STORMY WEATHER ON HIGHER EDUCATION
Globalization and change*

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Background

Higher education and research, a rising issue in the world

Higher education (HE) was not high on public agendas until the late 20th century. At the turn of the Millennium, the growth of the student population,[1] as well as the rise of the so-called "knowledge-based societies", have made it a priority issue, both in terms of public costs and outcomes. It led to question the university missions and performances. Most governments felt concern, as research and innovation are not any more the privilege of former Northern advanced countries.[2]

National vs organizational models to explain differences

HER (Higher Education Research) became at the end of the 19th century an important brick to build the wealth and power of industrializing Western countries. Science and technology were at the very heart of Progress: mastering Nature would bring about better lives for their people, be a cement of national identity and pride, and a tool to dominate the world. Public HER became a national issue. Each of the three strongest European nations of the times – France, UK, Germany - used its own method to renew the legacy of their old medieval universities to face the problems of the time. France developed its "Napoleonic model" that subordinated turbulent universities to central powers of the state while creating specialized "Grandes écoles" to train its technical elites as high civil servants. The UK kept its independent

universities and delegated their supervision to a national collegial body, which would long remain an efficient buffer between academics and political power. Germany invented the "Humboldtian model" linking teaching and research in academic institutions protected from political influence. The USA drew inspiration from a mix of British and German models to develop both its state and its private not-for-profit universities. As described in table 1, each leading country found its followers along its political influences.

Scholars have long analyzed university life and performance as an outcome of the national Higher Education and Research (HER) systems in which they are embedded (Paradeise *et al.* 2009). Obviously, their impact on the life and performance of individual universities cannot be denied. It nevertheless does not help understanding differences between universities of the same countries nor their similarities across different countries. Universities have to be explored as organizations have in order to better understand their strengths and weaknesses and help monitor them.

Reforms

At the turn of the 21st century, the rise of economic expectations from knowledge stimulated a dynamics of reforms. Whether or not they were based on the recommendations of OECD (Organisation for Economic Co-operation and Development) and international mimicry, strangely similar reforms developed all over the planet. All adopted to some degree "New Public Management" (NPM) methods that link the allocation of public money to the demonstration of performance through evaluation. Comparison between universities became a big deal as it came to explicitly govern the allocation of part of their resources; all the more so with the development of the international market of HE. In 2003, the Jiao Tong university of Shanghai released its first Academic Ranking of World Universities (ARWU). It was the just the beginning of the proliferation of international "beauty contests" (Paradeise and Filliatreau 2009).

Reform policies had various purposes. In most countries where it was largely funded by public money, higher education competed for resources with other public sectors, such as justice, health, etc. It had to regain its legitimacy, which was threatened by the suspicion that collegial institutions such as universities did not make an optimal use of their resources. Reforms offered to "do better with less" public money. They targeted public resources on national needs through incentives. They pushed universities to diversify their revenue.

Such ambitions involved a managerial turn of universities. New governance rule and organizational tools would help to promote the development of a virtuous circle between incentives, performance, evaluation and allocation. Organizational autonomy would allow universities to strategize and capture resources. Accountability tools would help measuring performance by output metrics. Each university would be invited to benchmark the best top research universities of the world (Harvard, Berkeley, Cambridge, etc.).

Table 1
National Systems of Higher Education in the 20th Century

	Stratified	**Non stratified**	**Countries**
Napoleonic	Stratification between universities and "Grandes écoles"	Universities	France, Southern Europe, ex-French colonies
Humbodtian		Universities	Germany, European Nordic countries, Switzerland
Anglo-saxon	Universities		USA, UK, Commonwealth, the whole world

From Neave, 2003

"Excellence" rapidly became a buzzword. Universities did not only have to exhibit good management. They had to show how much they contributed to cutting-edge research results and thus to disruptive innovation considered as the engine of economic performance. In this way, reforms created a new balance between university missions. Cutting-edge research was put at the forefront, while applied research, the contribution of teaching to citizenship, service to local communities and local labor markets, etc. were driven to the background.

A meso-approach to universities

The increased autonomy of universities favored their diversification. The competitive allocation of resources encouraged the stratification of the systems in countries where, as in Europe, all universities were assumed to be equal. It became clear for some scholars that the histories, cultures and policies, ability to strategize of individual universities do not only relate to their national systems, but also to their local contexts (Paradeise and Thoenig 2015; Thoenig and Paradeise 2016). Universities did not start to gain autonomy to take advantage of

any margins of manoeuver made available by their specific context. Therefore, understanding the impact of national reforms cannot avoid considering the resources and constraints built into their specific histories and contexts.

Two quality regimes

Before reforms occurred at the turn of the Millennium, the academic profession was in control over the accomplishment of university missions. The increasing distrust of collegiality justified the creation of outside controls on outputs by university stakeholders, and first of all by their funders. The British government developed the theory and implementation of early and radical reforms that were to be later more or less mimicked by other governments. They built tools to confer autonomy and delegate micro-management to universities. They developed distant steering by incentivized budgets and metrics-based control upon universities performance, with the purpose to make them "accountable" and to highlight their "value for money". They reinforced the assessment tools and methodologies. In other words, they shifted the assessment of the worth of universities from

Table 2
Two Regimes of Worth

Judgment	Basis	Source	Type of knowledge
Reputation Diffuse social valuation *Reputation values uniqueness (a given university has a good or a bad reputation)*	Opinions. Endogenous valuation by specific social groups (academic elites, social elites, alumni, social networks)	Socialization. Contingent to a context (local, social, disciplinary).	Common knowledge informed by experience. Global cardinal judgment that may vary across social worlds.
Excellence Formalized valuation *Excellence allows for commensuration and competition (a given university does better or worst than another)*	Measurement. Exogenous valuation by third parties (agencies, medias, etc.)	Impersonal, non-contingent measurement.	Indicator-based (ordinal) analytical judgment that opens the black box of the university.

From Paradeise and Thoenig, 2013.

judgments of good "reputation" safeguarded by peers, to metrics-based evaluations of "excellence". Thus they opened the questions of which activities should be measured and how. Two regimes of worth (Rushforth A.D. *et al* 2019) came to co-exist (table 2).

Regimes and types

The coexistence of such two different "regimes of worth" circumscribes four types of universities, as shown in table 3.

Top of the pile (ToP) universities – a very small proportion of the whole population of universities in the world – are both "prestigious" and "excellent". They do not suffer from the development of metrics. Neither do missionaries – which represent the largest number – since they lack reputation as well as excellence (not meaning that they are "bad" universities but rather that they are not screened by the radars of worth). The two last categories, a rising proportion of Wannabes and a marginal proportion of Venerables are on the contrary strongly impacted by the emergence of a new regime of worth. Wannabes, whichever category they come from, try to take advantage of the new regime of excellence to challenge more prestigious institutions on the national or international scene. The

nationally prestigious Venerables put themselves at risk if neglecting the constraints of the regime of excellence. They may lose resources by relying solely on their prestige, and slowly dwindle. Because each type of university calls for a specific culture and style, the duality of regimes generates dilemmas that involve strong internal tensions between who wants to play either of the two games of prestige or excellence.

Universities and their sub-units

The typology of table 3 is fractal. It can be used to describe a university as a whole as well as any of its subunits. Studying universities as organizations requires to consider the political articulation between their subunits, each characterized by its specific regime of worth.

As summed up in Table 4 below, ToPs and Venerables subunits share the same regime of reputational worth. Wannabes subunits share the same regime of excellence worth. This internal homogeneity favors the integration between the different disciplinary and managerial subunits, either through internal processes that confirm the worth of each of them in spite of their diversity (ToPs and Venerables), or by imposing metrics as the single proof of worth (Wannabes).

Table 3
University Types

Attention Given to Reputation

	+	
VENERABLE Some		TOP OF THE PILE Very few

Attention given to excellence   +

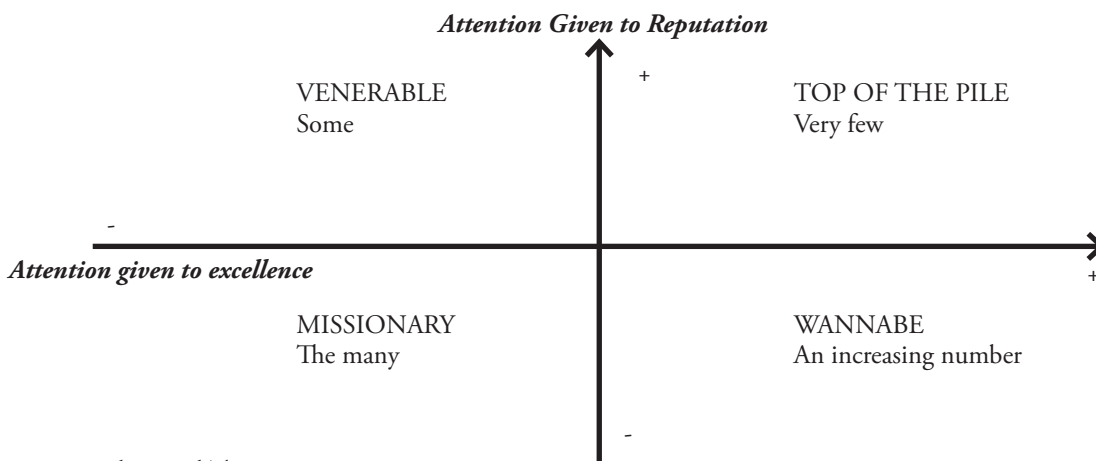| MISSIONARY
The many | | WANNABE
An increasing number |

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From Paradeise and Thoenig, 2013

Table 4
Principal Characteristics of University Types

Venerables	ToPs
Homogeneity of values (quality of research as expressed by reputation)	Homogeneity of values (quality of research and teaching as assessed by peers)
Respect for diversity of disciplinary norms	Respect for diversity of disciplinary norms
Integration by collegial co-existence and weak management	High integration by suspicious collegiality and check and balance
Professional bureaucracy	Heterarchy
Missionaries	Wannabes
Heterogeneity of values (quality vs excellence in research/ teaching/ third mission)	Homogeneity of values (metrics-based excellence in research)
Diversity of values and norms across departments	No diversity of evaluation norms
Tension between sub-units	High integration by formal rules
Low integration by formal rules	Mechanic bureaucracy
Organized anarchy	

From Paradeise and Thoenig, 2015.

ToPs components value world reputation of each of its subunits that carries along excellence. Venerables subunits all favor national reputation and despise metrics-based competition. Wannabes have imposed excellence metrics in all departments, whatever their specificity, as their major resource to challenge competitors. Tensions may occasionally occur within any of these institutions. A department of a ToP university may forget its duties towards reputation and excellence. Some academics or departments may push their Venerable institution to pervert its nature and play the new game of excellence to retain its status. Some segments of a university may resist turning Wannabe by denying power centralization to the hands of the management and exaggerated injunctions to competition.

By contrast with the other types, Missionary universities, often built or extended recently to face the massification of higher education, are structurally heterogeneous because they lack the governance tools that help building a shared vision of quality. Each department of a Missionary university may value one regime of worth or the other according to its own history and its reputation and excellence. Over time, such internal disharmony of the institution causes a fickle balance of powers, a changeable political regulation and unstable strategies.

Table 4 sums up how each type deals with the integration of internal diversity based on a governance style.

Taking advantage of reforms?

Reform policies confront all universities to the same international excellence regime of worth. As a consequence, the ability of any given university and its ability to take advantage of reforms depends on the strength of tensions they generate, and how able they are to develop strategies fitting to face the new rules of the game.

Strategic capacity and types

Universities do not share identical capacities to position themselves as strategic actors. Some elaborate and implement an action perspective that is shared by all their subparts, others display no inside commitment to any common destiny or action framework. Some set up and enforce explicit statements and guidelines for the coming years and determine missions to fulfil. Others do not. Some seem to behave erratically and disregard outside opportunities and threats. Others show remarkable sensitivity to changes occurring in their action en-

vironment, adjusting their initiatives and identifying their weaknesses and strengths while keeping in mind a distinctive image or brand.

Using the concept of "strategic capacity", it is possible to describe how an institution lines up its internal components to achieve some common ends. It refers to a collective and on-going action-oriented process. An institution's strategic capacity lies to a great extent in how much its internal subunits – disciplines, departments, colleges, faculty, management, administrative departments, various councils – shape its identity, define its priorities, approve its positions, prepare the way for general agreement to be adopted on its roadmap, and provide a framework for the decisions and acts of all its components. In concrete terms, strategic capacity refers to the way all the different internal stakeholders with their own aptitudes and work agendas make themselves compatible with each other by adapting their initiatives accordingly. Their "good fit" in terms of the content of these initiatives as well as in the way they are built up and accepted by the stakeholders as their own, is also the result of capacities that have an organizational nature. To achieve a balance between the social processes of differentiation and integration is quite a challenge, which all types of universities are not equally able to confront (Thoenig and Paradeise, 2016).

Table 5 below details the various elements that make a university able of strategizing. Because they have developed sophisticated integrative tools of behavior and decision-making, ToPs do not face much difficulty to develop strategies. It is a different story for the other types.

As professional bureaucracies, Venerables exhibit values and norms, which are radically antagonistic with the regime of excellence. If they are not ideologically or organizationally able to change and turn Wannabes, they are left with only two options: either count on the support of their wealthy social and political networks to be treated as exceptions or run the risk of becoming "dying industries" (Feller 2016) by staking out their positions. Internal heterogeneity of values and norms prevailing across Missionary universities, associated with a weak leadership, makes strategizing difficult. Only an internal coup can stabilize them around a Wannabe strategy. Finally, Wannabes have managed to change their internal organization and governance in such a way to mute from professional to mechanic bureaucracies. By centralizing power in the hands of the management, they have developed a strong rationalizing strategic capacity, which deprives the academic body of decision-making powers.

Likely trajectories

The encounter between the two regimes of worth thus results in various possible trajectories of universities according to their type, as described in Chart 1 below. Venerables may try to reproduce themselves but it is a risky option, to which the outcomes depend upon how much they are supported by wealthy networks with high political or economic status. They would wish to turn ToPs but they are unable to deliver proofs of excellence and to combine rigorous management with a strong academic body. They might turn Missionaries if they do not radically change their state of mind and their organization and governance, and thus turning Wannabe. Wannabes have already made this choice of centralized decision-making, a rationalized organization and market-led choices. They aspire to build a reputation on the national and rather international scene and challenge ToPs based on their rankings. But they lack an original brand, which is difficult to build from scratch. And, more important, neither their organization nor their decision-making processes fit the profile of ToPs: they get results in metrics by coercion, whereas ToPs achieve an excellent performance as a consequence of their internal check and balance social processes. Finally, ToPs have developed virtuous circles able to generate their self-reproduction, even if they are placed under the stress of ambitious and wealthy Wannabes.

## Conclusion. Issues and challenges for the future

Most governments set up radical reforms at the turn of the 21st century. As in many other fields of public service such as Health or Justice, the rationale of reforms was to decrease public costs and increase

Table 5
Bases of Strategic Management in the Different Types of University

	Misssionary	Top of the pile	Venerable	Wannabe
Time horizon	Short-term	Mid-and long- terms	Short-term	Short-and mid-term
Attention to time horizon	Low	High	Low	High
Attention to competition	Low	High	Low	High
Attention to academic contexts	Low	High	Low	High
Attention to resources	Low	High	Low	High
Attention to implementation of the strategy	Low	High	Low	High
Role played by the heads in building, scheduling and implementing the strategy	Rather strong	Strong	Weak	Very strong
Role played by the academic community in building, scheduling and implementing the strategy	Weak	Strong	Strong	Weak
Importance of the strategic framework as perceived by the academic community	Secondary	Priority	Secondary	Priority
How the academic community interprets the status of the strategic project	Speech by the management A procedure	Commitment endorsed by the whole community	Speech by the management A procedure	Ambition of the management
The level of strategic capacity of the institution	**weak**	**Strong**	**weak**	**strong**

From Thoenig and Paradeise, 2016.

Chart 1
Types in Dynamics. Likely Yrajectories of University Types
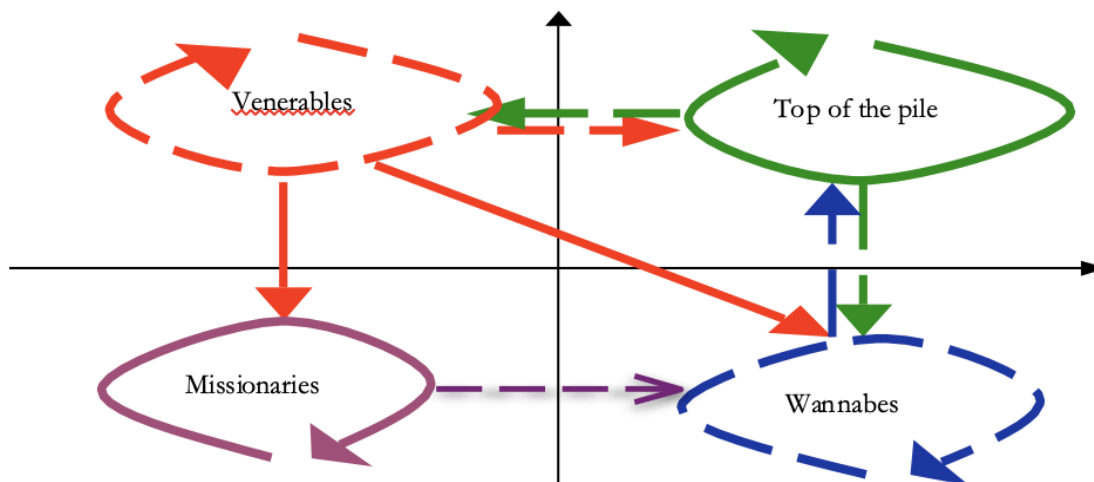
From Paradeise and Thoenig, 2013 e 2015.

efficiency, by replacing the slow and heavy *ex-ante* legal and administrative processes of old-fashioned substantive policies, with the *ex-ante* incentives and *ex-post* evaluation of outputs of procedural policies.

Controversies about reforms

Such policies aimed at creating the type of virtuous circle that prevails among ToPs. They nevertheless remain highly controversial. Many analysts raise doubts about the actual costs and risks of the "audit" (Power 1999) or the "evaluation" (Dahler-Larsen 2011) society. Are really NPM-style reforms the one best way to the government of men and things (Foucault 1954-1988)? Many authors question the impact of indicators selected to assess performance (Paradeise 2012). In particular, they underline the premium given to research, which *de facto* leads to the redefinition of university missions at the expense of teaching, of the contribution of such institutions to citizenship, of the service to local labor markets, etc.

Not to mention the perverse effects generated by such indicators based on the counting of publi-

cation in so-called top-ranked journals. Often cited is the encouragement to more or less serious forms of fraud or at least of scientific misconduct: either that researchers settle non-replicable results[3] on disputable samples, embellish or distort them to increase their attractiveness for journals; or that they deliver piecemeal results over-exploiting the same piece of research; or that they favor exploitation of the already-known over exploration of the unknown; or that they privilege the rapidity of return in terms of publication over the quality of data and methodologies, etc. By overrating publications in journals at the expense of books, publication metrics are also often accused to pervert the very epistemology of certain disciplines.

Incentive and performance-based policies are also often denounced as detrimental to research freedom, the basic credo of the academic profession. Cutting-edge research works in the unknown, its outputs emerge out of the blue. They cannot be anticipated and planned by programs. Therefore, incentives and performance assessment deprive "blue sky research" from resources that should be unconditional.

Controversies also object competition-based policies for building a winner-take-all market. By concentrating resources on the best performers, NPM-style policies deprive the other higher education institutions of the means required to accomplish public-service missions such as increasing the educational level of citizens for the benefit of labor markets and citizenship. They weaken Missionary universities, which concentrate on education for all and applied research for local markets. Indicator-based policies disregard their actual contribution, even if several countries try to take better account of the various "excellences" universities can exhibit. At the same time, policies push Missionaries to try an upgrade on indicators, whereas they have no hope to qualify as "excellent". To comply with policy requirements that push them reaching unreachable targets, such universities spoil energy that could be used to improve what they are already good at. Thus, such policies do not only deprive them of resources, but they also disqualify their work, possibly impacting their teachers' satisfaction and commitment at work.

Universities cannot be all the bests at the same time! By fostering systematic comparisons and ranking, policies build quasi-markets that reward top performers. They should also find ways to value and gratify the numerous missionary universities that, often silently and modestly, deal with a major issue of the 21st century, the consolidation of economic and social integration.

ToPs and WCUs

With the outbreak of international rankings at the beginning of the 2000s, a new concept of *World Class University* (WCU) has emerged. A WCU is a top-ranked university. ToPs, which hold the very top positions in world rankings, certainly qualify as WCUs. But is the reverse true?

Where does ToPs performance come from? What are the organizational and governance engines that sustain it? In a nutshell (Paradeise and Thoenig 2013), ToPs are not impressed by rankings. They consider it misleading to back strategies on such beauty contests. Their rank comes in addition. What matters are values and norms built into their insti-

tutional governance and organizational processes. In the first place, when recruiting and promoting scholars, priority is given to *ex ante* assessment of talents and promises of applicants by peers rather than to their performance measured on *ex post* on metrics. ToPs scrupulously investigate talents using large cross-levels and cross-fields collegial reviews of candidates. Secondly, social processes they have developed over time achieve informal social control over the scientific commitment of its members, and ensure integration under the same umbrella of shared values and norms together with respect of diversity (Stark 2009). Thirdly, governance is based on checks and balances between management and academia treated with equal dignity. This helps developing enlightened decision-making taking care of the organizational health of the institution (Thoenig and Paradeise 2014). Such a configuration sustains reciprocal duties between the institution and the scholars: the former is due to provide the best conditions to the latter; reciprocally, the latter are due to deliver, and thus contribute to the reputation and excellence of the university. Such a virtuous circle reproduces the Matthew effect that ToPs first owe to their long-standing reputation, drawing resources (money, scholars, students) and sustaining their leading positions in research and education.

ToPs associate a high reputation with social processes that allow them to enforce their rule using the visible coercion of evaluation by metrics. They bet on talents and leave time for such talents to deliver outstanding results. On winner-take-all markets, their brands secure the resources (endowments, grants, excellent students and scholars) that serve their virtuous processes. In turn, such processes feed high-level research performance that helps them catching more resources.

Wannabes, including WCUs, take the inverse road (Tuchman 2011, Paradeise and Thoenig 2015). They try to build a reputation by focusing on metrics-based performance. For this purpose, they centralize power in the hands of managers, try to appeal the best performers with attractive offers and put pressure on outputs. They care less about scholars' talent than about their metrics performances. They ask them to write papers in the best journals and leave the rest to the management. They encourage scholars' self-inter-

est by rewarding their individual compliance with the publication requirements of the market. They do not care about building internal processes that would ensure the reciprocal commitment between scholars and the institution – they may even destroy them. Wannabes buy academics on the labor market, capitalize on their performance without investing in their *affectio societatis*. They add individual competencies and academic ambitions without caring for their loyalty, without creating the conditions of collegial decision-making and without serving a collective ambition to create leadership in explorative research.

As far as their scientific results are concerned, ToPs qualify as WCUs. But is the reverse true? Experts multiply recommendations to help wealthy and determinate governments to reach the top positions in rankings (Salmi and Altbach 2011). ToPs provide the template to be replicated. Upgrading in rankings provides evidence of success. But what sort of success is that? No matter how easy it is for rich countries or donors to build spectacular campuses and buy expensive top-notched scholars on the international academic market, it remains very complicated to develop the virtuous circles that make the strength of ToPs as integrated self-sustaining institutions sitting on a long tradition that has polished the legacy of their norms and values and their internal processes over generations. Building a ToP requires time and money to ensure a proper governance that allows for a strategic vision based on constant reflexion, organizational learning and ability to change (Thoenig and Paradeise 2016), in an environment that fosters competition, freedom of teaching and researching, critical thinking, innovation and creativity (Altbach and Salmi 2012).

Few newly founded ambitious universities comply with such conditions. But the fact is that some countries, such as Korea or China have built, sometimes from scratch, excellent universities that are currently taking leading world positions in certain fields. Such new WCUs, although they are not ToPs, are significant enough to raise new questions. How much do such institutions threaten the future of the long-established ToPs by diverting part of their available resources to redistribute the world landscape of science? What does the sustainability of ToPs owe to the sophisticated democratic inter-

nal processes they have developed? How much is scientific exploration compatible in the long run with mechanic bureaucracies and accounts-based approaches of performance?

The future of Missionaries

Missionaries expanded with the two massifications of higher education that occurred first in the late 1960s in advanced European countries, then to a much larger extent at the world level at the turn of the 2000s. Many new universities were built during this period to absorb the rising number of students, with teachers whose level of education rose everywhere and especially in underdeveloped and emergent countries. As important as cutting edge research can be in knowledge-based societies, ToPs only represent a very small proportion of all universities in the world, whereas Missionaries deal with the widest range of the students' population.

For this large population who often originate from parents who had not much education, missionaries have a major transformational role. On one side, they have the purpose to deliver generic skills and employable graduates for local or national labor markets. On the other side, they are usually not equipped with human resources and facilities that would allow them to target performance in cutting-edge research. They rather provide applied research fitting common technological needs. But the mission of Missionaries cannot be reduced to this oversimplified picture. They not only increase the students' generic and specialized knowledge but they also enhance a comprehensive approach of world problems, improve the social confidence of their students and push forward the vision of their role in society. They are (or should be) a major vector to associate social change and cohesion by contributing inclusiveness rather than elitism and social reproduction.

Whereas the allocation of public money was earlier based on inputs (basically the number of students), reforms link it partly with outputs in research and on the labor market as measured by metrics. This option results from the emphasis put on technological innovation in advanced economies. Facing the ever-growing cost of research and the weight of the students' population growth, gov-

ernments have chosen to favor the concentration of resources in universities showing the best research performance, reinventing the US policies of the 1960s (Graham and Diamond 2004). It was also easier to develop proxies of research performance by ranking journals and counting publications and grants than to build and implement indicators of quality in teaching performance (Paradeise and Filliatreau 2015). It was indeed a clearly assumed choice of the team that created in 2003 the first Academic Ranking of World Universities (ARWU) at Jiao Tong University in Shanghai, to emphasize available data, publications, Nobel prizes and the like to build proxies of research excellence, rather than try to develop sophisticated tools. Since then, rankings and assessment tools have largely improved, using the more extensive data made available over the last twenty years and the development of sophisticated software. They also have become more sensitive to disciplinary specificities. Nevertheless, the premium given to research remains, with variable impact on allocation policies.

By capturing resources that were earlier distributed across all universities, the reforms have confirmed the success of ToPs, favored the rise of Wannabes, put Venerables in serious difficulties and created budgetary stress on universities with lower performances in research, whatever their major social, economic and political functions could have been.

Assessing the quality of Missionaries based on such metrics does not do justice to the positive contribution they may exhibit on the field more than in top-rated international journals. Assessing them based on their labor market outcomes ignores what is obvious: the more prestigious a university, the better its outcomes on the labor market. Thus, focusing on such indicators reinforces the dominance of elite higher education, and consequently the reproductive function of the system of higher education (Ashwin 2019). By ignoring or undervaluing the transformative role of Missionaries, current policies disqualify them, whereas they are located at the frontline of social integration, coping with issues of ever-increasing importance such as social inequalities that have tremendously risen during the last forty years and is gnawing away at societies.

At the turn of the 2000s, reform policies have

positively stimulated universities by questioning their contribution to social and economic wellbeing. But they have approached this issue by stressing on their economic outcomes and neglecting the other functions of universities. Using uniform tools to assess higher education institutions disregarding their context and missions, they run the risk to favor isomorphic university strategies drawing them towards a uniform vision of their mission, where the diversity of their skills, contexts and audiences would require to encourage more diversity.

Notes

1   The size and balance of higher education in the world dramatically changed, especially since the turn of the 2000's. The size of the population in post-secondary education was about 100 million people in 1970, almost doubled in 2000-2012 and is expected to reach 10 times more the number of students by 2100. Half of the growth came from the BRICs (Brazil, Russia, India and China). The number of internationally mobile students could exceed 7,5 million in 2025, against 4 million in 2018. The gross enrollment ratio in tertiary education varies considerably by world regions, from about 84% in 2014 in North America to 43% in Latin America and the Caribbean countries and 9% in Sub Saharan Africa.

2   There was no emergent country among the 5 top in terms of R&D national spending. In 2010, China and South Korea did much better than France or the UK. In 2010, the USA national spending was 510 billion of US dollars, as compared to 450 in China. The percent of GDP dedicated to R&D was the highest in Israel, South Korea and Taiwan (over 4%), Japan, Switzerland, Germany, Finland, Denmark and Sweden (about or over 3%). The USA came below with 2.7% and China with 2.1%. Western European countries reached between 1,2% and 2,4%, and the other countries were below these figures.

3   For instance, about 50% of the papers published in biology are currently non replicable.

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CLIMA TEMPESTUOSO NA EDUCAÇÃO SUPERIOR: GLOBALIZAÇÃO E TRANSFORMAÇÃO

Catherine Paradeise

Palavras-chave: Internacionalização do ensino superior; Reformas; Regimes de valor; Tipos de universidade (topo da lista, aspirantes, veneráveis, missionárias); Capacidade estratégica.

O artigo aborda o problema das transformações nas universidades induzidas pela internacionalização do ensino superior na virada do milênio, bem como as consequentes reformas nacionais que se espalharam pelo mundo. Usando uma abordagem meso-analítica da organização, governança e performance das universidades, o artigo sugere uma tipologia fundamentada nas tensões que elas experimentam entre dois regimes de valor: um tradicional que favorece a "reputação" como uma avaliação social; outro que foi construído a partir de métricas de "excelência". Finalmente, o artigo questiona os problemas e desafios mais sensíveis que as universidades enfrentam e a maneira como elas se comportam dependendo de sua capacidade estratégica de lidar com seus recursos e restrições.

STORMY WEATHER ON HIGHER EDUCATION: GLOBALIZATION AND CHANGE

Catherine Paradeise

Keywords: Internationalization of higher education; Reforms; Regimes of worth; Types of university (Top of the Pile, Wannabe, Venerable, Missionary); Strategic capacity.

The paper tackles the issue of the changes in universities, induced by the internationalization of higher education at the turn of the Millennium and the ensuing national reforms that have spread all over the world. Using a meso-approach of the organization, governance and performance of universities, it suggests a typology based on the tensions they experiment between two regimes of worth – the traditional one that favors "reputation" as a social evaluation vs the new one, build around a metrics-based "excellence" assessment. It finally questions the most sensitive issues and challenges they face and how they behave depending on their strategic capacity to face their resources and constraints.

CLIMAT TEMPETUEUX DANS L'ENSEIGNEMENT SUPERIEUR: MONDIALISATION ET TRANSFORMATION

Catherine Paradeise

Mots-Clés: Internationalisation de l'enseignement supérieur; Réformes; Régimes de valeur; Types d'universités (Haut de liste, aspirantes, vénérables, missionnaires); Capacité stratégique.

L'article aborde le problème des transformations dans les universités induites par l'internationalisation de l'enseignement supérieur au tournant de l'an 2000 et aux réformes nationales qui s'en sont suivies partout dans le monde. En utilisant une approche méso-analytique de l'organisation, de la gouvernance et de la performance des universités, l'article suggère une typologie fondée sur la tension entre deux régimes de valeur: l'un, traditionnel, qui favorise la « réputation » en tant qu'évaluation sociale; l'autre qui a été construit à partir de mesures d'« excellence ». L'article questionne enfin les problèmes et les défis les plus sensibles auxquels les universités sont soumises et évoque la façon dont elles se comportent suivant leur capacite stratégique de traiter leurs ressources et restrictions.