

2^e Séminaire SciSci - OST
Lundi 19 décembre 2011
Francesco Lissoni (Bocconi University), Italie

"Academic Patenting in France: evidence on ownership and social structure"

TRANSCRIPTION

The research I'm presenting here is, as you see on this slide, just a summary of recent and less recent work I've done with different co-authors (so I just put my name here but there are many other people who contributed to the research with me).

It's a summary of some evidence on European academic patenting and then of two recent works I dedicated only to France. They are co-authored with Patrick Llerena; one with Bulat Sanditov and the other with Antonio Della Malva.

So, let's go straight to the point: what is an academic patent? Thanks also to some of the work I present here, it is now increasingly common to use these words, "academic patent", instead of "university patent", which has more of a US flavor. By academic patent, we mean any patent signed by at least one academic scientist, as a result of some name-matching investigation, that has allowed us to identify one inventor as an academic – possibly an academic at the time of the patenting, and not before or after. The fact that it may be just one inventor who can give the academic label to the patent, one has got to say that in most cases, you don't find one academic inventor with non-academic inventors; usually, academic inventors come in teams.

So, this represents a good approximation of the contribution of academic scientists to inventive activity that goes through patenting, no matter whether the patent is owned by the university or by business companies, public research organizations or individual scientists themselves, that is the individual inventors.

Actually, when we look at the statistics, these types of organizations, depending on the country, are almost always more important than universities as owners of the patents.

The idea of moving away from statistics that were based on the property of patents to measure the contribution of universities to patenting, to privilege inventorship, comes from the fact that moving away from the US literature to the European literature, we and many others realized that a number of European countries hosted universities whose degree of financial autonomy and administrative capability is much, much inferior to the capabilities of US universities. And so even if they wish to, they wouldn't have or they have acquired only recently the ability to manage a patent portfolio. So in many cases,

despite having the right to take patents over the university employees' inventions, many universities were very happy not to be bothered by this problem and to let professors take their own arrangements with companies, sponsors, and so forth.

In Scandinavian countries and Germany, a specific legal rule existed until recently – until

2000-2004 –, still existing in Sweden, that is called the “professor’s privilege”, according to which university professors, differently from R&D employees of private companies, retained right of patenting their own inventions, while usually, a normal labor contract in the field of research, includes the give-away by the employee to the employer, the waving of all intellectual property rights. Italy is the only country that introduced professor’s privilege while all the others were abolishing it; that says a lot on economic policy in Italy.

In general, there is no cultural heritage of dealing with IP matters in universities in Europe, as there is in the US, where universities and professors therein have been confronted with IP issues since the second half of the 19th century, with the creation of the Land Grant Universities, which were universities specifically created for doing applied research in agricultural and mechanical technology, and to pass on this knowledge, also through applications in universities. There are also a number of long-existing institutions in the US, such as the Research Corporation, or the Wisconsin Research Foundation, that are now almost one century old, and contributed to educate university administrators to the problem of taking part, and socio-ethical issues, licensing, and so forth. Nothing like this, except something in the UK, ever existed in Europe.

This historical analysis leads us to believe that even if many European academic scientists have an invention they wish to patent, they won't go through the universities, they will either do it personally, with the professor's privilege, or sell the invention, not license the invention, but sell it, so the invention will not appear to be theirs, to a company or to another institution. Another issue is that in countries like France, the power of public research organizations has always been very big, and they tend to retain IP rights over inventions created in cooperation with universities. That's the policy of the CNRS.

While we're interested in IP patenting, APE stands for Academic Patenting in Europe, I've been in France, I've learned that you have a passion for acronyms, so I'm trying to conform, OK?...

As I said, recent research has proved, and we will see it, that APE is quantitatively relevant; more doubts on qualitative relevance. Most important, a number of countries have adopted a policy that tend to push universities to own the patents, to manage the patents, to try to make money with the patent, and we would like to add some background information to form a judgment on whether this policy makes sense or not. And, moving away from policy issues to more substantial, to more technical issues, we would like to see whether these academic inventors that appear in the technological arena are just referral players – people who occasionally have an invention and just



patent – or important technological leaders in their field; if they are relevant as inventors in their own field, on the technological side, not just on the scientific side.

The fourth reason is that I've discovered it's a good way to get funds, to discuss this issue. Actually, we were recently financed by the European Science Foundation for a project called "APE and inventors". Here is the connection¹, and here is the webpage.

These are all famous academic inventors: this is your national hero, here is Lord Kelvin, this is the Italian national hero Giulio Natta, inventor of polypropylene, and this is Ernst Abbe, the founder of the Carl Zeiss optical company in Vienna. They are all old just to stress the point that academic inventors have always been there, we simply had trouble measuring their existence and relevance.

Now I will review a little bit of basic evidence, at the level of Europe, and it is based on all these articles, and then I will move on to the Two-Step procedure in France.

Just a precision: in order to identify Academic patents, we first need to classify all patents by inventor, which requires a lot of efforts in terms of name disambiguation; then after that, there is a further step that also requires the name-disambiguation techniques, which is matching the name of inventors to the name of professors and try to make sense of the matching. For all these issues, we started years ago with very very naïve techniques; there is more and more sophistication in this work, because it has been proved that the quality of the first step impacts heavily on the type of results we get. So one of the uses of the funds I've shown you before has been to finance the Name Game Workshop – the first workshop took place here, at the OST – to discuss disambiguation techniques, and now we've arrived to the point where we have a free database of inventors you can reach through this link², where you can download, at least once we'll have fixed the "time-out problem" – up to France, you can download; when you move to Germany, the computer burns, so... we still have some technical problems to solve. We hope to have solved them by the 15th of January. Forget about your pan, your computer will boil after a while...

An additional step was to make sure we didn't have any false positive after matching, possibly, is to do some survey work: for all the doubtful cases, ring up or e-mail the professor and ask "Is this patent really yours or not?"

The data I'll present in the next slides is quite old, not yet the results from the latest project I showed you, so it stops, more or less, in 2002-2003. Most applications are complete only for 2001. For the professors (another limitation of the work I will show you), we only have a cross-sectional analysis. We don't have the historical data on all professors, we just have the professors active in one year; it means that we match the inventors for many years with professors active only one year. So the more we go back in time, the less accurate our measurement and we get downward and negative bias in our estimation of the number of academic patents.

Having said this, here is an introductory figure: for six countries, it shows the number of academic professors we identified with patents from 1994 to 2001, more or less. Italian professors are those active in 2004, for France it is 2005, Denmark 2007, Netherlands 2004... As a percentage of all professors in the hard sciences – because we don't even consider political sciences, humanities... – they range from less than 3% in the UK and the Netherlands to 4-4,5%. And these are people who are confirmed, we are sure, so this is a conservative estimate because all these people answered the phone and said "Yes, it's me, I'm the inventor."

If we go to an upward estimate, since the quality of the data changes a lot, we can go up to 11% in Denmark; the jump is very big because everybody is called Anderson or Johansson, so there is a high possibility of false matches. Some of this data also depends on the institutional definition of what an academic scientist is. The estimate for the Netherlands is very low, because they have a number of sponsored chairs. In these sponsored chairs, they work halftime for the university, halftime for the company. So if you ask "Is this patent yours?" they'll answer "Yes, but I did it in the afternoon, when I left work, so don't count it as an academic patent." There are a number of difficulties like this to cope with.

Interruption public

This is the technological distribution of patents, using the OST's classes: a seven-entry classification, with 4 of the 7 classes explicit and the others squeezed in here, so if you know this data you see immediately that the distribution of patents by technology is all biased toward pharmacology, chemicals, instruments and electronics, with a very little presence in mechanical engineering, consumer goods, etc. And this is basically the same distribution you see in the US. So in terms of technological content of the patents, APE don't differ much from university patents in the US, with pharma and biotech being the main field of university inventions.

You see some differences in the other fields, which depend clearly on the industry-side conditions. This is clearly shown by Italy and France, where you have a high presence of chemical patents due to the historical importance of the chemical industry in these two countries. On the contrary, in pharma and biotech, you see the huge presence of Denmark, because for fifteen years now they have had policies to push for biotech research, explicitly through university. In Sweden, of course, you've got electronics, because big economic giants in the national industries heavily influence the type of patenting, here for instance Ericsson.

This data is not coming from our research on the US, it is a combination, a manipulation of data from US sources. This is a guess-estimate of the distribution of academic patents in the US, according to which an average of 70% of academic inventions belong to universities. And these are the patents that have attracted all the attention since the approval of the Bayh-Dole Act that explained the boom of university patenting in the US.

If you compare them to Europe, you immediately see the difference. The country with the largest proportion of university-owned academic patents is the Netherlands, followed by the UK, and all the others have less than 10% or so of academic patents

owned by universities. How do we explain that? It's an institutional feature. Clearly, the UK and the Netherlands have two academic systems that imitate, or are very similar to, the US one, in terms of autonomy of universities, autonomy of recruitment – the contracts of the professors with the universities are private-law contracts. There is no job competition, no Concours de l'agrégation, qualifications, maîtrise... No court judgments like in my place in Italy... OK? You go, you sign, you're in. That means that even at the level of the transfer office, you recruit on the market expert people who can help you with the patents. It also means that the universities are the masters of their own finances, so they may have an interesting patent department, etc.

In universities of other countries like Italy or France, professors are civil servants; even administrative staff has to be recruited according to very strict rules. It's not that easy to manage a patent portfolio.

Then you see that most of the patents are owned by companies, and you also see some differences depending on legal conditions; for instance Sweden and Denmark have a high percentage of this greenish share, which represents patents owned by individuals, and it is expected because these are the countries that still have the professor's privilege where the professor can take the patents in his own name without asking anybody.

In France, where there is la puissance du CNRS et de l'INSERM, you have almost a quarter of the academic patents owned by CNRS, INSERM, the Commissariat à l'Énergie Atomique, et toutes les autres organisations [de ce genre].

There are problems in interpreting these patents owned by companies – that we are trying to work out – because here there is a huge mix: you may have Thales, which is a giant owner of academic patents in France, but you may also have a small company about which you know nothing; and maybe that company, especially in these countries, simply is the company set up by the professor to own the patent and exploit it.

Let's try to figure out what is going on here. This is a breakdown of company-owned academic patents by type of company, judging on the portfolio of the company. This shows the distribution of patents. Basically, here in blue you have the percentage of patents owned by companies whose portfolio is entirely made by academic patents, and who have less than 20 patents. The company has not more than 20 patents and 100% are academic. So the idea is that these blue patents are, again, individually owned, because basically, it's a stock of companies set up by the professor, or a few people, to own and exploit the academic patents. These are not companies that have their own innovation strategies and also interact with universities.

At the opposite, in green, you have companies with at least five patents, and in many cases they have more than 100, with less than 20% of academic patents. Here you have of course Thales, Total, L'Oréal, Ericsson, ST Microelectronics, etc. These represent the share of patents owned by companies that clearly are exogenous with respect to the university system.

Interruption public

We don't have German universities in that survey. We will have data on Germany at the end of this research we are pursuing now. It's simply that it was too big. Germany has so many patents... There are two problems there. Doing the name matching is a total nightmare. Even for France, we had to cut the data from 1994. I'm presenting data back to 1994 because there is France – all the other countries have data that goes back to 1975 – but the university system here in France is so big that if you want to call and survey all the professors you will go crazy. In Germany, it's even bigger.

And the other problem with Germany is that Germany has a decentralized university system. With France, you can call the Ministry in charge of Universities and get a list of all the professors, and then you match. In Germany there is no such list; until recently there simply wasn't enough money to carry out all this work. Now a colleague has founded a publication – I don't remember the German name – that stands as a Who's Who for the German academic world. He is enslaving a number of under-graduates during the summer, to write down the names of the professors, so we can do the match. But the next edition will now come at the end of 2012.

There are works on German data done by colleagues. They simply look through the inventors' names to identify the ones that are Professors. German professors are very proud of their status. They get similar results to ours, even if some are a bit of a problem because if you are an assistant professor and you put "professor", the real professor is not going to be happy with you, so it means you don't measure a number of assistant-professors who are inventors. Plus a number of honorific professor titles are inserted to the feeds, so it is not very accurate. You don't really know.

This was just to say that, more or less, we are pretty sure about Denmark that the bulk of company-owned patents are really owned by companies, and not by start-ups or professors "disguised" as companies.

This is a change of perspective. If you measure the university patenting in a traditional way, by looking at the ownership – this is the percentage of university-owned patents among all patents in each country, according to the European Patent Office – you have the usual picture: in the US, 4% of patents come from universities, and you get miserable percentages for Europe. So the policy makers get all shaky and start saying "We need more patents from universities, they don't contribute enough". Then if you measure by inventor, you see that the gap is not really there. Sweden does better than the US, and even for Italy, it's not that depressing.

For France, it's not that good but the underestimation is bigger than for the other countries, because of the problem I told you about earlier, and because I've got to confess that the French universities' websites are the worst in the world... You don't find anything. We have a program to suck out the e-mail addresses, but lots of French professors don't even bother putting their address anywhere, so you get miserable results when you try to contact them. A number of people are simply unreachable; you know they work in a university, but they are ghosts, they don't appear anywhere. They are active people, they publish a lot, but they simply don't care.

If you break down the percentage of academic patents over the total number of patents by technology, you see that in some fields you reach almost 10% (chemicals, instruments, engineering...), but of course here a huge quantity of patents result from the industry so the percentage is still, more or less, at the national level. For the more traditional industries it is not that big, whereas for pharmaceuticals and biotechnologies, at least one out of five or four patents (and this is an underestimation) come from universities, from academic science.

We don't have time to see the figures here, but if you look at these academic inventors, most of these people publish a lot. They are much better scientists than the known inventors. So you can presume that this is really academic science turned into patenting and not an extra activity. It really suggests that, as in the US, like anywhere, if the technological determinant is there, innovation in this field will majorly come from universities. Then again, these figures say nothing about the absolute size of invention in the country; this is just the share of contribution by universities and we don't see so many big differences between the US and Europe.

Quality is an ongoing paper and it will go on forever, until I get a job here in France and relax a bit... This is a citation-based quality indicator of these academic patents. We tried to figure out whether they are better, worse or the same. We won't open the box of our difficulty to measure the quality of a patents, their economic value... – it would require a whole series of seminars – but let's just play a bit with the citations to see if there are qualitative differences between academic and non-academic patents.

This is the number of forward citations – yearly number of citations received by the patent over the first four years; this is the average of forward citations divided by the lag (that is, how long it takes for a patent to get cited for the first time). This is an index of generality that

says whether the citations received by the patent come from just one technology, the same one as the patent, or from many other technologies, so whether it is closer to a general purpose technology rather than not; and originality looks at the backward citations of a patent, and it tells whether patents cite other patents from other technologies, whether it's a combination of different technologies or a kind of follow-up on the same.

These are the values for non-academic patents, average and standard levels, and these are the average and standard values for academic patents altogether. We don't see many big differences. Where you see white, it means that the differences are not statistically significant. In green, it means the value is higher than the average for non-academic patents, in red it is less.

This is the breakdown of academic patents depending on the owner. It says that if a patent is owned by a company, the citation rate is higher than for the non-academic patents. If it is owned by a university, it is lower. If it is owned by the government, it is

also lower. But that does not depend on the intrinsic quality of the patent, because all patents, more or less, have the usual American qualities; they are more general and more original if they come from university.

Interruption public

Yes, we have that data university by university. I can tell you the most productive in France is Paris VI. It's also the university that owns a considerable amount of patents... The top one is Paris Jussieu, I think there is also Strasbourg... But like in Italy, universities in France don't appear to be very important in terms of patents owned; in terms of invention, it is the "Usual Suspects": you do any intuitive ranking of where the strength of science resides, you look at the publications and you also get the classification by patent. It's more or less the same...

There are some strange differences in other countries, in terms of relevance, of patent owned, and patent signed. In the Netherlands especially, you have the Delft and the Leiden campuses have the highest share of patents owned by universities, but the most important producer of academic patents is Eindhoven. All the patents are owned by Philips, there's simply zero patent owned by Eindhoven University, they don't care.

This is just to say that maybe it is not such a good idea that universities own the patents, if we are looking at technology transfer; and it may suggest that the problem has to do either with the fact that universities are not good at picking the right patents, or they may not manage them well, because this number of citations may depend on the intrinsic quality of the patent or on the existence or not of a good licensing strategy. If you have a good patent that you don't license, nobody builds on the patent, nobody cites it. So it's not very clear yet whether this depends on the low quality of the invention or on the low quality of the licensing.

Just to make it very quick because I've already killed all my time without even going to France...

When you break down the same analysis by country... This is a very quick survival analysis

– basically we measure the risk for a patent to be cited, like the risk for a person to die... The reference case is non-academic patents, compared to academic patents owned by companies, academic patents owned by individuals, academic patents owned by universities, and so forth. The two worst cases are Italy and France, where universities are the least autonomous in the world, the most controlled.

While for example in the Netherlands, like in Sweden and Denmark, you don't have any significant difference between patents owned by universities and non-academic patents. We have some strange cases here in Sweden we don't manage to explain. In the

Netherlands, this is Philips again. It's Eindhoven patents owned by Philips that explain this positive figure.

In general, these results are still provisional. They contrast with the evidence that it is typical of the US that the university patents are more cited, more important than non-academic ones. In Europe we don't find this difference. Possibly we find some negative difference when the patent is academic and owned by the university itself, especially in Italy and France.

We will move on to other uses. These were just descriptive statistics. As I said, one point that is relevant is that a lot of policies tend to encourage universities to patent more. One of these policies, or at least a bit of this policy was the Loi Allègre, the Innovation Act of 1999. With the limited data we have, because remember our data ends in 2001-2003 at most, so we don't have a very long time sequence, we tried to look whether we could already detect some effects of this law in our patent data. Basically, whether the Loi Allègre pushed universities to own more patents than before.

I won't give you a lecture on French policy because I've still got to learn about it... We won't look at all the pieces of legislation because they don't explicitly mention IP...

Here we concentrate on the 1999 Innovation Act, because there were some explicit provisions for IPR3 management; there were no changes to the Code de la propriété intellectuelle because it was just a law for university, it had nothing to do with intellectual property legislation, but there was an explicit mentioning of a commercial exploitation of ideas to further the mission of universities; there were incentives to create these Services d'activité industrielle et commerciale⁴, which we can describe as technology transfer offices inside universities but with some possibility to staff with external personnel, and more business-like accounting rules, to relax some of the rigidity of the system. And there were some provisions that allowed for a favorable taxation for university-owned IPR. At the time, some universities had already transfer offices but they were external to the universities, so the idea was to get them inside, through these agencies, and give a favorable taxation if the patenting by the university was done through these agencies.

There were also a number of guidelines, recommendations, such as adopting an IPR regulation statute in the university, and entering into joint ownership agreements with the industry; that would regulate the co-ownership of patents in order to avoid unanimity rules regarding the management of these patents. If you are co-owners of the patent, in the silence of any extra contractual agreement, there must be unanimity rules in deciding whatever you will do with the patent. If you sign a contract aside, that states clearly that one of the co-owners gives away some rights, so you may have a majority rule or a delegation of decision, etc., which makes licensing easier.

This is the absolute number of patents filed by universities in France – everybody's happy, they show an increase here. The problem is: does this increase come from the fact that they patent more, or simply because the panorama was more or less flat and the property changed,

3 IPR: Intellectual Property Rights

4 the SAICs

and French universities started patenting. Before they were not, but academic inventors kept patenting all the time. So the idea of the paper is to find out how to capture this.

So we tested two hypotheses. One is : Has the Innovation Act increased universities' propensity to own or co-own their own inventors' patents? The second is, if number one is true: Has university's share of patents increased at the expenses of the share of academic patents owned by public and social organizations and companies or not.

There are a number of controls. One important is that some universities like Paris Jussieu already had for a long time their own TTOs⁵ or some organization to take care of patents, so they didn't wake up only when the Loi Allègre arrived. Other universities, maybe provincial ones, did nothing until the Loi Allègre.

Basically, we categorize ownership of academic patents with a C for a business company or an individual inventor owned patent – in France there are not many, compared to the US or other countries. PROs are all these types of organizations⁶ that are owner or co-owner of the patent, and the U stands for Universities.

Here we look at ownership distribution; we have fractional accounts because they may be co- owners – a patent may be owned by a company and a university – so in this case we cut it in to and put it here as a fractional account.

We know that there are some differences across technological fields in terms of ownership of the invention. Pharmaceuticals and process engineering have the highest percentage of ownership by universities, and the same applies to PROs. When we move away from more science-based fields, the share of companies owning patents of course increases. This is because in these fields, patents have little value as stand-alone pieces of intellectual property. They need to be used in conjunction with many other inventions, so for the single university there's not too much incentive to own the patent. Whereas in pharmaceuticals, the hope to detain the winning lottery ticket, the best-selling drug, is always there, so a university might want to invest in it.

Let's go straight to a Logit regression. In this regression we have the Dependent Variable 1/0,

1 standing for university-ownership, which means that there is a university among the owners. It doesn't matter whether the property is exclusive or not. We simply check if there is a university in the list of owners of the academic patent.

The variables of interest are alternatively the ACT dummy, which means the "Loi Allègre dummy" (1 after 1999), or Year dummies for all years (with 1999 as the reference year). We basically want to see whether years before 1999 have a negative dummy, and years after a positive one, in order to see if there is an increase, or a step.

And then an important variable is the TTO dummy: whether the university has been working for a long time or not with a TTO, before the introduction of the Loi Allègre.

Control is carried out by type of university (Grandes Écoles, Scientific universities, Polytechnique, etc.), size of the university (dummies for largest, large, medium and small, in terms of distribution of teaching staff), technology, and regional dummies. Regional dummies

5 TTO: Technology Transfer Office

6 Établissements publics à caractère scientifique et technique (EPST, CNRS, INSERM...), Établissements publics à caractère Industriel et Commercial (EPIC, CEA, SNCF...)

are necessary because they capture the demand condition in the region, so they may capture the demand for technology in the region. Of course it is very different to be located in Paris or in Bordeaux.

This is the result of the regression. I will just give you the marginal effects. Marginal effects are estimated with all other variables at zero if they are dummies, or at an average value if they are continuous variables. These are the results for the variables of interest. We can concentrate on these two regressions, the others are less important. So we see that, as expected, the Act apparently increased the propensity of universities to own patents. In most cases it is just co-ownership; in France, we almost don't find a patent exclusively owned by university.

If we use the dummies of [the last column], we see a sort of step: 1999 is here, and we see that we have negative values before and positive values after. These values are not very different, apart from this... So it means that you don't really have a continuous increase, it looks more like a step.

Then we have more or less the same values for 2000-2009 than for 1999.

Of course, the most important variable in effect is not the Loi Allègre dummy, it is having or not having the TTOs since a long time. So like many of these laws, it seems to scratch the surface of the problem rather than going straight to it. These are a number of controlled variables we don't have time to look at... But this is the disintegration of university: schools of engineering, universities without medical schools, universities with medical schools that are the reference here, scientific universities, and then the dummies.

We also tried to be a bit more accurate. We did a multinomial Logit analysis. The dependent variable here take 1, 2 and 3, 3 being when the university is an owner, like before, no matter whether they are alone or with a PRO or company. Company-ownership is exclusive, and PRO ownership means the CNRS is either the exclusive owner or owns the patent along with a company.

Basically what we see here, if we report the marginal values by each of the regressions, is that for PRO the dummy Act is not very significant although when we go through the years we notice that for public research organizations, the passing of time led to a trend

that is not very clear. Three years before the Loi Allègre, we have a lesser probability of ownership, then for three years the same, then again less.

For universities, apart from 1994, before the Loi Allègre there was a lesser probability of ownership, after there was more; and then for companies, there was, before, some strong probability of exclusive ownership, and then a bit less. This suggests that what actually went on was what the legislator wished to happen: now universities don't really take the property by themselves, they just want to be added to the list of applicants of the inventions.

There are some differences here, when we look at the type of universities, and these are more important than the effects of the Loi Allègre. For example universities without medical schools and scientific universities tend to have a lower probability to be listed as co-owners of the patents. This is because universities with medical schools have a general propensity to try and retain the patents because in general the patents they deal with are pharma and biotech patents for which there is more interest by universities to own the patents themselves: there is hope to commercialize the patent and make some money, they want to have their say in the bargaining with the company.

Many of these patents have just come out of research contracts with companies and are simple components of a big innovation project that is totally under control of the company, so universities are not interested in taking a part.

... We won't present the inventor's network stuff... The conclusion that we can draw here is that French universities own or co-own only a minor share of their scientists' patented inventions. This is due to institutional factors, and has nothing to do with the technological distribution of the patents, because we've seen that this is the same than in any other country, more or less. The ongoing changes in the institutional setting increase the co-ownership of patents, at the expenses of companies' exclusive control. Do we like it? Are we sure we are happy with it? Having seen the quality of university-owned patents in France, we may say it's better they mind their own business and leave the management of patents to companies, who know how to do it better...

In any case, those universities that own patents in France didn't wait for the Innovation Act to be there. Look at Paris Jussieu, they have had their policy long before then, they had their own TTO. Having a history of technology transfer offices is far more important. And of course, there are differences depending on the type and size of the university, which suggests that one should be cautious in pushing universities to take patents, possibly according to their type and size.