The Myth of University Strategy

Market Niches and Organizational Careers of Russian Universities

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Abstract. Many attempts to build a typology of post-Soviet universities are based on the idea that a university development is an outcome of implementation of a strategy chosen by the organization's managers. It is assumed that the choice of strategy is responsible for achievements and failures of a given organization. The article offers and statistically evaluates an alternative, non-voluntarist model of university evolution inspired by Carnegie School theory of organizations and a Lamarckian approach to organizational development. The model rests upon three assumptions: (i) organizations are economically motivated; (ii) they have no consolidated will, rather representing a conglomerate of internal agents that make decisions independently; (iii) organizations differ not so much in the nature of their decisions as in the chances for their successful implementation. These chances are predetermined by the starting points of university evolution: legal status (state/private, main/branch campus), belonging to a major "organizational family" (teacher training universities, colleges of arts and culture, etc. and geographic location. Universities do not choose a development vector but find themselves in a narrow corridor imposed by the environment. The data of the Monitoring of Education Markets and Organizations survey is used to demonstrate how an awareness of these elementary characters allows correctly predicting distribution of 75% of universities across four main types of university economies existing at the time. The 2013–2014 Monitoring of Educational Institution Performance indicates further that the distribution of gains from the "research turn" in state science policy can also be largely predicted from the universities' ascriptive characters.

Keywords: organizational theory, sociology of higher education, higher education in Russia, university management.

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A widespread idea about universities is that they develop—or at least can and must develop—by consciously implementing a specific strategy adopted by the management and approved by the staff and/or external stakeholders. Giving credit to this idea, universities elaborate all sorts of master plans and roadmaps[1] declaring their intention

[1] Of course, roadmaps have other applications as well: for example, they represent explicitly assumed obligations, where the management can be held

to move in a specific direction, which they post on their websites and send out to their trustees and ministerial bureaucrats every year. But to what extent is a university actually able to select willfully what we can define as its strategy (understanding strategy as one of the possible lines of action, which an institution will keep to, once selected), and to what extent can this choice influence its further development? In other words, is it true that the prosperity of some universities and the decay of others can be attributed to better strategies selected by the former?

There is a simple way to answer this question. If the trajectory of university development can be predicted quite accurately knowing its starting point and some external context characteristics beyond the univeraity's control, any official strategy adopted while moving along this trajectory was either a purely ritual act addressed towards the external context[2] (if the university had declared an intention to move in one direction but moved in another instead) or a documentation of the only possible behavioral policy under the given circumstances (in this case, the university closely predicted where it would be without being able to influence anything). Either way, when we try to explain university development by willful *selection* of a trajectory, we get involved in what social psychologists refer to as "fundamental attribution error", i. e. the tendency to attribute behavior to internal characteristics of the agent rather than external factors [Ross 1977; Gawronsky 2004].

This article attempts to evaluate the free will the degree to which the will of the post-Soviet university administrators was free and identify the accuracy of predicting the niche of a university with only its basic characteristics at hand: whether it is public or private, main or branch campus, and which of the big "families" it belongs to in the case of it being a public one. This way, the importance of strategy choice will be evaluated *a contrario*, i. e. by testing an alternative model where the economic behavior of a university is largely determined by external factors.

The article is structured as follows. First, it provides a short overview of studies devoted to the classification of Russian universities based on their selected economic strategies. Next, the external constraints which universities encountered on their development path and which determined its trajectory, according to our alternative model, are analyzed. Further on, two arrays of data are explored: (i) information on the structure of educational institution budgets in 2006 retrieved from the Monitoring of Education Markets and Organizations (MEMO) and (ii) the basic economic performance indicators of uni-

grateful for the important observations made by Irina Abankina, Katerina Guba, Aleksey Klyuev, Dmitry Semenov, Igor Chirikov and other discussion participants in the workshop on university typologies held on October 20, 2016 as part of the 7th International Conference of the Russian Association of Higher Education Researchers. I would also like to thank Harley D. Balzer, Andrew Wachtel, Natalya Forat, Andrey Shcherbenok and Andrey Yakovlev for their feedback provided at the round-table conference on the evolution of post-Soviet universities held on November 21, 2015 as part of the Convention of the Association for Slavic, East European, and Eurasian Studies (ASEES), as well as the anonymous reviewers from *Voprosy obrazovaniya*.

accountable for their non-fulfillment. However, strategic plans are often developed by institutions without external pressure, as a response to purely in-house drivers.

[2] Or similar to plans for the year which we make rather to reduce our fear of uncertainty than to actually implement them.

versities obtained from the 2014 University Performance Monitoring conducted by the Ministry of Education and Science. The MEMO data allows for analyzing the results of university development during the first 15 years of the post-Soviet era. Effectiveness monitoring studies will provide the opportunity to assess the effectiveness of nearly a decade of vigorous government interventions carried out as part of the "research turn" in a context where a demographic decline began to undermine the existing university economy. In conclusion, research findings, their limitations, methodological and practical implications will be discussed.

1. Classification of universities based on their organizational strategies

The existing studies on the classification of Russian universities have some features in common. All of them use government statistics indicators (Form No.3-nk[3] and the University Performance Monitoring data) as the most reliable and accessible for all universities. These indicators are interpreted as signaling the choice of economic adaptation strategy allegedly made by the university. A typical example is the study by Tatyana Klyachko and her colleagues, the first of its kind, where university strategies are classified based on three presumably deliberate choices: (i) seeking to ensure the ultimate quality or financial stability; (ii) engaging in academic or non-academic activities; (iii) relying on intensive or extensive development [Klyachko et al. 2002: 99–100]. To understand what choices were made by specific universities, Klyachko and her colleagues used Form No.3-nk statistics. A high percentage of PhD degrees among faculty members was interpreted as a focus on quality, a large proportion of rental revenues as orientation towards non-academic activities, and growing enrollment rates as an indicator of expansion trends [Ibid.: 109–110]. However, there is an arguable point in these speculations: events that occurred to an institution are explained as a result of its choice, not as effects of the external context in which that choice was made. Take expansion, for instance: it has been commonly believed, at least since Max Weber's times, that any bureaucracy seeks expansion and only stops growing under the influence of external, not internal factors. Universities are not ordinary bureaucracies, and one can cite examples showing that they sometimes impose enrollment limits voluntarily to guarantee a high-quality student body. Still, we cannot reject by default the hypothesis that non-expanding universities were simply unable to expand because they were denied government-funded places or did not attract a sufficient pool of candidates—and not because they decided against expansion.

[3] The format of the document containing information on state and municipal higher education institutions

Despite the arguable nature of some of the underlying assumptions in the study by Klyachko and her co-authors, they were often reproduced in a number of studies that followed. An important book by Nadezhda Titova [2008] refers to a similarly conceived solution tree: a university decides in the first place whether it will develop rapidly, slowly, or will not develop at all (just imagine a university management that makes a willful decision not to develop at all!), then whether it will develop in one or more directions, intensively or extensively, with a focus on quality or financial standing, engaging in activities within or outside their specialization [Titova 2008: 129]. Titova makes a number of interesting remarks on statistical correlations between the types of strategic behavior and the specialization and region of a university [Ibid.: 224–250] but does not allow for the possibility that universities rather find themselves forced to stagnate than deliberately refuse development. An updated version of this classification can also be found in [Abankina et al. 2010].

The same bone can be picked with the most recent publications devoted to university classification. A complex three-tier classification is built in the monumental article by Yaroslav Kuzminov, Dmitry Semyonov and Isak Froumin [2013], which provides a comprehensive picture of the evolution of higher education in Russia from the first Soviet five-year plans until today. At first, universities are classified into research universities, industry-specific universities and infrastructural universities, and then each of the categories is divided into subcategories specific to the category. For example, universities are divided into subcategories depending on whether they exercise a monopoly in their region and whether they have managed to ensure selective admissions, while industry-specific universities are subcategorized based on their selectivity and commitment to the specialization, etc. The only thing this comprehensive picture lacks are hypotheses on the reasons behind assigning universities to this or that category. In fact, such hypotheses only take place with industry-specific universities: those supplying cadres for successful industries maintained both selectivity and specialization. Apart from that, however, nothing is said about why some universities manage to diversify and maintain their specialization, monopoly and selectivity while others do not; neither is it explained why some universities become research universities while most never do. Again, the reader may have an impression that this is all about the strategic choices made by the university administration[4].

This article does not seek to argue with the valuable empirical generalizations offered by the cited studies. Instead, it seeks to comple-

[4] There is one work that stands out though. In particular, [Abankina et al. 2010] is interesting for the important methodological innovation in hierarchical cluster analysis it offers. Again, there is a typology built around six official statistical indicators, but these are partially new indicators, and the typology is based on purely formal criteria. New types emerge as a result, but they

ment them with some statistical observations and propose a different interpretation of their findings. This is an attempt to identify *to what extent* the "innate" characteristics of a university (type of ownership, location, specialization) determine its development trajectory. This data can be used to provide a critical assessment of the very idea of describing this trajectory in terms of a strategy.

2. The "organizational career" metaphor and the overall research design

The choice of this approach was inspired by sociological research on social stratification. Since the publication of Blau and Duncan's book [Blau, Duncan 1968], social inequality has largely been studied through investigating individual careers, or career trajectories, defined as shifts between positions within an organization, in the labor market, or in the class structure as a whole[5]. The key question raised by this career research perspective is about the factors boosting and inhibiting career success. Do women face a glass ceiling? To what extent will an upper-class child be more likely to finish his or her life in the same upper class than a child from a family of low-qualified workers? The general pathos of many—if not the majority—of such studies consists of demonstrating that an individual's career is largely predetermined by the starting point; deliberate decisions made by individuals add little to the predictive power of the starting point of their career. Pierre Bourdieu's studies [Bourdieu, Passeron 1990] are probably the most famous example of such rhetoric in sociology of education. This article seeks to find out to what extent this logic can be applied to research on development trajectories of educational institutions.

Traditional sociological techniques in career analysis will be applied in this article to universities instead of individuals. In this regard, this study can be classified as research on organizational careers[6]. Like individuals, institutions move up or down the career ladder, sometimes falling down[7]. As with individuals, an organization's career de-

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are never given any meaningful interpretation in terms of strategies or in any other way. It also remains unclear which processes make a university fall into a specific category.

[5] Statistical research on shifts between classes had been born long before Blau and Duncan's book was published. It is represented, in particular, by Pitirim Sorokin's works of the 1930s. However, Blau and Duncan were the first to popularize the use of multivariable regressions in social mobility research, which have since become the main method of evaluating the determinants of mobility.

[6] In the traditional usage, *organizational career* denotes an individual's career in an organization, not an organization's career [Glaser 1968]. However, the term has no established usage in Russian, allowing us to use it with a different meaning. In addition, at least when it comes to public universities, we can approach the whole system of public higher education as a single super-organization with individual universities shifting between positions within it.

[7] The metaphor has some limitations, though: basically, universities can engage in transformations that are unavailable to individuals, e. g. by merging

velopment may be explained by the starting point, situational variables, deliberate decisions, or even interactions between all the three (the same behavioral policy may result in success for some organizations under specific conditions and failure for others, or under different conditions). Describing an organization's trajectory in terms of a deliberate strategy will inevitably bring the factor of administrators' decisions to the foreground. This paper offers an alternative model to allow for the effects of the starting point and situational variables. In order to identify the variables that can play a role in such an analysis, let us begin with what has been known about the general organizational behavior of post-Soviet universities so far. Keeping this in mind, are able to hypothesize the determinants affecting university career development trajectories.

2.1. What are the determinants of organizational careers of Russian universities? A few hypotheses

The first important consideration will be that organizational behavior of a university—economic in the first place, but other types of activities as well—is largely economically driven [Cohen, March 1974; Garvin 1980; Winston 1999]. The fact that a university is a nonprofit organization does not mean it is not concerned with profit maximization[8]. Non-profits need to avoid bankruptcy too. This was obvious-

or dividing. However, it does not depreciate the very logic of research on organizational careers.

[8] This aspect is somewhat sophisticated as it remains unclear which economic parameters a university seeks to maximize. In their behavioral theory of the firm, Richard M. Cyert and James G. March [Cyert, March 1963] agree that there is no unambiguous answer to this question even in the seemingly obvious case of for-profit organizations. Different stakeholders may have different visions of an organization's goals (owners think profit, management think market share, trade unions think increase in production and jobs, etc.). The uncertainty is even higher with universities. A university may maximize total funding, profits, number of FTEs, salaries for specific staff categories, or cost of their services. This article confines itself to the assumption that post-Soviet universities had maximized the income opportunities of their staff before the Ministry embarked on active interventions around 2006 (see below). "Income opportunities" may be interpreted in three different ways: (i) opportunity to earn more for the same work; (ii) opportunity to earn the same for less work; or (iii) opportunity to find additional work in the same university. The hypothesis of this study is that universities adopted any initiative allowing them to increase the earnings of some employees, provided that it would not affect others' earnings perceptibly and in the short term or that the beneficiaries could suggest a viable reallocation solution to compensate for losses of the affected party (side payments). Every word in this under defined explanation deserves an independent article. "Perceptibly and in the short term", for example, means that actions impairing the conditions for other staff members are possible either if the latter are unaware of them due to the existing information screens (e. g. the rector's office affairs are normally considered the rector's preserve and are left to their discretion, so that they can hire their relatives or provide individual employees with astronomic bonuses, as compared to faculty salaries) or the effects will be seen in an indefinite period of time (e. g. when colleagues bring down

ly true for post-Soviet academic institutions, which were consistently underfinanced[9].

The strategy approach implies that every university decides on the development direction so as to satisfy its economic needs. Our alternative hypothesis states that any university would prefer developing in all directions at once, expanding its "foster resources" as much as possible, yet it cannot always succeed equally everywhere. Its evolution is hindered by external obstacles, which shape its individual face. There is no reason to believe that some universities deliberately abstained from leasing premises or engaging in contracted research, and least of all from offering legal education. However, not all of them had leasable premises, or anything to offer to industrial sponsors—and naturally, not all of them were allowed to provide legal education.

The main barriers shape market niches and determine which university will fill which niche. Therefore, an economic typology of universities should be, in fact, a classification of barriers. A retrospective view on the evolution of a university may give the impression that it wanted to fill a specific niche and moved exactly where it wanted to be. However, market niches differ in their attractiveness, and some would hardly be ever consciously picked by anyone. In reality, the "choice" of such a niche means there was no other choice. Forced economic specialization dictates further divergence as universities evolve to adapt as much as possible to their niche and develop different degrees of readiness for change in the outside environment, non-optimal specialization sometimes becoming a competitive edge under new circumstances.

What kind of barriers could play the greatest role in dividing Russian universities into categories and subcategories? Based on what has been said above about the economic rationale behind their behavior, it should probably be constraints to the most important lines of financing, i.e. something that opened or closed incomings from

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the standards of teaching beyond all reason). Obviously, these characteristics vary over time as well as from individual to individual, yet they are part of the coexistence principle "live and let live". This logic may have changed due to the recent political reforms in university, which have inflated the role of the rector and the significance of revenue from the programs supporting the leading research universities, so that the focus has shifted to maximizing profits in areas covered by the University Effectiveness Monitoring and various roadmaps (such as total R&D volume per faculty member). However, whether such changes actually took place and how big they were remains an open question.

9 The fact that those concerns were not reduced by a manifold increase in university financing speaks volumes about human psychology. In the case of faculty salaries, it was apparently not so much about the absolute volumes as about university teachers considering themselves part of the middle or even upper middle class, with the traditional Soviet perceptions as well as global models in mind, and thus feeling undervalued if their salaries fell short of this standard.

the key economic sources. As we will see below, tuition fees and the funding allocated for government-subsidized students were the main sources of finance for most post-Soviet universities. So, maximizing the revenues in the early post-Soviet period (up to 2006) meant first of all, and almost only, increasing the student population. It allowed for providing more FTEs, promoting professors to department chair positions, and offering internal secondary employment opportunities. Besides this, it also allowed for an economy of scale in so many ways, from showing one lecture as a few lectures delivered to different groups on the balance sheet to selling a ton of copies of university-published study guides on a "voluntold" basis. The student population could be increased either by requesting higher entry quotas for government-funded places from the Ministry or by attracting students on a tuition basis[10]. The chances for having the entry quotas increased depended first of all on the following:

(a) Public/private status. Although major private universities were granted one or two government-funded places from time to time, the general practice was to distribute those places within the public education system;
(b) Being part of the right "family". Subsystems of universities associated with specific ministries were a legacy of the Soviet (and pre-Soviet to some extent) higher education system. There were a few dozen of such subsystems, but many consisted of only one institution serving the ministry or the respective branch of government (e. g. the Moscow State Institute of International Relations run by the Ministry of Foreign Affairs). Other "families" included dozens of universities in various fields: education, agriculture, cul-

[10] Students enrolled in Russian universities consist of two groups. First, all public and some private university universities have a quota allowing them to enroll a fixed number of students the costs of teaching whom are fully covered from the state budget. As institutions, rather than individuals, get funding, these quotas are described as "government-funded places" (*budzhetnye mesta*). Until early 2000s, each university could distribute such places among schools and faculties at will. Later, however, witnessing skyrocketing numbers of graduates with law and economics diplomas, the Ministry started allocating quotas to specific majors, so that a university could train only a fixed number of students of physicists, linguists or philosophers. In addition to that, they can enroll a large number of students paying tuition fees (legally, this number is limited only by the university buildings' capacities). Those receiving public funding have to demonstrate high results at Universal State Examinations, particularly if they apply for a popular major. Those paying tuition also took the same exams, but the entrance requirements for them are much milder. Necessary to add that what is translated as "majors" throughout this text are not majors in the US sense, but a highly specialized courses of studies which are to prepare individuals for particular occupations. Being enrolled in one of such courses, students have little opportunities to choose which subjects to study.

ture and arts, medicine, etc. It was much harder to convince a ministry to increase subsidies for a university that did not specialize in the relevant field. For example, an agricultural university was less likely to be granted additional management places than a classical university. The main "families" are described below;

(c) Individual status within the "family". Another practice inherited from the Soviet times consisted of differentiating between "senior" or head (*golovnye*) and "junior"universities. Senior ones were granted subsidies more willingly because they were believed to provide education of a higher quality and supposed to provide methodological guidance for the "juniors"[11]. In the vast majority of cases, major universities were located in Moscow. There is no official status of a "senior"university today, but a semi-official classification of universities is preserved, correlating with the general territorial and administrative hierarchy of populated localities and affecting, apparently, the government's willingness to grant subsidies;

(d) Having competitors in the region. "Regional labor market demand" is one if the key arguments when allocating government-funding places to universities. Consequently, the first university to request subsidies for a major that has not yet been offered in the region will have more chanceof getting them than the second one;

(e) Overall patronage of the Ministry of Education and Science (whatever it may be called) for majors that are given top priority in terms of social and economic development strategies or national defense;

(f) Popularity, measured by university selectivity. It used to be of prime importance during the early post-Soviet years, when higher education was largely understood as a means of satisfying the need for self-development. However, concerns about economist and lawyer overproduction put an end to interpreting the high popularity of some majors at a specific university as an explicit indicator of the need for heavier subsidies as early as the end of the 1990s. While extremely high popularity does not have far-reaching consequences anymore, extremely low popularity still does: the inability to fill the Ministry's quota almost inevitably entails a quota reduction the following year;

(g) Allies in the Ministry. Allocation of government subsidies to a specific university is lobbied by agents: an "academic entrepreneur" promoting a specific major, the rector, and sometimes even the governor—their connections with subsidy-allocating offices is a sizeable advantage for a university;

(h) Lobbies in accrediting authorities. Before the functions of academic and methodological associations were assumed by the

[11] In Soviet times, university seniority was often indicated by the right to be presented theses for defense, which was sometimes granted to only one institution in a "family", e. g. in culture and arts.

Federal Service for Supervision in Education and Science (Rosobrnadzor), it was vitally important for a university to have friends in the national expert councils who could lobby approval of new degree programs. Today, a lot depends on participation in the Higher Attestation Commission expert councils, journal editorial boards, and other agencies that can promote timely awarding of degrees to the faculty and give them an opportunity to demonstrate high publication rates.

A similar, yet shorter list will predict a university's chances for attracting fee-paying students, determined by major popularity and university prestige.

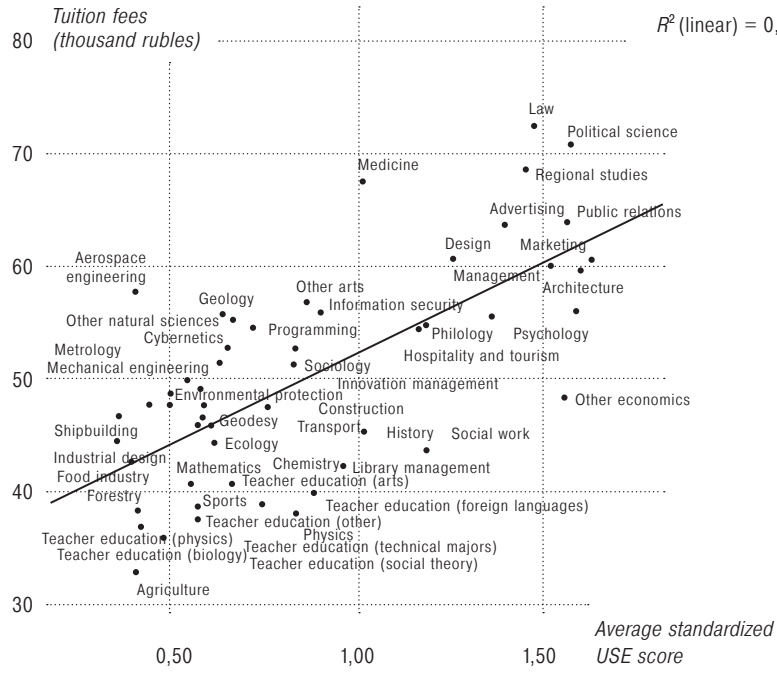
Majors differ dramatically in popularity/selectivity and average tuition fees. Figure 1 presents the relevant contrasts among the 60 largest majors and domains (for details, see [Kovaleva, Safonova, Sokolov 2017]). High school leavers and their families inextricably associate major prestige with the prestige of the respective occupation [Sokolov, Knorre, Safonova 2014]. This is an essential point, which explains why "families" have a prestige of their own, determined by the perceived attractiveness of the occupation they are supposed to prepare students for, from the Moscow State Institute of International Relations, theater and film schools at the top end to teacher training and agricultural universities at the bottom.

Just like the Ministry, students also envisage a status-based hierarchy of universities, which is easy to see when you compare the average USE[12] scores of candidates or tuition fees (when comparing tuition fees, we can conclude, for instance, that the popularity gap between law and physics in 2010 was approximately the same as that between the Bauman Moscow State Technical University, the most renowned technical school in the country, and the Moscow State Institute of Radio Engineering and Electronics, now Moscow Technological University). At the level of everyday knowledge, the main campus is higher than the branch campuses, and public universities are preferred over private ones in this hierarchy. Besides, there is also a hierarchy of regions, apparently the same as the one used by the Ministry, as well as the effects of academic reputation[13]. These considerations become particularly important as students have to constantly calculate in their own minds the relative attractiveness of various degree programs when choosing a university: should they choose the more

[12] Unified State Examination

[13] Analysis of pricing policies in the 2010 education market revealed no positive effects of university age (the most powerful variable on the U.S. academic stage) on tuition fees or USE score selectivity. Academic reputation correlated significantly with admission selectivity, but not with tuition fees. Finally, the size of university and department showed a significant correlation with both USE score requirements and tuition fees [Kovaleva, Safonova, Sokolov 2017].

Figure 1. **The relationship between average tuition fees and the minimum USE score** in 60 subjects in 491 public universities in the academic year 2010/11



The figure does not include the film directing major with the annual tuition fees exceeding 80,000 rubles.

prestigious major in the less prestigious university, or vice versa, or maybe the more prestigious major in the more prestigious university for a tuition fee? Universities at the top of the hierarchy, which also belonged to a "decent family" (e. g. classical universities), can apply for subsidies for the most popular degree programs, while closing government-funded places and even enrolling some fee-paying students on unpopular majors. Private universities on the other end of the spectrum could only hope for selling the most popular degrees at undercut prices to students unable to qualify for government-subsidized places.

With all their diversity, the circumstances listed above are most often related to three inherent university characteristics that the management is unable to change—they would be referred to as the ascribed status if it was about an individual. These include general status (public/private, main/branch), being part of a "family" (for public universities), and being located in an administrative center (the capital or a large city being the center of a federal district, region, etc.). The status of the administrative center affects both the Ministry's willingness to provide subsidies and the university's prestige in the eyes of the students. "Family" determines which majors will be subsidized and how much they will be demanded among school leavers. Thus, these

are the characteristics that appear to be the most probable candidates for independent variables predicting university careers based on their starting points.

Judging from the available data, we can assume that the same variables will be significant in terms of attracting third-party investors. "Family", obviously, determines accessibility and size of research grants and contracts with industry: in this regard, technical universities should have an advantage over institutes of culture and arts, for example. University reputation within a "family" can be expected to influence a funding agency's or a customer's willingness to provide funds to the same extent as it affects a student's willingness to pay tuition fees. Agricultural universities dispose of vast unused premises that can be leased out or shown as "laboratory areas" on the balance sheet. In addition, the overall regional economy's health affects the chances of getting industrial contractors too [Sokolov 2013]. Therefore, the list of possible independent variables that are good predictors of university careers looks rather short.

There can be one more variable to this model, affecting not merely the chances of falling into a specific economic category but the extent to which the development trajectory is determined by external factors, i. e. the overall proactivity or reactivity of a university. This variable represents the equivalent of the goal-setting skills and willpower of an individual. People who lack these qualities just go with the flow (e. g. by taking up their parents' occupation), while those who have them can move up or across the stream, their career trajectories being much less predictable.

The political will of an institution is shaped by a number of factors, including the rector's personal charisma, for example. However, in-house political regime seems to be the most influential determinant. The economic behavior model described above—expanding in all possible directions until an unsurpassable barrier is faced—goes especially well with decentralized organizational political structures, where economic decisions made by different university divisions are largely independent and university management mainly serves to mitigate conflicts between independent agents (e. g. to decide which department should be entrusted the development of an attractive new degree program[14]).

While being unable to evaluate intra-organizational political regime characteristics for all the universities, we still know that the degree of

[14] New majors normally split from the closest existing ones (say, economists offer management, marketing and advertising programs, sociologists and historians introduce political science majors, etc.). It is not always clear, however, which of the existing majors is "closer" to the new one, so conflicts are a matter of course. Consider this good example: geographers, historians, sociologists, economists, designers, and even philosophers dispute the right to introduce the currently fashionable discipline of urban studies in classical universities.

centralization in university administration has increased significantly over the last decade. The image of an autonomous yet decentralized university is probably quite an accurate illustration of the higher education system between 1991 and 2006, in the period when universities were mostly left to their own devices, being encouraged in every possible way to earn their own living. University faculties and schools were often de facto independent legal entities with their own bank accounts in the 1990s and the early 2000s. This practice was later abolished, but what remained was the idea that schools should receive a fixed and, preferably, sizeable portion of their earnings. This often resulted in extremes of economic inequality within a university. In general, however, it was a sensible system that encouraged personal initiatives and was able to exploit them for the public weal. A universitywould be growing—or trying to grow- in all possible directions without much control exercised by the central authority. Such "organizational anarchy" has been mentioned in descriptions of American research universities [Birnbaum 1988] and confederations of colleges similar to Cambridge. Organizationally, they had very much in common with post-Soviet universities, at least at the early stage of the latter's evolution.

The end of this early stage may be conventionally dated back to 2006, which saw the first effects of changes in natural trends: the 2006 high school graduates had been born in 1989, the last year of the baby boom. Besides, 2006 was also the start of the growthof governmental initiatives designed to change the existing university landscape radically. A keynote of those initiatives was the so-called "research turn", consisting of attempts to assess and remunerate universities based on their conformance to the ideal image of a research university. This "turn" implied increasing the research funding distributed among universitieson a competitive basis (National Research University Program and Project 5–100 being the major initiatives). Another keynote consisted of boosting the effectiveness of the university administration through amalgamation (beginning with mergers as part of the federal university program) and the rector's power consolidation. The reforms were supposed to make rectors politically independent from in-house stakeholders and re-enable them to undertake independent initiatives. In theory, the change in accessible sources of finance was supposed to produce new market niches and new types of university economies. In addition, the regaining of free political will by rectors was expected to untie hands of university administrators—universities would finally be able to develop a strategy that would not be restricted to locally initiated creeping expansion. In terms of statistics, development in this direction would be marked by reduced correlations between ascriptive characteristics of universities and their current financial standing. This article seeks to find out whether these changes ever took place.

The analysis that follows is divided in two parts which correspond to two periods. The first describes the market niches that had devel-

oped by 2006 and evaluate the extent to which falling into a specific niche was determined ascriptively. The second part presents an analysis of changes in university careers and their determinants that had taken place by 2014. However, before embarking on this analysis, we will dwell on the variable which has been so far referred to as self-evident but requires careful handling—"families" of universities.

2.2. Pedigree of Russian universities

Soviet universities were affiliated to systems of ministries and governmental agencies whose needs in new cadres they were supposed to satisfy, with the partial exception of universities and polytechnic institutes that reported directly to the ministry in charge of higher education. The same ministry supervised teacher education universities whose graduates were supposed to serve the needs of secondary education, which was also part of the system.

Since the main point of this article is that the development trajectory of a university is determined by its institutional origins, a university classification based on the old Soviet system of sectoral affiliation is used. The most dramatic way to prove this point would be to demonstrate that the current position of a university can be predicted by its affiliation in 1991. However, this appealing plan is complicated by two things: first, institutions existing in 2006 or, even more so, in 2014, cannot always be identified unfailingly with institutions that existed in 1991 (universities went through mergers from time to time, and it is often hard to identify the predecessor[15]); second, many institutions had no university status[16] or did not exist at all (e. g. nearly all municipal universities) in 1991.

The solution developed for this study consists of focusing on a set of features that can help identify a specific present-day university with one of the "families" that have existed since the Soviet times, first of all on name pattern similarities and the fact of affiliation with a specific government department. It is assumed that the institutional environment sets limits on variations in university behavior and organizational

[15] The acquiring university in a merger usually may be determined, but necessary information is often unavailable. For example, it is possible to figure out, by knowing the details, that Northern Federal University was born when Lomonosov Pomor State University (successor to a teacher education institute) was acquired by Arkhangelsk State Technical University (successor to a forest technical institute), not vice versa. Yet, such details are not available on all university mergers and acquisitions.

[16] Further analysis largely uses the database on transformations that organizational nuclei of Russian universities have undergone since 1900. It transpires from this database that public universities were formed in the Soviet and post-Soviet periods in one of four ways: (i) by establishing "from scratch" (a possible but extremely rare case); (i) by detaching a school (a not infrequent option in large cities); (iii) by granting autonomy to a branch; or (iv) by upgrading a vocational school. Such upgrades were especially common after 1991, giving birth to at least 30% of today's teacher education and agricultural universities. Therefore, a study that compares the beginning and

structure (an agricultural university cannot get rid of agricultural majors but will find it difficult to introduce legal studies) and that external players (applicants and their parents, officials, prospective customers or research sponsors) are aware of these limits, such awareness defining their attitude towards a specific university.

Many "families" are small, often consisting of only one university, so they have to be grouped into "families" of at least 15–20 members, which is the minimum requirement for the regression analysis to make sense. Using the ISCED classification, "microfamilies" were grouped into two major clusters—engineering and technology opposed to economics and law. As a matter of fact, this classification principle was widely used in the Soviet system. The Great Soviet Encyclopedia of 1974 divides universities into the following categories: universities, economic universities, polytechnic universities, engineering (industrial) universities, agricultural universities, medical universities, teacher education universities, physical education universities, and universities of arts. Economic universities (which included financial and economic universities, engineering and economic universities, institutes of Soviet trade, etc.) and engineering and industrial ones (from architectural universities to river transport institutes) figure here as separate categories although institutions falling to them wereaffiliated with different governmental agencies[17]. The following university categories are identified in this study:

1. Universities
2. Technical universities
3. Socioeconomic universities and law schools
4. Medical universities
5. Teacher education universities
6. Institutes of culture and arts
7. Other public universities

the end of a development trajectory should involve not only higher education institutions but institutions of other types as well, e. g. vocational schools, which would increase their number dramatically.

[17] Most industrial universities and themajority of economic ones have come under the authority of the Ministry of Education and Science. According to the data collected by the 2015 University Effectiveness Monitoring, public non-military universities are affiliated to the following governmental agencies: Ministry of Education and Science, Ministry of Health (medical universities), Ministry of Culture (institutes of culture and arts), Ministry of Sports (physical education universities), Ministry of Agriculture (agricultural universities), Federal Transport Agencies (for air, rail, sea and river transport), Federal Communications Agency, and Federal Fishing Agency. One-university families are affiliated to the Supreme Court, the Ministry of Foreign Affairs, the Ministry of Economic Development, the Ministry of Justice, the Federal Tax Service, and the Federal Service for Intellectual Property. Finally, a few socioeconomic universities are directly subordinate to the Russian government.

Universities, later renamed as classical universities, are understood as public universities whose names look like "N State University", supervised by the Ministry of Education and Science[18];

Technical universities are defined as public universities whose names contain the words "technical", "polytechnic", "technology", "university"/"institute", and/or an indication of a specific industry. Polytechnic universities were going to form an isolated category, but the boundary between polytechnic universities and other technical educational institutions turned out to be extremely permeable: a technical institute could be converted into a polytechnic institute and then to a technical university throughout its history (this is what happened to the Ural State Technical University, formerly polytechnic institute, founded as the Ural Industrial Institute). Meanwhile, crossing the boundary between technical and nontechnical universities is virtually impossible[19]. There is much more reason for identifying the following isolated subfamilies within technical universities: (a) architectural universities; (b) transport universities of different types (water, air, and rail transport universities which remain affiliated to their governmental agencies); and (c) telecommunications institutes (supervised by the Federal Telecommunications Agency).

Socioeconomic universities and legal schools represent the most fragmented group that includes a number of old "families": financial and economic universities, engineering and economic universities, planned-economy universities, universities of Soviet trade, a network of higher party schools that has evolved into a network of public administration academies, institutes of consumer cooperation, and a few institutes founded directly by Ministries and governmental agencies (such as the Moscow State University of Economics, Statistics and Informatics (MESI), which trained specialists for the Soviet Union's statistical service). The group is complemented with ministerial institutes of legal and law enforcement agencies (Ministry of Internal

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[18] The original intention was to discriminate between "old" universities, which lost their additional attributes before 1991, and "new" ones, which entered in 1992 as teacher education or polytechnic/technical universities. Just as vocational teacher education schools transformed into lyceums and then into institutes, they would sometimes become "no-attribute universities". However, such conversions were comparatively rare after 1991, and the sample of 500 universities comprised less than a dozen examples, thus making statistical analysis impossible. Still, it would be interesting to see in the future whether such origins affect the current status of a university. Anyway, the local public seems to have long memories concerning the recent vocational teacher training past of some universities.

[19] Vladivostok State University of Economics and Service, which evolved from the Far Eastern Technological Institute of Communal Service, may be cited as a counterexample. In this case, the university managed to redefine itself from technical to socioeconomic by re-defining "service". Yet, this instance is exceptional.

Affairs, Ministry of Justice, and Federal Penitentiary Service) and the Russian State University for the Humanities with its branches[20].

One common feature of these universities is that their specialization is recognized as economics or legal studies by both prospective students and governmental authorities. Another common feature is that they retained the core of personnel with degrees in certain area that allows such universities to exploit the market demand for economic and legal majors, on the one hand, and to get subsidies for these majors, on the other. Meanwhile, they do not have the dead load of unpopular majors that cannot be gotten rid of, which is typical of technical universities. Subcategories within this category that could potentially be used in statistical analysis include the system of public administration academies and predominantly legal education universities affiliated to law enforcement agencies.

Medical universities, to which universities of dentistry and pharmacy have been added, remained supervised by the Ministry of Health throughout all post-Soviet transformations. One municipal nursing institute has also been included into this category.

Teacher education universities represent the largest yet well-structured "family", traditionally reporting to the Ministry of Education. Such universities normally evolved from vocational teacher education schools during the 20th century. Some of them were eventually transformed into classical universities (e. g. Kaliningrad, Pskov and Novgorod State Universities); according to the statistics available, conversions from teacher education universities into universities took place regularly between the 1960s and the 2000s, with approximately five conversions per decade.

Institutes of culture and arts constitute a "family" that can be easily identified as affiliated to the Ministry of Culture. It includes the subfamily of institutes of culture and arts which have been charged with training employees for all cultural institutions in the region since the very beginning, and the subfamily of narrowly specialized institutes and academies which were most often founded as vocational schools designed to prepare artists in a specific field (e. g. Vaganova Ballet School, drama schools, Maxim Gorky Literature Institute, or conservatories).

*Other public universities*make up a rudimental category which includes one big "family" of sports universities under the auspices of the Ministry of Sport in this study, which, however, was not big enough for a statistical analysis. A number of municipal universities that did not

[20] Generally speaking, the Russian State University for the Humanities should be classified in the humanities category according to the ISCED classification, together with institutes of culture and arts. However, this study relies on the Russian tradition that defines history as a social science, and on the descent from the Institute of Archives, which rather resembled MESI than an institute of culture in too many aspects.

identify themselves with any major "family" were added to the category as well.

The following rule was applied to municipal universities: they were classified as part of an existing "family" in cases where they reproduced the exact name patterns typical of that category, e. g. named themselves as conservatories. If, however, the name of a municipal university had no analogues in any of the "older families" of public universities (for example, such fantastic beasts as "technical institute of humanities" or "institute of technical and information technology" were discovered sometimes), it would be ranked among "other public universities".

3. Types of market niches, 2006.

Since the collapse of the Soviet Union, the sources of revenue for Russian universities have included government subsidies for specific degree programs, tuition fees (including fees for the main educational programs, supplementary and preparatory courses), research funding (public and private), donations, and proceeds from other activities (production, provision of services, leasing, etc.).

The relative proportions of different types of revenues in university budgets have been explored by the Monitoring of Education Markets and Organizations conducted by the National Research University Higher School of Economics (HSE) on a sample of several hundred public and private universities and their branches. Table 1 shows how these proportions were distributed among the major "families" listed above in 2006[21].

As can be seen in Table 1, the proportion of government funding (not broken down by categories but representing allocations closely tied to enrollment statistics) varies dramatically from category to category. While private universities enjoy little or no government funds at all, subsidies account for almost one third (in socioeconomic universities) to nearly two thirds (agricultural "family" and institutes of culture and arts) of the budgets of their public counterparts. Dispersion is also great in the fee-based higher education sector: from private universities, where Bachelor's degree tuition fees account for 80% of the budget, to agricultural universities and institutes of culture, where this proportion hardly reaches 20%.

Our next step is to try to identify the main types of university economies using hierarchical cluster analysis. A few economic typologies created this way have been described in the existing studies [Abankina et al. 2013]. However, strictly economic parameters, namely percentages of revenue from different sources, are used as primary scales in this study, contrary to previous experiments which used data on heter-

[21] The database does not include the answers of respondents from universities where the percentages added up to more than 110% or less than 90%.

Table 1. **Average percentages of different sources of finance in budgets of universities of different categories, 2006** (%) (standard errors italicized)

Type of university	Government funding	Tuition fees	Supplementary and vocational training	Preparatory courses	Research and development	Production	Leasing	Sponsors	Other sources
Industrial technology and construction (N = 56)	46.58 *19.799*	25.05 *16.165*	6.45 *6.726*	4.00 *7.230*	8.56 *8.697*	1.18 *2.466*	2.88 *4.607*	1.47 *2.996*	2.02 *4.203*
Agriculture and forestry (N = 21)	63.18 *16.990*	18.19 *11.937*	3.68 *4.769*	2.58 *2.811*	5.15 *10.739*	2.00 *5.046*	1.97 *2.510*	1.57 *2.872*	2.41 *5.021*
Economics and law (N = 69)	32.64 *28.784*	47.12 *31.825*	9.86 *12.301*	2.74 *4.042*	3.48 *5.819*	0.20 *0.868*	0.95 *2.812*	0.55 *1.888*	1.64 *5.249*
Healthcare (N = 17)	52.77 *21.379*	24.18 *13.235*	11.27 *10.174*	6.24 *12.243*	2.19 *3.419*	3.09 *9.927*	1.25 *1.799*	2.42 *5.635*	1.50 *3.693*
Education (N = 37)	58.61 *26.494*	31.22 *26.836*	3.81 *5.175*	1.83 *3.087*	2.26 *3.989*	1.18 *5.143*	0.68 *1.481*	0.72 *1.768*	0.52 *1.378*
(Classical) universities (N = 24)	43.48 *19.560*	32.93 *20.688*	6.86 *9.901*	4.65 *9.713*	6.55 *5.918*	1.37 *3.371*	1.03 *2.141*	0.51 *0.774*	2.23 *3.525*
Culture, arts and film studies (N = 38)	64.27 *28.722*	18.80 *23.058*	2.53 *3.437*	3.11 *4.543*	1.39 *3.209*	1.26 *3.867*	1.78 *3.907*	0.85 *2.059*	5.34 *14.177*
Private universities (N=175)	0.73 *5.666*	80.43 *23.591*	9.07 *14.722*	2.67 *5.768*	2.91 *5.326*	0.43 *2.077*	0.71 *4.826*	1.35 *8.994*	0.71 *2.508*
Other public universities (N=17)	51.99 *28.777*	16.69 *16.320*	3.58 *3.842*	3.79 *6.161*	1.30 *2.012*	1.77 *3.266*	.99 *1.662*	1.68 *3.730*	.23 *.518*
Total (N=459)	30.16 *31.683*	49.49 *34.771*	7.43 *11.458*	3.10 *6.076*	3.84 *6.391*	.88 *3.397*	1.24 *3.970*	1.17 *5.954*	1.59 *5.438*

ogeneous characteristics, mostly obtained from the ministerial statistics. A hierarchical cluster analysis was carried out considering budget percentages as counts and using an inter-group distance minimization algorithm to reduce the heavily right-skewed distribution of almost all variables. An obvious "elbow" was observed between the solutions dividing the data into four and five clusters: the gain in explained variance decreased sharply at the fifth stage—hence, the four-cluster solution was used. Table 2 displays the average proportions of all sources of finance for universities in the resulting four clusters.

The percentage of government funding in university budget grows from about 40% to almost 80% from type one through to type three. Type one, which can be defined as "balanced", implies approximate-

Table 2. **The main types of university economies in 2006. Results of hierarchical cluster analysis of 459 universities** (standard errors italicized)

	Cluster				
	1 (N=76)	2 (N=67)	3 (N=68)	4 (N=218)	Total
Government funding	42.44 *11.656*	58.61 *11.011*	78.67 *14.087*	2.59 *6.965*	30.46 *31.823*
Tuition fees	35.25 *12.393*	21.73 *7.943*	7.09 *5.424*	79.24 *23.389*	51.03 *34.775*
Supplementary and vocational training	10.21 *11.486*	3.61 *6.683*	3.36 *4.975*	8.75 *13.397*	7.35 *11.491*
Preparatory courses	2.72 *3.334*	2.58 *2.847*	4.15 *7.780*	2.73 *6.266*	2.93 *5.733*
Research and development	5.69 *7.179*	4.86 *4.965*	1.94 *4.061*	3.09 *5.889*	3.64 *5.881*
Production	0.88 *2.464*	.88 *2.081*	1.31 *4.267*	0.54 *2.464*	0.77 *2.782*
Leasing	0.62 *1.308*	3.25 *4.443*	1.01 *2.840*	0.61 *2.214*	1.09 *2.824*
Sponsors	0.65 *1.595*	1.01 *1.947*	1.14 *2.619*	1.34 *8.222*	1.13 *6.037*
Other sources	1.67 *8.753*	3.44 *6.684*	1.44 *4.078*	1.08 *3.757*	1.61 *5.546*

ly equal proportions of government-subsidized and fee-paying students as well as higher revenues from supplementary education and research activities than in any other cluster. This type is opposed by type three, "public-sector" universities where government funds account for nearly 80% of revenues, all other proceeds being insignificant. The second type occupies a position between these two, yet closer to type one by R&D revenue. Finally, type four—"marketable" universities—is characterized by the overwhelming predominance (almost 80%) of fee-based Bachelor's degree programs as the primary source of revenues.

To what extent were the types of universities described above "different but equal" and to what extent did they form a hierarchy? Data that can be obtained from the University Effectiveness Monitoring rather supports the assumption that the clusters build a hierarchy from the first one down to the fourth one. There is a consistent reduction in salary size (the proportion of salary expenses in the university budget

Table 3. **The distribution of university categories among the four types of economy**

	Cluster				
	1	2	3	4	Total
Industrial technology and construction	18 32.1%	21 37.5%	10 17.9%	7 12.5%	56 100.0%
Agriculture and forestry	2 10.5%	8 42.1%	8 42.1%	1 5.3%	19 100.0%
Economics and law	18 28.6%	6 9.5%	8 12.7%	31 49.2%	63 100.0%
Healthcare	6 42.9%	3 21.4%	4 28.6%	1 7.1%	14 100.0%
Education	9 25.7%	10 28.6%	12 34.3%	4 11.4%	35 100.0%
(Classical) universities	12 60.0%	7 35.0%	0 0.0%	1 5.0%	20 100.0%
Culture, arts and film studies	4 10.8%	9 24.3%	21 56.8%	3 8.1%	37 100.0%
Private universities	1 0.6%	0 0.0%	0 0.0%	169 99.4%	170 100.0%
Other public universities	7 41.2%	3 17.6%	5 29.4%	2 11.8%	17 100.0%
Total	76 17.7%	67 15.6%	68 15.9%	218 50.8%	429 100.0%

increasing though[22]), popularity and median tuition fees (average tuition fees being higher in type four than in types two and three—see below) from type one down to type four. Universities of the first type appear to be the best-off, embodying the result of a successful development trajectory that any university would be happy to follow. Yet, did all of them have the chance?

3.1. Organizational career determinants in the early post-Soviet period

What determines which economy model a specific university will belong to? Table 3 presents the breakdown of analyzed universities by type of university economy. Classical universities and universities of industrial technology and construction are inclined, relatively clearly, to the "balanced" pattern with diversified revenues, agricultural universities and institutes of culture tend to fill the "public-sector" niche, private universities are almost all "marketable", and, finally, econom-

[22] Back then, government funding was linked first of all to enrollment statistics. Hence, non-budget was that which a university earned *beyond* the guaranteed minimum revenues.

Table 4. **Odds ratios of belonging to one of the four types of economy for different university categories. Multinomial regression results**

	Chances					
	1/4	2/4	3/4	1/3	2/3	1/2
Industrial technology and construction	0.45	1.06	0.28	1.59	3.79	0.42
Agriculture	0.18	1.29	0.79	0.23	1.63	0.14*
Economics and law	0.21*	0.19	0.14*	1.54	1.37	1.12
Healthcare	0.49	0.44	0.37	1.35	1.20	1.12
Education	0.36	0.78	0.57	0.63	1.37	0.46
Classical university	1.34	1.59	0.00**	+∞***	+∞***	0.84
Culture	0.25	1.16	1.54	0.16*	0.75	0.21*
Private university	0.00**	0.00**	0.00**	...	...	...
Other type of public university (base)						
Main campus	8.28**	26.27**	22.97**	1.08	1.42	0.76
Location outside Moscow	2.78*	3.67*	2.58	0.36	1.14	0.32

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

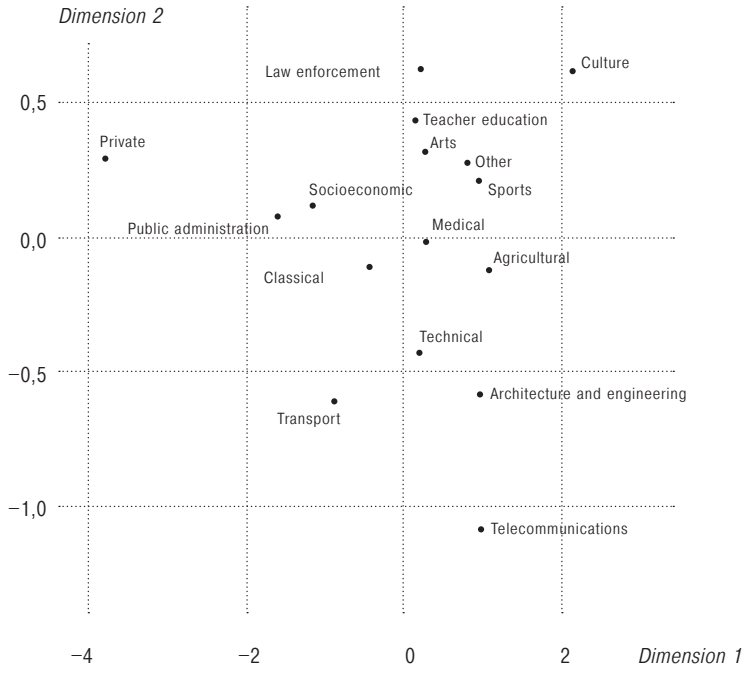
ic universities and legal schools are distributed between types one and four.

The "marketable" economic model is of special interest. This is a coexistence of private universities with a smaller number of public ones, which however offer popular majors in social science (including a pinch of technical, mostly architectural, institutions). Meanwhile, public and private universities of this type differ strikingly in terms of their wellbeing, both in salaries and popularity.

Multinomial logistic regression is used to evaluate the chances of implementing a specific economy model by universities in every category, while taking due account of other university characteristics, such as the status of the main/branch campus, being located in or outside Moscow, etc. Table 4 shows the odds ratio of having a specific economy model for universities with a given characteristic. For example, the value "1.34" in column "1/4", row "Classical university", means that universities will be 34% more likely to have a "balanced", not "marketable" economy model than "other public universities" (base category), all other variables being controlled—otherwise speaking, the chances of being "marketable", not "balanced", will be higher for "other public universities" than for classical universities, all other things being equal.

Significant coefficients are marked with asterisks, but it should be borne in mind that only dramatic differences reached the significance level due to the small size of the sample. Overall, the coefficients look

Figure 2. **The space of university economies**
Multidimensional scaling of the structure of university revenue by university type



quite sensible: in addition to the regularities discussed above, it was discovered that a branch would be much more likely to be "marketable" than the main campus (probably due to the reluctance to subsidize branches and to the overall fact of treating them as "milch cows"), the same as Moscow universities would be "marketable" more often than those outside the capital. The relevant model allowed for sorting out 74% of the cases (Nagelkerke pseudo-R^2 = 0.718, McFadden pseudo-R^2 = 0.413, adjusted count = 0.474). Despite the roughness of grouping (in addition to creating generalized "families", the whole Russia was divided into Moscow and non-Moscow), the three simple variables were enough to predict accurately the position of about three quarters of the universities[23].

[23] Significance assessment is merely illustrative due to the matrix singularities. Ellipses indicate indefinite values, and positive infinity stands for an indefinite very large number. High coefficients generally point to the presence of private universities as a large category that demonstrates the same economy model almost unfailingly. As private universities are removed and only public ones are left, the coefficients shrink, the Nagelkerke pseudo-R^2 to 0.4 and the McFadden pseudo-R^2 to 0.24. Still, more than half of the universities are classified correctly by the model.

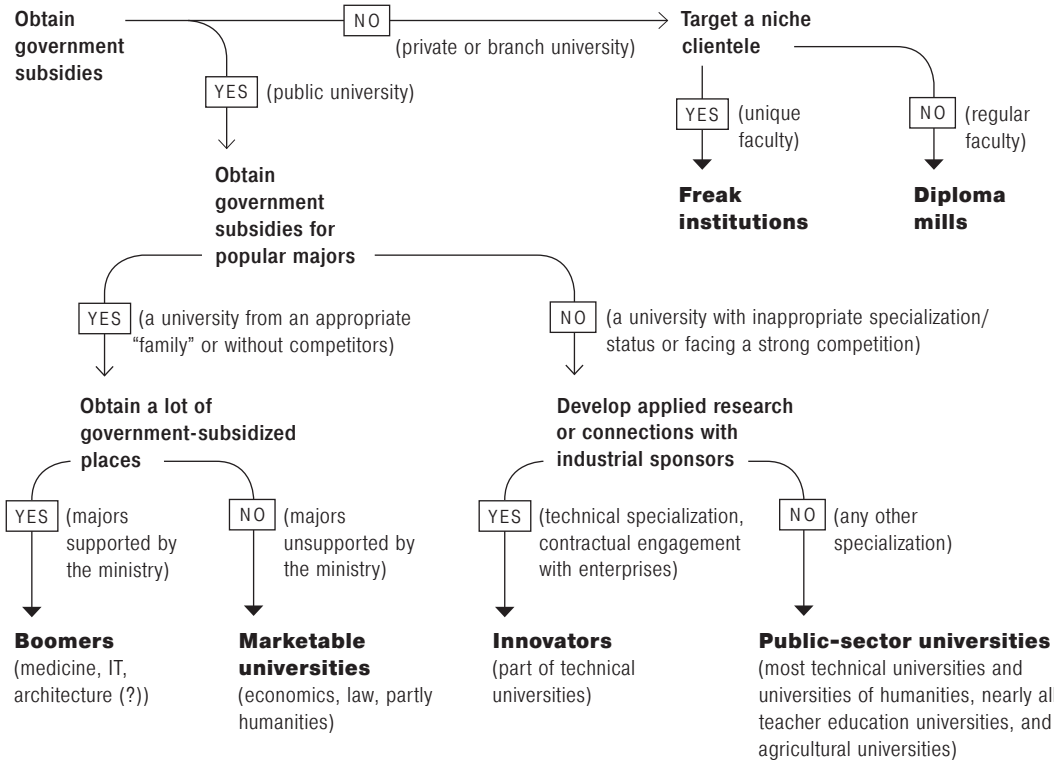
The same body of data was used to assess to what extent our principle of grouping subfamilies into "families" corresponded to their economic peculiarities. Average proportions of different sources of finance were estimated for groups of schools that were merged in single categories in the previous analysis. A line was drawn between universities of culture (unspecialized, 20 institutions) and those of arts (specialized, 19 institutions); transport universities (8 institutions), universities of architecture and engineering (6 institutions) and telecommunications universities (3 institutions) were singled out from technical universities; public administration academies (11 institutions) and mostly legal education universities affiliated to law enforcement agencies (9 institutions) were separated from socioeconomic universities; finally, sports universities (9 institutions) were singled out from "others". Next, average data on the distribution of sources of finance in their budgets was analyzed using multidimensional scaling. Figure 2 shows the resulting two-dimensional solution[24].

The first, horizontal dimension corresponds clearly to the percentage of revenue from fee-paying students, from very high values on the left to low ones on the right. The second dimension corresponds to the proportion of revenue from non-teaching activities, i. e. research and development, contracts, and leasing. High values are at the bottom and low ones are on the top. Universities grouped into "families" in this study are obviously gravitating towards one another: technical, engineering, transport and telecommunications universities form a group at the bottom; public administration academies are close to socioeconomic universities, both types being drawn to private institutions; universities of arts market their educational services slightly better than former institutes of culture, yet the distance between them is not too big. Law enforcement universities, however, fall out of the classification, being "marketed" apparently less actively than predominantly economic ones. The predictive power of "family" grouping could be increased if law enforcement universities had been added to teacher education universities, but they were left where they were to preserve conceptual clarity.

How can this data on university trajectories in the early post-Soviet period be interpreted? A graphic representation is the simplest way to answer this question. Figure 3 shows a tree of decisions that could be considered to be made by universities if all of them had not been made by someone else. The first decision fork is between getting admission quotas and not getting any. Hardly any university would deliberately refuse subsidies, yet private universities had no chance of receiving them at all, and the chances of branch universities getting any were rather limited. Next, non-subsidized universities had two op-

[24] The two-dimensional solution has a stress value of 0.061 and an RSQ value of 0.989, which makes it virtually perfect.

Figure 3. **The forks in the development trajectories of post-Soviet universities**



tions—and here is where something of a conscious choice appears. They could either sell degrees in the most popular majors to the least demanding students at bargain prices or try to target a specific audience or clientele that public universities were unable to satisfy due to whatever intrinsic limitations: e. g. offer religious education or invite teachers who could bring money for their own salaries and only needed an ultimately friendly environment that would allow them to be referred to as professors while presenting themselves to international audiences. The most recent statistical data of the 2014–2016 University Effectiveness Monitoring shows that extreme positions in most dimensions—both positive and negative—are occupied by private universities, which surround the monolith of the public education system. The first behavioral pattern generated "diploma mills", thus actualizing the fourth-type economy model in its low-cost version. The second behavioral pattern produced freak institutions of all sorts (e. g. a private university that obtained the best part of its revenue from research activities), which fitted badly into the statistical clusters.

Moving to the right, i. e. in the opposite direction, a public university that qualified for government subsidies found itself facing the next fork. The subsidized places it could claim for using its status ("fami-

ly" and location) could be in popular or unpopular majors. Further on, even if places were granted, their number varied depending on whether the Ministry treated that major as a top priority. If a lot of places were subsidized, the university would simply grow, diluting its subsidized student population with fee-paying students as it preferred. Although no requests were ever satisfied completely by the Ministry, universities or schools[25] that trained IT experts, architects and physicians came closest to this ideal state. If, however, the Ministry inhibited the expansion of a popular major, it took place anyway but at the expense of tuition fees. The former scenario yielded "boomer" universities oscillating between models one and four, while the latter produced model four—"marketable universities"—in its pure, "high-end" version.

If quotas were granted for unpopular majors, enrollment of fee-paying students was low, and sometimes even subsidized enrollment was close to failure. In this case, additional revenue could be obtained from available resources: premises (quite often, leasing was not the result of voluntary diversification but a signal of distress indicating the inability to fill the audiences), research, and contracts with industrial sponsors. Themajority of such resources delivered the economic model of "innovators", distributed between types one and two. Where there was no room for innovation (universities of culture, agricultural universities, parts of teacher education universities), government funding remained not only the main source of revenue but often the only one.

4. "The research turn" and its winners and losers

This is what the system that had naturally evolved over about 15 years looked like. The key vector of university development was determined by the desire to introduce popular majors, try to obtain government subsidies for them and recruit fee-paying students—the channel that supplied at least 80% of revenues to the system; all other sources of finance were merely small supplements, putting to the side private freak institutions and individual technical universities like Moscow State Technological University "Stankin". The following decade was marked by three changes: (i) the end of expansion and the shrinkage of the education market due to a population decline; (ii) the development of a national policy of encouraging research activities and penalizing universities for insufficient involvement in it in different ways; (iii) the transformation of internal management models to vest more discretion in rectors.

However, did all those changes invalidate the existing hierarchy and provide all the universities with equal chances in competing for

[25] Especially in the case of large classical universities, individual schools or faculties rather than universities as such would fill a specific niche. In the same university, the department of applied mathematics and information technology could be a "boomer", while the law department was "marketed" and the department of physics was teetering on the brink of the "public sector".

Table 5. **Selectivity, research funding and average salaries of universities** (means, medians (italicized), and total number of cases). The 2014 University Effectiveness Monitoring, with no data on branch universities

Belonging to one of the university categories	Average USE score of students applying for government-subsidized places	Average USE score of students applying for tuition-based places	Revenue from research and development per faculty member from governmental sources (thousand rubles)*	University salaries as compared to the mean salary in the region (%)
Classical universities	67.45 *67.62* 88	60.96 *61.10* 88	111.61 *69.64* 88	135.93 *134.96* 88
Polytechnic and technical universities	66.60 *65.66* 137	58.79 *58.35* 137	237.98 *76.85* 139	131.58 *126.25* 138
Teacher education universities	65.45 *65.27* 41	58.68 *58.27* 39	76.86 *34.54* 41	120.09 *116.46* 40
Agricultural universities	57.07 *56.77* 54	54.47 *54.15* 55	37.19 *35.40* 55	113.37 *110.69* 55
Socioeconomic universities and law schools	77.25 *77.30* 50	63.45 *62.17* 54	73.61 *26.18* 59	118.74 *114.23* 59
Medical universities	83.84 *85.56* 48	67.34 *67.47* 48	50.27 *33.42* 48	117.41 *113.44* 47
Universities of culture and arts	66.67 *66.25* 70	63.15 *62.35* 59	75.45 *41.25* 70	103.11 *103.61* 71
Law enforcement universities	58.60 *58.73* 18	53.42 *53.71* 19	47.77 *24.53* 20	119.06 *100.62* 20
Private universities	72.01 *69.55* 31	58.37 *57.98* 241	24.44 *0.00* 298	77.47 *72.24* 296
Total	68.26 *66.62* 537	59.69 *59.15* 740	83.59 *26.83* 818	106.04 *109.86* 814

*This indicator was obtained not from the monitoring but through a series of calculations. The monitoring made an allowance for revenues from research and development per faculty member that came from non-governmental sources but specified neither the total revenues from R&D nor the number of faculty members. However, the latter could be estimated using the percentage of faculty members with postgraduate degrees per 100 students. The size of university revenues from R&D was calculated based on the proportion of R&D in the overall university revenues and the indicator "University revenues from all sources per student". Errors must have occurred somewhere in that series of estimations (or have been contained in the source data), as negative values were obtained in about 5% of the cases (almost exclusively in small private universities). Nonetheless, the overall picture looks sensible and agrees with other data, e. g. the total volume of R&D in a university, which was contained in the source statistics.

leadership? Analysis of statistical data collected as part of the 2013 and 2014 University Effectiveness Monitoring rather suggests otherwise (Table 5).

As we can see, it was mostly two categories of university—technical ones and, to a much lesser degree, classical universities—that benefited from the government capital injections as part of the "research turn". These university categories remained not very popular among students: the average scores of students applying for government-subsidized places were still considerably higher in socioeconomic and private universities (to the extent to which private universities could obtain any subsidies at all—note that the value in this cell is as low as 31). However, low student interest and, consequently, low revenues from tuition fees, were compensated for by the inflow of research funding. The median revenues of technical universities from government research funding were thrice as high as the respective indicator for the whole university population (the mean value exceeding the median by more than three times, which means that only few lucky universities were getting the lion's share of such funding). As a result, salaries in technical universities almost reached the levels of those in classical universities and broke away significantly from salaries in universities of all other types, particularly such traditional losers as the universities of culture and arts or agricultural universities. Apart from receiving direct capital injections, technical universities (or respective departments within universities) stood to gain other advantages, too. In particular, they profited from the launch of effectiveness monitoring, which largely introduced assessments of university effectiveness based on the activities (large-scale studies, contracts with industrial sponsors) that mainly technical universities had engaged in, out of necessity, over the previous decade. What used to be the partial and imposed substitution of the opportunity to offer popular majors to students, in the best-case scenario, suddenly became the key to further expansion. From the moment the Ministry declared its intention to allocate admission quotas as a proportion to research performance monitoring scores, the new hierarchy of universities became a fait accompli.

That was a small revolution, if we understand revolution as a takeover of the best part of resources by a previously subordinate category. It is important, however, that even though the winners swapped places with the losers, the boundaries between them have remained the same. "Families" as a legacy of the Soviet era have preserved their significance, and being part of one of them probably plays a greater role today than ever before.

As a final illustration, let us consider the list of universities that have been converted to national research universities and/or have been made part of Project 5–110. Out of 29 national research universities, 19 belonged to the category "Industrial technology and construction", 8 were classical universities (of which two were converted from pol-

ytechnic universities after 1991), one university was medical and one socioeconomic, and 11 were located in Moscow. Out of the 21 universities participating in Project 5–100, 9 are technical (2 used to be technical not long ago), 11 classical, and one medical (6 were located in Moscow). None of those universities were private and none were located in a city with a population of less than 500,000.

5. Discussion and conclusions

The analysis conducted in this article demonstrates that economic strategies identified in exhaustive studies devoted to typologies of Russian universities—expansion, diversification, etc.—in fact describe different niches, and falling into one of them is largely determined by inherent university characteristics. The choice of a strategy indicates not so much university administrators' intentions as the availability of opportunities for development in each of those variously attractive directions. Throughout the early post-Soviet period, the preferred direction obviously consisted of introducing majors popular among students and obtaining government subsidies for those majors. Public universities that were able to introduce such majors, especially those located in migrationally attractive regions and bearing no stigma of a "branch", evolved into "marketable" academic economies, prosperous by Russian standards. Public universities that were unable to move in that direction had to make do with the miserable government funding or experimented with alternative sources of finance. Private universities, with few exceptions, mostly had to survive by selling education in the most popular majors at undercut prices. The key factor that predicted the development trajectories of public universities was being part of a specific "family", which allowed or did not allow them to be identified as lawful suppliers of popular education in the eyes of officials and high school leavers. To push the analogy with social stratification further, universities may be pictured as divided into a number of unequal dynasties, those being born at the bottom of the pyramid hardly having a single chance of moving to the top.

"The research turn" became the cherry pie for universities which had had to experiment with alternative courses of revenue, such as grants or contracts with industry. However, it did not eliminate structural determinism, as an inclination to such experimenting was determined by whether the university entered the 1990s with a high percentage of internationally recognized researchers, whether it had connections with the surviving industries, and even the region where it was located[26]. Gaining from the "reorientation toward research" was also predicted by inherent university characteristics, and there is every

[26] Thus, analysis reveals that university development is affected by the economic wellbeing of a region and its economic specialization [Sokolov 2013]. It is hard to cooperate with industy in a nonindustrial region. The model's predictive power could be increased by adding new variables to the existing ones.

reason to believe that the contrasts that had emerged in the past were only exacerbated by government capital injections.

Why is there no indication that the emancipation of rectors from the administrative control has made university careers less predetermined by their ascriptive attributes? There are two circumstances that could make organizational behavior difficult to be changed by expanded rector's discretion. First, university development requires tacit approval, as a minimum, or initiative, as a maximum, of the faculty. Rectors can do little with sabotaging their decisions from the bottom; meanwhile, they cannot provide a high employee turnover because of the very low faculty mobility rates and the comparatively high level of employee rights protection. With formal authority or without it, rectors mostly have to develop a *modus vivendi* to coexist with the current faculty. Second, and most importantly, both the numerous decentralized decisions and the rector's centralized decisions will inevitably bump into the same external barriers. Only initiatives that make allowance for external constraints have a chance of being successful, and the list of such initiatives will not change following an in-house political regime transformation.

"Mostly", of course, does not mean "always". This article was not seeking to demotivate those who would like to change their university for the better. More and less successful institutions can be found in any "family" of public universities. Some non-Moscow polytechnic universities became national research universities and made part of Project 5–100, while others did not. There have been examples of universities investing heavily in the development of new majors and becoming leaders in their field, especially when the field itself was booming[27]. The example of private universities can be even more eloquent. Private universities are mostly like as two peas in a pod, occupying the niche that has been disrespectfully referred to as "diploma mills" above; on the whole, they demonstrate the lowest performance in all research and international activities (number of grants, proportion of private research funding per faculty member, percentage of foreign students, etc.). However, there are a few exceptions to this rule. In fact, it was also private universities that performed the best in all indicators according to the monitoring studies of 2014–2016. There is, at least, obviously a multiplicity of market niches that only private universities can fill. One of these ("diploma mills") is comparatively large and others are small, but in any case the fathers and mothers of a private university could choose between them.

The pathos of this text was not to refuse outright the idea of free will and oppose a career as something completely determined from the

[27] The example of the ITMO University is the most prominent one. A higher education analyst trying to predict its trajectory in 1991 would hardly envisage it would become the hotbed of Russia's programming talent. However, this case is unique in too many aspects.

outside by strategy. The word "career" has no such connotations, and they were not implied here. However, career denotes approaching an individual trajectory as the result of contact between internal decisions and external constraints, where external factors are often decisive.

Two practical implications can be drawn from these findings. The first one is essentially methodological. Attempts to build an economic classification of universities, including those contained in this article, are largely irrelevant. The plaques by the main entrance contain the information that is crucial for understanding what type of economy a university will have, which market niche it will fill, and what position it will take in effectiveness monitoring. Such plaques usually indicate the public/private status, the main/branch status, the "family" the university belongs to, and the city it is located in. Development trajectories can be largely predicted using this data[28], which probably renders any other descriptive categories unnecessary.

The second implication bears upon the educational institution effectiveness assessment practices, which came to full fruition with the "research turn". Apiece of old sociological wisdom says that a fair competition among unequal participants aggravates the gap and only serves to legitimize the winner's supremacy as gained "in a fair competition". This is the case with any assessment of effectiveness that does not make allowance for individual factors that affect an organization's behavior. It can reinforce the existing hierarchy or create a new one by reallocating resources radically (which was the case when the palm tree was passed to technical universities), but it cannot do what it is supposed to do, which is provide a reasonable assessment of management effectiveness in a specific institution[29].

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[28] Of course, information on the plaque must not be taken literally. A teacher education university may in fact offer economic and legal education of no premium quality; "teacher education" rather predicts the demand for offered degrees than their actual specialization here, with all the consequences that come with it.

[29] The only way to build a ranking of management effectiveness that comes to mind consists in measuring this effectiveness by regression residuals, i. e. the percentage of deviation from the statistical prediction that can be made for a specific institution, knowing its inherent characteristics. A similar experiment with the 2013 monitoring results produced an entirely new ranking topped by Irkutsk and Tomsk universities. The Ministry has been trying to deal with the problem of inherent differences to some extent by introducing thresholds, rather weirdly adjusted though. As recently as in 2016, the thresholds were tied to regions, not "families", even though the latter represent a much more important determinant of university trajectory.

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