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*Giancarlo Gasperoni**

Author information

* Giancarlo Gasperoni, Department of Political and Social Science, University of Bologna, Italy.
Email: giancarlo.gasperoni@unibo.it

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[Review of the books: La terza missione degli accademici italiani, edited by A. Perulli, F. Ramella, M. Rostan and R. Semenza, R., Il Mulino, Bologna, 2018. ISBN: 978-88-15-27351-2, and Università e innovazione. Il contributo degli atenei italiani allo sviluppo regionale, edited by M. Regini and C. Trigilia, Il Mulino, Bologna, 2019. ISBN: 978-88-15-27943-9]

Expectations concerning the basic functions of higher education have evolved notably over recent decades. Besides performing advanced teaching activities (a core feature of universities since their origins in the Middle Ages) and conducting original research (a goal rooted in the nineteenth-century Humboldtian transformation of European academia), universities have been increasingly called upon to contribute to their communities' economic and social well-being. Or, to be more precise, evaluation of higher education institutions is progressively more centred upon such contributions, which therefore need to be documented within accountability frameworks. This additional function (or some of its components) has been labelled in many ways – “third mission”, “third stream”, “knowledge transfer”, “citizen science”, “outreach”, “community service” – the variety of which confirms the function's structural ambiguity.

A recent PRIN research project¹ on “Universities, Innovation and Regional Economies” – undertaken by the Universities of Florence, Milan, Ur-

¹ PRINs are research projects of national interest funded by the Ministry of Education, University and Research and carried out (and co-funded) by universities and national research institutes.

bino and Pavia and headed by Carlo Trigilia and then Angela Perulli – has produced two volumes reporting original research on the role that Italian higher education institutions and their members play in the “processes of economic and social change” of the environments in which they operate. The first volume, based mainly on findings drawn from a survey of over 5,000 academic staff, focuses on professors’ and researchers’ *individual* contributions to the third mission (TM). The second volume highlights the ability of universities (considered as *organisations*) to contribute to regional growth. The two books collect chapters written by a total of 20 authors, all of whom are sociologists.

The first book begins by tracing the emergence of TM as an autonomous concept and emphasising the *institutionalisation* of long-established relationships between universities and the “outside world”. Initially predicated on market-based activities (involving applied research, entrepreneurship, intellectual property, and so on), the TM notion gradually expanded in order to accommodate non-STEM fields’ socially, culturally and politically relevant interactions with extra-academic actors. The concept’s increasing extension is reflected in changes in the formal assessment frameworks adopted by Italy’s National Agency for the Evaluation of Universities and Research Institutes (ANVUR).

The second chapter lays out – in light of a review of classification criteria drawn from research literature and policy recommendations – the analytical framework underpinning the structure of the questionnaire employed in the sample survey. Four types of TM activities are identified: academic entrepreneurship (commercial use of research); academic engagement (commissioned research, collaborative research, service and consulting provision); human resource development (human capital development); and public engagement (activities reflecting social commitment). The order in which the four types are listed roughly reflects the above-mentioned development of the TM concept. Each of the following four chapters is devoted to one of these types and explores academics’ involvement and perception of TM impact, and the way in which the latter is influenced by a set of other individual and contextual variables, including gender, age, family background, geographical area, field of study, academic rank, research experience, motivations and perceptions vis-à-vis TM, and universities’ organisational features. A methods appendix at the end of the book describes the survey’s sampling strategy, operational definitions used in the structured questionnaire, and approaches to data analysis.

Academic entrepreneurship (operationalised via only two indicators: development of patents and creation of spin-offs) involves less than one-fifth of academics, with higher concentrations in STEM fields. Perceptions of spin-offs’ impact are more favourable than those concerning patents, which

rarely generate revenue. A majority of academics has conducted at least one of the twelve activities pertaining to *academic engagement*, although none of the single subtypes involves more than a third of all respondents. Such engagement is roughly equally divided between institutional and individual initiatives and is seldom motivated by the desire to earn money. The *human resource development* dimension is based on five activity categories (here listed in descending order of empirical incidence): signalling employment opportunities; supervision of students and young researchers; training activities; planning teaching programmes; creation of professional associations and networks. Each of these activities involves only a minority of respondents, most of which are nevertheless identified as displaying at least a “moderate” level of commitment. *Public engagement* is the most thematically problematic TM facet and potentially comprises a vast, heterogeneous range of initiatives, although only six are considered in the survey. A robust majority of academics is “publicly engaged”, mostly via participation in public meetings, conferences and dissemination events.

A final chapter summarises some of the preceding findings and develops a straightforward typology: lack of TM engagement; moderate engagement; specialised engagement (with a high level of commitment in only one TM category); multiple engagement. A majority of academics fall into one of the last two groups. Noteworthy findings include the (surprisingly) weak role played by the North/South divide and university size (both topics lie at the heart of the second book’s structure); the greater incidence of most TM activities in the fields of engineering, hard science, health, except for public engagement, in which a more dominant role is played by academics in social, artistic, and humanities fields; the fact that individuals’ solid levels of TM engagement are linked to strong research performances and social capital accrued in academic settings; societal impact of TM activities is seen as stronger than the latter’s economic effects, and such results are judged more favourably when the scope of the engagement is local or regional rather than national or international.

The third mission is, by and large, embraced by Italian academics and enjoys an appreciable degree of institutionalisation. It also features variety, as well as asymmetry: selected TM activities (contiguous with traditional teaching and research roles) prevail over other (market-based) ones. The (self-reported) impact of TM activities is positively linked with academics’ belonging to supportive universities *and* networks involving people drawn from an array of organisations and institutions. Innovation arises when agency, network, and contextual factors converge, and when university researchers break out of their routines and blend previously isolated resources. In Italy academia-business relationships remain complicated due to the high incidence of small- and medium-size enterprises, which are often unable to

take advantage of research inputs and more interested in short-term benefits.

The research strategy adopted in the first book raises a few issues of method. Firstly, the sample study achieved a 34% response rate – in some ways, an excellent outcome that reflects the research team's efforts to ensure a high level of participation. Even if the achieved sample strongly resembles the target population in terms of geography and fields of study, the authors should have discussed the possible repercussions of the fact that two-thirds of the intended respondents did *not* take part in the survey. Did self-selection filter out academics who are less likely to be involved in TM activities, thus leading to over-estimation of engagement levels? Secondly, the sampling frame included only public universities. The authors should have addressed the potential implications of the exclusion of private universities and their (in all likelihood: strong) TM profile from this portrayal of Italian academics. Thirdly, in some logistic regression models used to estimate the influence of a set of independent variables on TM activities, at least two variables (geographic area and field of study) appear to have been included with a number of dummy regressors that does not adequately account for the original variables' semantic space.

The second book – considerably longer and more detailed than the first, and tightly focused on universities' contribution to regional economic development – is divided into two sections: the first comprising two chapters devoted, respectively, to human capital mobility and economic exploitation of research outcomes; the second, on territorial and size differences, featuring four chapters focusing, respectively, on large universities in the North-West, large universities in North-Eastern and Central Italy, medium-small Northern universities, and Southern universities. These two sections are flanked by an ample introduction and extensive concluding remarks.

The first section's initial chapter marshals evidence showing that Italian higher education institutions and opportunities are homogeneously distributed from a geographical standpoint, that there is a significant flow of enrollees from the South towards the North, and that the movement is even more marked among degree-holders seeking employment. These reciprocally enforcing trends are stronger among males, high performers, and individuals with advantageous family backgrounds, thus cementing extant inequality patterns. Individual universities and their socio-economic contexts benefit from such mobility in expected ways: Northern universities are more capable of attracting students from afar and retaining them in their regions after graduation (yet some institutions stray from this general tendency). In other words, higher education mobility patterns mirror entrenched structural differences in the country's economy and labour market.

The next chapter develops indexes of resource endowment, engagement, and impact for 59 state universities. In general, higher levels of endowment are associated with higher levels of both engagement and impact, yet there are many outliers. Most universities feature low engagement and low impact: TM activities may be acknowledged in policy goals and institutionalised, yet they play a marginal role. The high engagement-low impact combination includes many (mid-size) universities. A small group displays “selective efficacy”: high impact in spite of low engagement. Finally, some universities’ sizeable efforts translate into high impact, but their achievements are eclipsed by the considerable success of a specific institution, the Polytechnic University of Milan, which plays a dominant role in Lombardy and beyond. Also, some high-impact institutions rely on individual researchers’ non-institutionalised contacts with non-academic actors.

Overall, only a minority of universities seem to make a significant contribution to their regional economies. Endogenous factors (potentially controllable by the universities themselves) that help account for an incisive TM include the relative prevalence of STEM researchers, the quality of TM governance, academics’ propensity for project entrepreneurship, publication productivity, and research quality. Effectual exogenous characteristics include the local economy’s propensity for innovation (*per capita* patents) and the regional context’s ability to absorb research outcomes (share of research and development workers in the private sector); regional innovation policies (i.e., public spending) do not appear to play a major role. In sum, the success of TM activities relies on a *conjunction* of drivers that filter knowledge transfer: high STEM-researcher density; efficacy of university governance; academic staff’s entrepreneurship and research quality; favourable conditions in the regional economy. Of course, exogenous factors (and perhaps even some endogenous ones, especially disciplinary specialisation) are hard to change.

The crux of the second volume is found in its second section, devoted to 12 case studies of universities located in 8 different regions (Calabria, Puglia, and Lazio – and thus, unfortunately, Italy’s largest university: Rome’s La Sapienza – are *not* represented). Each chapter provides a comparative portrait of its (2, 3 or 4) cases, including their distinctive features, size, regional competitors, and pertinent survey results (thus establishing a substantive connection between the two volumes). Most interestingly, the internal and external milieus in which each university cultivates TM activities are explored. Drawing mostly from (over 70) interviews with professors, university managers, and businesspeople, the authors provide detailed information concerning TM strategies and structures, organised according to the following topics: technology transfer offices, dynamic scientific-disciplinary sectors, job placement initiatives, spin-off and business incubator programmes, patents and intellec-

tual property protection, research undertaken on behalf of and/or in cooperation with businesses and other organisations, public and social engagement, and interactions with local and regional “innovation systems”.

Perhaps not surprisingly, TM arrangements and outcomes vary from one university to the next, even when their size, geographic location and/or endowments are similar. To a certain extent, the aforesaid conjunction of drivers can manifest itself in many ways, with internal compensations. Higher education institutions can do much to exploit their potential: besides strengthening TM structures (which almost all universities have done as regards technology transfer offices and job placement services), university administrations need to equip them with professionals having organisational and marketing skills; also, they need to refine their identities and, in light of their endowments, the strategic goals they pursue in terms of teaching, research, and TM. A major constraint, however – especially (but hardly exclusively) in the country’s Mezzogiorno – pertains to local economies’ limited ability to absorb university-generated innovation, which requires both the competence and the will to invest in research and development, as well as qualified human capital. Local governance institutions play a relatively minor role, yet the case studies suggest that they too can make a difference in mediating between supply and demand of knowledge (for example by supporting a specific university to the detriment of its regional competitors).

The authors realise that not all their initial expectations are borne out by the evidence and underscore the weight of these unanticipated findings. For example, the distinct types of academic engagement – some of which entail exchange relationships, others reciprocity – do *not* give rise to different TM patterns. Academic entrepreneurship has emerged, counter-intuitively, *later* than other types of TM activities and distances itself from the latter for its *top-down* character. In general, TM activities seem to complement higher education’s traditional teaching and research vocations (and each other), rather than taking on an alternative quality, thus challenging the idea that universities are detached from their communities.

The two volumes usefully point to potential TM measures that ANVUR unduly overlooks (but, on the other hand, ANVUR identifies TM activities – for example, in the spheres of cultural heritage management and public health – that are largely ignored here). They also develop comparisons with other higher education systems; the somewhat limited nature of such appraisals reflects the structural uncertainty that continues to plague the concept of TM. This important and fertile set of studies provides a rich host of original data and insights for gauging universities’ ability to avoid “ivory tower syndrome”, for identifying “latent resources” and “unexpressed potential”, and for developing appropriate evidence-based regional development measures.