that of Canada than to that of Italy, we can see that both outperform Italy and that Sweden even outdoes Canada. The above observed indicators are showing not only the poor performance of the Italian system relative to the Canadian one but also point out its ongoing crisis on the international scene.

3. Why are they doing so well while we are doing so badly

A natural question emerging from the evidence shown in the previous section is: why is Italy doing so badly while Canada is doing so well? The answer can be found in Bok (2003, p.106):

“Research universities are rarely, if ever, any better than their faculties. If they are to make their greatest contribution, therefore, it is imperative that they guard the integrity of their procedures for appointing and promoting professors. Those who are entrusted with such decisions should make them solely on the basis of the quality of the candidate’s teaching, research, or other contributions to the academic purposes of the institution....If universities do not honor this principle, the quality of their academic work will surely suffer and they will find it harder to recruit scientists and scholars of genuine distinction.”

Italy has violated this basic tenet for too long and now is paying a bitter price. It is possible to address many factors which are damaging the proper functioning of Italian Universities, however most of these could be easily removed if appropriate practices for recruiting and promotion were introduced. The cause of the predicament of Italian Universities lies in the institutions and procedures adopted for appointing and promoting professors. Two institutions and the procedures associated with them are responsible for the deficient hiring and promoting mechanisms which have afflicted the Italian University system and impaired its performance. The two institutions are the so-called “*valore legale del titolo di studio*” and “*concorso pubblico*”.

Before addressing in more detail the issues concerned with these two institutions let us first point out that the organization of the IUS (reflecting that of the Italian society) is highly bureaucratic and has a pyramidal structure with the ministry of the university and the professorial guild at the top. Like many other professions in Italy the academic profession is organized like a guild which co-opts its associates rather than hire them through a free market process. At the top of the guild stands a restricted group of professors (once upon a time called “the barons” and nowadays rebranded with the more flattering but less precise label of “*caposcuola*”, i.e. the “head of a school of thinking”) which runs most of its activity. Each baron has nurtured his/her protégées (and faction), advancing the obedient ones, independently of their quality, and holding back and possibly driving out the independents even when of high quality. This has been possible because of the two abovementioned institutions and their careful manipulation by the interested parties.

To the best of my knowledge there is no proper translation into English of the first institution. However, henceforth in this paper, this institution will be labeled by a possible literal

translation, “legal value of academic qualification”, and its acronym, LVAQ. The Italian legal system confers legal recognition of academic qualifications (and so of degrees) and grants special legal protections to such qualifications. In operational terms the possession of a recognized qualification is a necessary condition to enter any competition to join public services or specific professions. In the specific perspective of this paper an Italian degree becomes a prerequisite in order to apply for an academic position. Let’s provide an example of the perverse way in which the LVAQ can operate. Suppose an Italian graduate in physics decides to continue his/her studies abroad where he/she obtains an M.Sc. and Ph.D. in Economics. Suppose this person decides to come home and apply for a University job or government position (Italian Universities are state institutions and its professors are civil servants). If the job competition is open only to people owning an Italian degree in Economics and Commerce, Political Sciences and Statistics then such a person cannot apply for a job. If he/she applies anyway, the application is rejected as invalid. Furthermore, once a candidate has an appropriate Italian degree, all Italian degrees have the same value once a candidate enters a competition. In the above example a degree from the best Italian Economics Faculty (in Italy degrees are managed by Faculties) and the worst one have the same value as far the competition is concerned. It is clear how this tool can preclude “undesired” applicants if adeptly manipulated and simultaneously pauperize the candidates pool. This institution was introduced in the 1930’s and reflects the “dirigisme” and guild structure of Fascist Italy. It has found large opposition in the liberal side of the country since the birth of the new Italian republic after the second world war (Einaudi, 1947, 1955; Sartori, 2008; Manzini, 2008). Notwithstanding this authoritative opposition, no Italian government has ever even attempted to remove this archaic and outdated institution. Why? Neglect? Lack of interest for one important aspect of the educational system and the organization of public employment? Hardly, given also the loud noise of the critics. Thus it is and has been a deliberate choice based on a specific set of values and view of society.

The subsequent question to be asked is: which specific view of society and set of values are so important to support such a damaging institution? A detailed answer to this question would go beyond the scope and space allowed to this work. However it is reasonable to suspect the presence of political interests which do not coincide with the interest of the country and its citizens. Political interests which have their roots in the complex links between political parties and the professorial guild (more precisely: part of it).

The complementary tool to the LVAQ is “il concorso pubblico” (the Italian public competition, IPC henceforth). The IPC is the other necessary instrument for hiring and promoting academics. As pointed out by Ichino (2006) the IPC is a poor hiring tool. The IPC is a highly centralized machine strictly under the control of the Ministry of Education, University and Research (MIUR) and of the “professorial guild”. To be initially hired at any level a person must satisfy LVAQ and be selected via the IPC. To be promoted an academic, even if he/she already belongs to a specific faculty and university, must go through the IPC as he/she was hired for the first time. There is no real distinction in Italy between the process of hiring and that of promoting. This lack of separation between the two processes often obstructs attempts at renewing and improving faculties. The timing of IPC is dictated by the Ministry which is subject to the vagaries and shocks of Italian political activity and so is the IPC. Thus the IPC is held irregularly through time and not in response to the needs of the Faculty or Departments but to the whims of political life. Such irregular schedule would bring about congestion or shortage of candidates and favour the allocative (or re-allocative) strategies of the professorial guild. However this is not the basic drawback of IPC, it is just a consequence of it. This crucial shortcoming is that a centralized authority (a unit composed by the

Ministry and the “powerful academics”), which might have a stronger interest in preserving their power than promoting academic excellence, are calling the shots.

The IPC has undergone several mutations of its format but it has always retained the fundamental characteristic of being under a strict centralized control. For the sake of simplicity we can encapsulate IPC formats in three categories:

- 1) the purely centralized;
- 2) the falsely decentralized;
- 3) the new centralization

The “purely centralized” has been the format (with small variations through time) used up to the 1990’s . The Ministry would call a competition for a specific number of positions. The number of positions would vary between “settore disciplinari” (“branches of learning”, BoL henceforth). The BoL classification system is a strictly regulated, narrowly defined subdivision of fields of knowledge. It does not just separate between large groups (Physics, Chemistry, Economics,...) or narrower subgroups (e.g. Theoretical Physics, Applied Physics,...Macroeconomics, Microeconomics), but imposes a very narrow subdivisions within subjects, e.g. for Economics there are 19 BoL’s such as Political Economy, Economic Policy, Public Finance, Applied Economics, History of Economic Thought, Statistics, Economic Statistics, Econometrics, Social Statistics, The goal of such subdivision is not necessarily to guarantee the expertise of the hiring committee and clearly define the areas of competence of candidates. Its aim is to demarcate the boundaries of the influence of “potentates” and facilitate control over the processes of hiring and promoting. The whole Italian academic body would vote to elect the members of the hiring committees. To be elected to a committee an academic should belong to a specific BoL. Furthermore he should have a rank at least as high as the rank for which the competition is advertised. However in each committee, independently for which rank, full professors have to be the majority, e.g. for an associate professor position and a panel of five people there will be three full professors and two associate professors. It is clear that by expertly controlling the voting process a small group of professors (the above mentioned “barons”) could control the academic body of the whole country. Negotiations behind closed doors could be carried out to ensure the election of “acceptable” committees. Not many surprises emerged with such a mechanism in place: the expected people often (or almost always) landed the expected jobs. The system was strictly centralized, devoid of competition (also thanks to language insularity) and despotically run. A person could not get hired or be promoted without the agreement of the guild (i.e. of the barons). In such a centralized system the IPC decided who was in the academic profession and who was out. If somebody failed tenure, he/she could not try to continue his/her career in another Italian university as that failure would hold for the whole academic body. The worse shortcoming of this centralized procedure was that it introduced a large distance between the decision makers and the outcome of their choice. At the same time it conferred large powers of control over the whole profession to a limited number of people. The separation between decision and consequence the decision itself, together with funding schemes unrelated to academic performance, provided a shield of false objectivity and freed hiring committees of responsibility.

In the 1990’s, under the pressure of globalization, Italian governments gave way to a series of reforms in the Higher Education System while at the same time managing to aptly distort them so as to leave the power structure untouched. The IPC had to adjust as well. What we may call “false

decentralization" was introduced in that period. Funding of positions was decentralized to Universities which would decide how many new jobs they could afford. Universities would also choose at what level and for which faculties they will have available vacancies. The non-separation between hiring and promotion continued unabated. Four out of five (4/5 rule) committee members are chosen by ballot from the national pools defined by the branches of learning. The fifth member of the panel had to be selected by the Faculty with a vacancy availability. This modus operandi, though imperfect, was getting closer to the decentralized hiring system of North American Universities. The 4/5 rule (together with existing funding regulations) still distanced the hiring committee from the consequences of its choice, favoured internal candidates and facilitated inside dealings among the members of hiring committees. Though flawed this procedure was a step forward. A further improvement would have been the abandonment of the 4/5 rule in favour of a committee fully chosen inside the Faculty/Department and a system of University funding related to performance. This step was never taken. On the contrary the new "Gelmini's reform" is a step back towards the old centralized system. This new reorganization enforces the return to the centralized hiring committees. The major difference with the past is that the members of the committees are randomly selected via a lottery system. Allegedly this system would reduce the risk of inside negotiations. In reality it does not. It does not embody any incentive for committee's members to avoid negotiations and dealings. Since the pool for the random selection is largely formed by people of the "old order", it is very likely that this order would manage to replicate itself. The reform is succeeding in distancing again the decision makers from the consequences of his/her choices. This effect is enhanced by a funding system feigning meritocratic values. The system would impose rankings among institution based on the decisions of the Ministry itself and local departmental lobbies. This meritocracy imposed from the top can easily be adjusted according to the necessities of the powerful pressure groups. The "Gelmini's reform" is autocratic at its core and aims at reinforcing the power of the Ministry and of the faithful professorial guild (the winning side of it). It does not aim at true reform but at maintaining a status quo behind a veil of changes. The current Gelmini's reform reminds of the (authentic or apocryphal) aphorism of the Roman Consul Caius Petronius:

"I was to learn later in life that we tend to meet any new situation by reorganizing; and a wonderful method it can be for creating the illusion of progress, while producing confusion, inefficiency and demoralisation".

Why is Canada so successful? The reason is simple. In Canada there is no institution similar to the LVAQ or the IPC. Canadian Universities, like the US ones, are very decentralized. Hiring decisions are taken by individual departments in a collegiate way. The approach varies from university to university. For the sake of simplicity we may summarize it as follows. The University publicizes vacancies in some fields. Potential candidates send applications which are selected by a hiring committee of the relevant department. The selected candidates are invited for an interview and to present a piece of their research work. The hiring committee submits its decisions to the vote of the department itself. The department, in principle and in practice, could reject the hiring committee recommendations and change the choices. The names of the selected candidates are submitted to the approval of the university senate (or equivalent institution). If the senate approves, the applicants are hired. Promotions are done internally in departments and do not require any sort of competition. Candidates submit their detailed record of activity to their department. The

departmental decision (approval or rejection of the application) should be ratified by the university senate (or equivalent institution). After six years candidates hired at the lowest rank (assistant professor) will submit their work over the past six years for tenure and promotion to the rank of associate professor. Failure to obtain tenure in one university does not preclude the candidate from obtaining it at another university. There are several examples of young scholars failing tenure at their original university and then fulfilling their high potential elsewhere (sometimes returning with flying colours from where they started). The system is flexible, open, transparent and aimed at the minimum wastage of resources. Each department and university (and each individual within it) should take full responsibility for their choice. Responsibility which may be reflected in less resources, less power and a loss of reputation should wrong choices be often repeated. On the other end successful decision making would lead to high rewards in similar dimensions.

Canadian universities are financed by The Federal Government, Provincial Governments, the Canadian private sector and international funds(CAUT Almanac 2009-2010). The funding is largely related based on the number of students without appealing to official government rankings like the UK Research Assessment Exercise (which instead has liked by Italian reformers for its intrinsic centralization of power). Research funding in Canada comes mostly from Federal Government agencies (such as CIHR, NSERC, SSHRC, the Canada Foundation for Innovation) and different provincial agencies. Most research funding goes to individuals and not to institutions. Therefore Universities have a strong incentive to secure the services of the most productive (or potentially productive) researchers.

Research related teaching programmes receive funding according to their success. For instance a University could start a Ph.D. programme without government support. If the programme is successful the government would then largely fund the programme (the funding for a graduate student is approximately four times as big as that of an undergraduate).

There are therefore compelling reasons for individual academics, departments and Universities to succeed on the international scene. At the same time there not institutions which would favour (even implicitly) a national professorial guild and its dependence on the political system. Each province is keen to have successful research universities as they would generate positive externalities and attract investment. Thus they compete with each other in supporting their universities. The Canadian Government has compelling similar motivations to keep its educational system competitive on the international scene. Through time this successful regime has also brought about generations of highly qualified civil servants, politicians and private officers who can understand and appreciate high academic standards. A foreign visitor to Canada who has the opportunity to meet civil servants, company managers or politicians will often notice that they have Ph.D.'s or postgraduate degrees.

The intrinsic openness of the CUS favours interaction with foreign academics, facilitates the exchange of ideas (and where possible of resources) and fosters scientific and cultural advancement. The CUS is doing very well because is rooted in an approach which is the opposite of the Italian one: an approach which is decentralized, independent, open, flexible and transparent.

4. What Lesson from Canada

What can Italy learn from Canada? As Italy is economically and institutionally not too far from Canada, there is a great deal it can learn from the Canadian lesson.

First, the IUS should try to bring decision makers (members of hiring committees, faculties and departments) close to the responsibility for their choices. Decentralization would be the first fundamental step. Who chooses (and promotes) whom should be clear and transparent. This way the success or failure of their decisions would also be clear and transparent. The system should be open and devoid of tools of ex-ante exclusion such as the LVQA. It should be flexible and uncomplicated and free of overwhelmingly bureaucratic procedures which lend themselves to arbitrary exploitation. The IPC application forms are complex, convoluted, obscure documents. Candidates can easily make mistakes and be rejected, even if highly qualified, because of formal mistakes. Such cumbersome application procedures should be eliminated and substituted by simple application packages (a cv and a sample of publications chosen by the applicant).

In summary Italy should:

- 1) remove the LVAQ
- 2) abolish the BoL
- 3) separate the hiring and promotion processes
- 4) decentralize 3) possibly by getting rid of the IPC (c.f. Panunzi, 2009, for a similar view)
- 5) link central government funding to performance and create incentives for local government and private funding.

The implementation of these measures would weaken central government control and trigger the end of the powerbase of the "professorial guild". However these measures, to be fully successful, should be introduced all together and without compromise. Their introduction would create a system akin to the CUS. Carrying out 5) could be particularly difficult and dangerous. There are too many historical links between Italian government funding agencies and the current Italian academic body to believe that funding would be independent, fair and virtuous in the short run. At least for a decade it would be necessary to entrust the evaluation of Italian research and educational performances to boards of assessors drawn from different Universities among the most successful in North America. While hiring and promoting decisions will be decentralized to Italian universities and departments, central government funding should be assigned to external evaluators for whom a reputational game matters. This way the risk that the watchdogs are the dog themselves would be avoided. At provincial level a similar procedure could be followed. However local government funding of Universities tends to be very low in Italy and should be promoted. For instance assigning more tax power to local authority could be starting point to encourage regional funding. Similarly companies and private agents should be provided with incentives, such as tax deductions or similar instruments, to support research and education.

5. Conclusions

The IUS is in a profound and dangerous crisis. Its crisis resembles that of its country. It suffers from an excess of formality which is aimed at hiding, and not at preventing, predatory behaviour.

From the THES tables we learn that the top universities are in the English-speaking world. In this paper we have seen that, among the English speaking countries, the University system of Canada, a country akin to Italy in few crucial dimensions, outperforms the IUS. The CUS, though heavily dependent on state funding, is independent of its government. The success of Canadian universities

in advancing knowledge, developing innovation, producing high quality graduates has made Canada economically, socially and politically richer. The CUS itself has also become richer not only thanks to Government funding but also through research grants, spin-off companies and alumni donations.

To get out of its quandary the IUS needs radical reforms which could be designed alongside the CUS. The LVAQ should be urgently removed. The IPC should be reformed or, better, removed by assigning more direct responsibilities to Universities and Departments in their choice of personnel. Failing to do so, by introducing false reforms and a meritocracy of facade like the current "Gelmini's reform" has done, would only endanger the potential recovery of the IUS. Similar tactics would confuse the public, distort the debate about important issues and favour the status quo.

The international academic world is changing quickly and dramatically. Italy is at risk of being left behind. Any attempt to reform radically the system from within will be exceedingly difficult because the bureaucracy and its allies will be reluctant to surrender their power. Ultimately they would have to capitulate to the forces of an increasingly open and globalized academic world. It is difficult to evaluate how much damage could still be inflicted to the IUS through this potential conflict. Probably the shorter the transition period the lower would be the costs. Whatever the costs, the above mentioned radical changes are unavoidable if the IUS wishes to be competitive at international level. The Friends of the status quo will "spray ink to stem this avalanche and build dams of paper against the raging tempest", hopefully to no avail.

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APPENDIX

Table 1: Number of universities in the Top 200 divided by country and ranking position -(Overall score) 2007

Nation	1- 50	51-100	101-150	151-200	Tot.
1. Usa	20	17	12	8	57
2. UK	8	11	8	5	32
3. Australia	5	2		4	11
4. Canada	3	3	4	1	11
5. Japan	3	1	3	4	11
6. Netherlands	1	3	3	4	11
7. Germany		3	4	4	11
8. China	2	1	1	2	6
9. France	2		1	2	5
10. Switzerland	1		4		5
11. Belgium		1	2	2	5
12. Hong Kong	2	1	1		4
13. Sweden		1	1	2	4
14. New Zealand	1		1	1	3
15. Denmark		1	2		3
16. Singapore	1	1			2
17. South Korea		1	1		2
18. Finland		1		1	2
19. Ireland		1		1	2
20. Austria			1	1	2
21. Israel			1	1	2
22. Brazil				2	2
23. Italy				2	2
24. Taiwan			1		1
25. Mexico				1	1
26. Norway				1	1
27. South Africa				1	1
28. Spain				1	1

Table 2: Number of universities in the Top 200 divided by country and ranking position -(Overall score) 2008

Nation	1 - 50	51-100	101-150	151-200	Tot.
1. Usa	20	17	12	9	58
2. UK	8	9	5	7	29
3. Canada	3	2	3	4	12
4. Netherlands		4	5	2	11
5. Germany		3	3	5	11
6. Japan	3	1	2	4	10
7. Australia	6	1	1	1	9
8. Switzerland	2	1	2	2	7
9. China		2	4		6
10. Belgium		1	2	2	5
11. Sweden		2		2	4
12. Hong Kong	3		1		4
13. Israel		1	2		3
14. France	2		2		4
15. South Korea		2		1	3
16. Denmark		1	1	1	3
17. New Zealand		1	1	1	3
18. Singapore	1	1			2
19. India				2	2
20. Ireland	1		1		2
21. Finland		1			1
22. Greece				1	1
23. Austria			1		1
24. South Africa				1	1
25. Spain				1	1
26. Taiwan			1		1
27. Argentina				1	1
28. Brazil				1	1
29. Italy				1	1
30. Mexico			1		1
31. Norway				1	1
32. Russia				1	1
33. Thailand				1	1

Table 3: Number of universities in the Top 200 divided by country and ranking position -(Overall score) 2009

Nation	I - 50	51-100	101-150	151-200	Tot.
1. Usa	18	14	13	9	54
2. UK	8	10	5	6	29
3. Japan	3	3	2	3	11
4. Canada	3	1	5	2	11
5. Netherlands	1	3	4	3	11
6. Germany		4	3	3	10
7. Australia	6	2		1	9
8. Switzerland	2	2	1	2	7
9. China	1	1	1	3	6
10. Hong Kong	3		1	1	5
11. Sweden		2		3	5
12. Belgium		1	2	2	5
13. France	2	2			4
14. South Korea	1	1	1	1	4
15. Denmark	1	1		1	3
16. New Zealand		1	1	1	3
17. Israel			3		3
18. Singapore	1	1			2
19. Ireland	1	1			2
20. Norway			1	1	2
21. India				2	2
22. Russia				2	2
23. Taiwan		1			1
24. Austria			1		1
25. Finland			1		1
26. South Africa			1		1
27. Thailand			1		1
28. Greece				1	1
29. Italy				1	1
30. Malaysia				1	1
31. Mexico				1	1
32. Spain				1	1

Table 4: Number of universities in the Top 200 divided by country and ranking position - (Citation/staff score) 2007

Nation	I - 50	51-100	101-150	151-200	Tot.
1. Usa	33	18	4	2	57
2. UK		6	16	10	32
3. Australia		1	3	7	11
4. Japan	4	4		3	11
5. Canada	3	4	3	1	11
6. Netherlands	3	2	6		11
7. Germany		2	3	6	11
8. China			2	4	6
9. Switzerland	2		1	2	5
10. France	1	2	1	1	5
11. Belgium		1	3	1	5
12. Hong Kong	1	2	1		4
13. Sweden		2	2		4
14. Denmark		1	2		3
15. New Zealand				3	3
16. Israel	2				2
17. Austria	1			1	2
18. Finland	1			1	2
19. South Korea		2			2
20. Singapore		1	1		2
21. Brazil			1	1	2
22. Italy			1	1	2
23. Ireland				2	2
24. Spain		1			1
25. Taiwan		1			1
26. Mexico				1	1
27. Norway				1	1
28. South Africa				1	1

Table 5: Number of universities in the Top 200 divided by country and ranking position - (Citation/staff score) 2008

Nation	I - 50	51-100	101-150	151-200	Tot.
1. Usa	32	18	7	1	58
2. UK	4	6	10	9	29
3. Canada	2	3	5	2	12
4. Netherlands	1	4	2	4	11
5. Germany		1	4	6	11
6. Japan	2	3	3	2	10
7. Australia		1	6	2	9
8. Switzerland	4	2		1	7
9. China			1	5	6
10. Belgium		2	1	2	5
11. Sweden	1	2		1	4
12. Hong Kong		1	3		4
13. Israel	2	1			3
14. France	1	1	1	1	4
15. South Korea	1	1	1		3
16. Denmark		1	1	1	3
17. New Zealand			1	2	3
18. Singapore		1		1	2
19. India				2	2
20. Ireland				2	2
21. Finland		1			1
22. Greece		1			1
23. Austria			1		1
24. South Africa			1		1
25. Spain			1		1
26. Taiwan			1		1
27. Argentina				1	1
28. Brazil				1	1
29. Italy				1	1
30. Mexico				1	1
31. Norway				1	1
32. Russia				1	1
33. Thailand				1	1

Table 6: Number of universities in the Top 200 divided by country and ranking position - (Citation/staff score) 2009

Nation	1 - 50	51-100	101-150	151-200	Tot.
1. Usa	35	13	5	1	54
2. UK	2	7	11	9	29
3. Canada	3	4	4		11
4. Japan	1	4	3	3	11
5. Netherlands	1	4	3	3	11
6. Germany	1	1	4	4	10
7. Australia		2	5	2	9
8. Switzerland	4	1		1	6
9. China			1	5	6
10. France	1	2	1	1	5
11. Sweden		2	2	1	5
12. Belgium		2	1	2	5
13. Hong Kong			4	1	5
14. South Korea	1	1		2	4
15. Israel	1	2			3
16. Denmark		1	1	1	3
17. New Zealand			1	2	3
18. Singapore		1		1	2
19. Norway			1	1	2
20. India				2	2
21. Ireland				2	2
22. Russia				2	2
23. Finland		1			1
24. Greece		1			1
25. Spain		1			1
26. Austria			1		1
27. South Africa			1		1
28. Taiwan			1		1
29. Italy				1	1
30. Mexico				1	1
31. Thailand				1	1
32. Malaysia				1	1

Table 7: Field rankings for Italy

	Field	Papers	Citations	Citations per paper	World average	% +/-
1	Physics	49,981	482,807	9.66	8.19	+18
2	Agricultural sciences	6,918	50,323	7.27	6.20	+17
3	Space sciences	12,093	184,680	15.27	13.17	+16
4	Clinical medicine	101,537	1,380,522	13.60	11.99	+13
5	Chemistry	42,863	467,368	10.90	9.72	+12
6	Engineering	33,372	146,901	4.40	3.93	+12
7	Materials science	10,753	66,832	6.22	5.72	+9
8	Pharmacology	8,731	97,159	11.13	10.96	+2
9	Mathematics	13,261	41,125	3.10	3.07	+1
10	Psychology/psychiatry	4,681	46,353	9.90	9.93	0
11	Computer sciences	12,087	36,854	3.05	3.15	-3
12	Geosciences	12,615	105,123	8.33	8.72	-4
13	Immunology	6,267	125,554	20.03	20.92	-4
14	Social sciences	3,743	14,992	4.01	4.16	-4
15	Plant and animal science	16,786	106,104	6.32	7.06	-10
16	Environmental sciences	7,521	64,287	8.55	9.75	-12
17	Molecular biology	12,162	253,373	20.83	25.13	-17
18	Neurosciences	18,273	268,328	14.68	18.18	-19
19	Biochemistry	24,456	319,059	13.05	16.41	-20
20	Economics/business	3,632	14,908	4.10	5.19	-21
21	Microbiology	5,430	62,196	11.45	15.04	-24

Table 7 is from The Times of Higher Education Supplement, 2 April 2009. The THES used data provided by Thomson Reuters from its Essential Science Indicators database, 1998-2008.

Table 8: Field rankings for Canada

	Field	Papers	Citations	Citations per paper	World average	% +/-
1	Space science	5,610	106,740	19.03	12.99	+ 46
2	Clinical medicine	86,384	1,379,868	15.97	11.66	+ 37
3	Physics	23,736	246,360	10.38	8.02	+ 29
4	Agricultural sciences	7,662	59,272	7.74	6.10	+ 27
5	Pharmacology	6,111	82,905	13.57	10.83	+ 25
6	Chemistry	31,936	369,093	11.56	9.60	+ 20
7	Plant/animal sciences	30,853	249,712	8.09	6.83	+ 18
8	Environment/ecology	17,752	198,265	11.17	9.56	+ 17
9	Materials science	10,993	71,781	6.53	5.73	+ 14
10	Geosciences	17,910	171,518	9.58	8.46	+ 13
11	Psychiatry/psychology	16,351	179,179	10.96	9.72	+ 13
12	Computer science	11,586	39,944	3.45	3.08	+ 12
13	Biology/biochemistry	25,776	452,735	17.56	15.76	+ 11
14	Engineering	32,910	143,409	4.36	3.92	+ 11
15	Mathematics	11,850	39,394	3.32	3.00	+ 11
16	Microbiology	6,241	98,593	15.80	14.46	+ 9
17	Neuroscience	18,368	351,076	19.11	17.56	+ 9
18	Molecular biology	13,967	353,030	25.28	23.90	+ 6
19	Economics/business	7,973	41,580	5.22	5.04	+ 4
20	Immunology	5,267	105,742	20.08	19.95	+ 1

Table 8 is from The Times of Higher Education Supplement, 10 September 2009. The THES used data provided by Thomson Reuters from its Essential Science Indicators database, January 1999 to April 2009,.