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SPECIAL ISSUE

The University and Society

Edited by Juha Tuunainen and Raj P. Mohan



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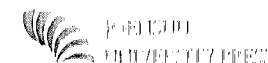
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PRIORITIES, SOLIDARITY AND THE 'WATERING CAN': RESEARCH POLICIES AND CONCEPTIONS OF RELEVANCE IN A LATIN AMERICAN TRADITIONAL UNIVERSITY SETTING

Federico Vasen

Universidad Nacional de Quilmes – CONICET

ABSTRACT

This paper presents an analysis of institutional policies for the promotion of research activities in Argentina's largest higher education institution, the University of Buenos Aires (UBA). Procedures for priority setting and their integration in university governance are discussed. In addition, the theoretical roots of each policy initiative are analyzed and described in relation to the different conceptions of relevance that a science policy may adopt and the suppositions about university-society relationships that may be identified in them. The case suggests that although policymakers intended to develop strategic research initiatives, both the lack of external knowledge demands and academic culture of researchers of following their own agenda, ensured that these attempts ended up in failure. Only a large external event such as the deep economic crisis of 2001 resulted in innovative 'social urgency' projects and a move towards greater institutional social commitment.

INTRODUCTION: UNIVERSITY-SOCIETY RELATIONSHIPS IN LATIN AMERICA

Even considering the great differences that can be found within the region, there are elements to support the idea of the existence of common traits in Latin American universities. One of their main common characteristics is linked to their historical background. Latin American universities have followed the Napoleonic model to a greater extent than the Humboldtian model of institutions. Its main function was to provide training in the liberal professions – doctors and lawyers – and not (as in France) to train high

ranking civil servants. In countries such as Argentina, the university degree conferred a higher social status and contributed to upward social mobility. University-society relationships promoted by this kind of institution are mainly related to teaching and professional training. Law and medicine schools become predominant and this has effects on the profile of the faculty within the whole institution, which are mostly employed part-time by the university. This has also hindered the development of graduate studies, which were not deemed necessary for professional development (Arocena and Sutz 2001a).

Research activities, considered one of the pillars of modern university (Wittrock 1993), are also present in Latin American institutions. Humboldtian ideals of unity of research and teaching, academic freedom for teachers and students and the pursuit of pure knowledge, had a focalized influence within some institutions and periods of history in Latin American universities, but the local situation is far different from the American development of 'research universities' (Arocena and Sutz 2001a, Clark 1995, Morgan 2011). University-society relationships related to research must be thought of differently to those based on teaching. According to the linear model of innovation, basic research – carried out in universities and other academic institutions – is the pace-maker of technological progress, which has a direct impact in society (Bush 1945). This mediate, rather than immediate, link with society resulted in the production of a disciplinary academic knowledge that contributed to the image of university as an *ivory tower*, a place isolated from the needs of the surrounding world.

This viewpoint, based upon the linear model of innovation, was challenged in the last decades of the 20th Century by a new way of conceptualizing university-society relationships. From this point of view, "society" should be primarily understood as industry and the aim of these interactions was conceived of as the contribution to wealth creation through technological innovation. This proposal is not value-neutral; these linkages are not just a fact that is analyzed, they are opportunities worth exploring since the benefits could exist for both parties. According to this proposal, industry could optimize its processes and add value to its products and universities could profit through increased visibility and economic earnings. The benefits of these associations might also exceed both parties because the economic structure of the whole region or country would increase its competitiveness and generate endogenous development (Etzkowitz and Leydesdorff 2000). The imperative of relevance for higher education imposed by Gibbons (1998) is directly related to the production of knowledge useful to users who can afford its development. It is according to these *paymasters'* interests that the

university research agenda should be guided. University should be reorganized and it should itself become *entrepreneurial* to be able to satisfy these demands, also at an organizational level (Clark 1998).

In Latin America these global changes have been translated into the neoliberal higher education policy agenda of international organizations such as the World Bank. Their recommendations included the diversification of university funding (the reduction of public expenditure) through contracts with industry and tuition fees for graduate and undergraduate students (Naidorf 2009). However positions can be found that seek a balance between the possibility of economic development and the commodification of knowledge and university. Universities should contribute to national socioeconomic development and not be co-opted by particular corporate interests. The main obstacle to these perspectives within the region remains the unwillingness of local industrialists to engage in innovation activities (Arocena and Sutz 2001b, 2011).

Any account of university-society relationships in Latin America should also include a reference to the University Reform Movement of 1918, which proposed 'extension' as a third university mission that could *immediately* link university and society. It involved the bringing together of university and the underprivileged through courses and technical assistance that could benefit those who were not able to become students. Extension was part of a wider democratizing program for universities that included the inclusion of student representatives within the collegial governance of the institution. The main purpose of this innovation was to provide a safeguard against the tendency of the faculty to shut themselves away in an ivory tower. Its objectives however went beyond this: this new form of university governance should not only democratize the institution but also commit university to the democratization of society itself (Arocena and Sutz 2005, Bernasconi 2007). The project that inspired the Córdoba reform suggested another way to relate university to society. It is not a relationship of necessity or utility as in the "professionalist" university or the linear model of innovation. The proposal of the reformists was to establish a *political* relationship between the two terms. And this was expressed in two different aspects. On the one hand, extension as a university mission is based upon an institutional political commitment to the poor and to the reduction of social inequality. On the other hand the reform of university governance implies the transformation of university itself into a political arena, a "small democracy" within the big democracy of the country (del Mazo 1955, Naishtat et al 2005).

In keeping with this legacy, Latin American conception of university as a political sphere transformed public institutions in the

1960s and 1970s in the center of the fight for social change (Naidorf et al 2010). In Argentina for example, it was a bastion of revolutionary guerrilla organizations (Landívar 1982, Recalde 2007). Nevertheless the military dictatorships that ruled the region in the 1970s deprived universities of this critical viewpoint through the ideological persecution of scientists and intellectuals and state terrorism (Street 1981). Freedom of thought could only return when democratic governments took office in the late 1980s and early 1990s.

In this paper we analyze university-society relationships in Latin America through a case study of Argentina's largest and most important higher education institution, the University of Buenos Aires (UBA). Our focus is on the institutional research policies implemented by UBA since 1986. The aim of this work is to identify the value-laden suppositions about university-society relationships embedded in research policies. The time period we selected (1986–2006) covers the resumption of academic activities after the military dictatorship, as well as the impact of the *entrepreneurial* university discourse and demand-oriented science policy models of the 1990s. We also explore the consequences of the 2001 economic crisis on the orientation of research policies. Our main objective is to analyze how a prototypical Latin American institution copes with these issues.

In the next section we will introduce the theoretical category of *conceptions of relevance* that will guide us through the analysis of the value assumptions and suppositions about university-society relationships embedded in research policies. In the third section, we deal with the case study of the UBA itself, which is part of my doctoral research. Data for this study was collected through 30 semi-structured interviews with policy-makers, authorities and researchers at UBA, which were conducted between February and June 2010. We have also drawn on institutional documents (resolutions, superior council acts, etc.). Our analysis is qualitative and thematic and was conducted with the assistance of a qualitative data analysis software package (Atlas.ti 6.2).

CONCEPTIONS OF RELEVANCE IN SCIENCE POLICY

This paper is located at the intersection of two issues: the complex and changing university-society relationships and the different ways of conceiving and directing research policy. In the previous section we introduced the first of these questions. Before discussing our case study we will introduce the idea of *conception of relevance* for the analysis of research policy (Vasen 2011). This notion refers to the value judgments on science, technology and society

relationships that are embedded in research policy initiatives. The conception of relevance that is implicitly or explicitly adopted helps in the identification of research proposals that are worthy of promotion and in line with the overall policy orientation. These conceptions can be specified into more concrete criteria for scientific choice, rules that operationalize the conceptions for the allocation of research funding. In our previous research we identified six different conceptions of relevance: a) sectarian, b) national, c) socio-environmental, d) engaged/revolutionary, e) mercantile and f) public. We will now briefly explain the meaning of each one.

We can find *sectarian* conceptions of relevance in the research policies where priorities are determined only by peer-review procedures. The linear model of innovation established in the postwar period freed basic research activities from social demands and enshrined academic excellence above other criteria for the prioritization of research proposals. It is in this respect that we consider that a sectarian conception of relevance is applied insofar as the members of the research community are the only ones with the right to vote on the subjects of future research. That academic excellence is the only criteria does not mean that the concerns for relevance disappear. On the contrary, relevant research is defined as that which academic disciplinary communities believe is important for their own research agendas. It is their interests and values that shape the content of relevance.

In the 1960s United States a concern grew about the coordination of the many research expenditures that were being undertaken within different institutions. Edward Shils (1968) implied that

every country which has a substantial amount of scientific activity, even many of those which have very little, has something like an empirical science policy or, perhaps it would be more accurate to say, science policies. It is not, however, unjust to say that none has a rational and comprehensive science policy (p. X).

Financial resources for research that had seemed endless years before were beginning to shrink and this inevitably resulted in a discussion about priorities for research. One of the main contributions to this discussion was Alvin Weinberg's (1968) proposal of external and internal criteria for scientific choice. Internal criteria were based upon the readiness for exploitation and the competence of the scientists in the field. On the other hand, external criteria referred to scientific merit (relevance to neighboring areas of science), technological merit

(the feasibility of a desired technological aim) and social merit (relevance to human welfare and the values of man). This discussion shows the desirability of criteria for scientific choice that go beyond the assessment of academic peers. 'National goals' are defined as the true objectives of scientific research. Resource shortages and the need to prioritize introduce a second conception of relevance that favors *national* interests over the interest of the academic communities and individual scientists.

Over the years, science and technology began to be perceived of not only as ennobling activities, drivers of socioeconomic development or icons of national prestige but also as producers of undesired social and environmental consequences. In their periodization of science policy, Elzinga and Jamison (1995) term the late 1960s and early 1970s as the "phase of relevance", in which the pernicious effects of technological development on society and the environment were brought into the limelight. An institutional document from the National Science Foundation reveals that

President Lyndon Johnson amended the NSF charter in 1968 specifically to expand the agency's mission to include problems directly affecting society. Now 'relevance' became the new byword, embodied in the 1969 launch of a new, engineering-dominant program called Interdisciplinary Research Relevant to Problems of Our Society (IRRPOS), which funded projects mostly in the areas of the environment, urban problems, and energy. (2000, p. 57)

This concern about social issues arose in the context of the 1960s counterculture in academia and society, including the hippie movement, environmentalism and feminism. Its effects on science and technology policy were related to a critique of military R&D and a growing concern about the environmental consequences of technical development. It was not just a question of reorienting research to social ends. Furthermore, what was being sought was a greater control over and increased participation from these other social actors in the research agenda-setting processes. We find here a third conception of relevance, which we call *socio-environmental*, characterized by its prioritization of actual quality of life over industrial research promises.

In Latin America, the call for social change gained prominence in the 1960s and 1970s. Following the Cuban revolution, intellectuals and researchers sought to promote a scientific practice engaged with the political and social issues of the region. Amílcar Herrera (1971), an Argentinian geologist based in Brazil, criticized the research policy models based upon the supply of knowledge. He

asserted that these policies that were supported by the regional UNESCO office stimulated the consolidation of ties of economic and cultural dependence, which blocked more autonomous thinking about the most adequate scientific development for each Latin American country.

The structure of current scientific development is determined by the directions imposed by the needs of the most advanced countries and not by a 'natural law' that inexorably determines the characteristics of scientific growth. To blindly imitate these models for development means to become a subsidiary in a system conceived for other needs (1971, p. 92).

That the unquestioned transfer of institutional models in science is a mistake is one of the central tenets of Latin American Thought on Science, Technology and Development (Dagnino, Thomas and Davyt 1996, Galante et al 2009). In a more radical vein, Oscar Varsavsky (1972) proposed more than just a reorientation of science towards objectives related to local priorities. He denounced the ideological nature of the mode of knowledge production of that time and intended to build the science needed for a new socialist society. Although this might seem to be a continuation of the *national* conception of relevance we described earlier, it includes a new dimension. In Latin America the problem is not just to coordinate the efforts of different state agencies for the concretion of national goals, but to decolonize research agendas, to show there is a bias in 'universal' science. Therefore we characterize this position as supporting a *politically engaged* conception of relevance or in some way a *revolutionary* one. Thus the relevant scientific knowledge will be one that contributes to the Latin American emancipatory program.

In the 1980s the social agitation gave way to a more conservative agenda in science policy. University-Industry linkages became one of the topics of main interest. In 1980 the US Congress passed the Bayh-Dole Act that allowed universities to retain the ownership of the intellectual property of products developed by federal-funded research. According to Slaughter and Leslie (1997) in those years all Anglo-Saxon countries—with the exception of Canada—enacted policies that treated academic R&D as a source of wealth and favored contracted research. These approaches modified the original "social contract" of relative autonomy established between academic science and society in the linear model (Guston 2000, p. 62). This new contract encourages a greater interaction between scientists and funders and a greater control by the latter over actual research through the inclusion of external criteria in the assessment of proposals. In

addition faculty members are expected to favor research topics that might prove *relevant* to those with funding capabilities. As a result researchers gain access to new economical resources for research and also a higher personal income. On the other hand this new framework entails a reduction in academic freedom and curiosity-driven research. The role of the state is redefined in a new governance structure: it abandons a planning stance and facilitates the relationships between the different actors aiming for the generation of technological innovations.

In our analysis of relevance, it is here possible to identify a *mercantile* conception. “Relevant” becomes research capable of mobilizing interests in the market of public and private sponsors of science. Researchers are forced to adapt their work to external demands since resources are earmarked to a greater extent and its implementation is controlled more strictly. This model entails a complete instrumentalization of academic research. Agenda decisions fall mainly on corporate strategists and policy-makers. In both cases—publicly and privately funded research—the academic community is conceptualized as a branch of executors who will adapt their work in response to economic incentives. While in the classical social contract a sectarian conception of relevance prevailed, wherein prizes were distributed by peers, in these new times relevance is defined by the economic rationality that mediates between the supply of academic knowledge and the demands of sponsors.

Finally, we would like to emphasize the possibility of a sixth conception of relevance: a *public* one. With this proposal we would like to include discussions on the democratization of expertise in studies of science and technology that evolved from the socio-environmental conception of relevance we described earlier. We intend to apply to science and technology policy the extension of the communities of experts that was accepted in technical risk assessment (Irwin 1995, Douglas 2009). Specifically in science policy the proposal is to increase the number of actors capable of decision-making about priorities. In this way, the idea is to open up to public discussion that which is truly relevant in scientific research and technological development. It is centered upon including the points of view of other actors, who have no possibility of becoming funders of research in the discussion about relevance. This intention should not be confused with the Gibbons et al (1994) concept of “social responsibility”. In that case the link between users and producers of knowledge was focused upon profit. “Socially responsible” research was research that benefited industrial interests. In our proposal everybody is qualified to participate and the discussion is institutionally framed, as in risk assessment.

RESEARCH POLICIES IN A TRADITIONAL PUBLIC UNIVERSITY: THE CASE OF THE UNIVERSITY OF BUENOS AIRES¹

Based on the theoretical framework described earlier for the analysis of science policy and university-society relationships we turn now to our case study, the research policies of the University of Buenos Aires (UBA). We will describe the creation of institutional research policies in the late 1980s and their transformations up until 2006. Our main focus will be on the conceptions of relevance expressed in the policy initiatives and the university-society relationships these policies intended to foster.

Let us begin with the basic information about the institution. Although not the first to be founded, the University of Buenos Aires is the main higher education institution in Argentina. It was created in 1821 and quickly adopted a “professionalist” model. Most of the students attended tertiary studies to obtain a title that might allow them to practice liberal professions. Consequently the main schools were Law and Medicine and to a lesser degree, Engineering (Halperin Donghi 2002, Buchbinder 2005). This “professionalism” was common to all the universities in Argentina, with the exception of the National University of La Plata, founded in 1905 according the Humboldtian model of a scientific institution, but soon also reconverted into professionalism. The UBA became the most important institution in the country, both because of its enrollment levels (26% of all university students in the country) and its strong ties to national government. Today the university is still mostly devoted to training doctors, lawyers and psychologists but includes some “islands” where academic knowledge of a high quality is produced (30% of all university research in the country is carried out at UBA). Its main expertise in research lies in the biological sciences. As a result the only three Latin American Nobel Prize Laureates in the sciences were trained at UBA². The University is divided into thirteen schools (Law, Medicine, Engineering, Exact and Natural Sciences, Economics and Business Administration, Pharmacy and Biochemistry, Philosophy and Literature, Psychology, Agronomy, Social Sciences, Odontology and Architecture and Design) and runs a general hospital, a pet hospital, three high schools, an arts center and a university press. The institutional governance is characterized by both impersonal authorities (Rector of the university and Dean of the schools) and collegial bodies (Superior Council of the university, Directive Council of the schools). The collegial bodies have greater power than the deans and the rector and are unevenly composed of tenured professors,

alumni (including most non-tenured professors) and students. The existence of student representatives in institutional governance is part of the heritage of the 1918 Córdoba reform and a regular feature of Argentinean public universities (Kandel 2005, Bernasconi 2007). Most university funding comes from the national government, although the university generates some income for itself mostly out of graduate enrollment fees and knowledge transfer. The relationship with the national government is characterized by a strong autonomy (Schugurensky 1994).

In order to completely describe the institution we can turn to Kulati's typology (2011) which distinguishes three kinds of universities: (a) classical-elite, (b) enterprising and (c) niche-occupying. (a) The first category is comprised of long-established institutions that occupy a position of prestige and enjoy a prominent academic reputation within many national systems. They present a 'bottom-heaviness' in their academic authority structure that provides the academic experts with considerable influence over the research agenda of the university. A consequence of the power and influence that academics wield in the classical-elite university is that the executive leadership tends to be appointed from within the ranks of the senior professoriate as a *primus inter pares* and shares much of their academic value-framework. Therefore the executive leadership is likely to lean towards consensus-seeking approaches to organizational management and decision-making. Changes in organizational culture and governance are slow and cautious. (b) The second type is the enterprising university. Unlike classical institutions whose agenda is set mostly by internal disciplinary interests, entrepreneurial universities are created in response to the emergence of service-sector and knowledge driven economies on the one hand and on the other the pressure to respond to a myriad of demands in their national systems. Although the enterprising university, similarly to the classical-elite, puts emphasis on cultivating excellence in research, it intends to do so by developing closer bonds with its target markets. Classical collegial forms of governance are not suitable for this kind of institution. Within them a strengthened steering capacity that enables more agile and flexible management provides a better reaction to demands from their environments. The key issue decision-making authority can be found in the executive management layer that includes co-opted deans (Clark 1998). (c) The third type of institution, niche-occupying universities have a clearly defined mission, oriented to a particular disciplinary or sectorial field (agrarian, technical, etc.). The institution tries to make use of this comparative advantage through the full articulation of the demands of this specific sector, and also through boundary spanning activities. In most cases the faculty enjoys great freedom to deploy

their initiatives, as long as they are related to the institutional niche. Its organizational structure is dependent on the history of the institution and the time it was created.

According to this typology, the University of Buenos Aires is certainly a traditional university that covers all disciplinary fields and has a collegial consensus-based governance, comprised not only of professors but also alumni and students. It is nevertheless not an élite institution in a plain sense since admission is free (just a high school diploma is required) and there are no tuition fees at all for undergraduates. However, as Altbach (1999) has pointed out in an excessively satirical tone, a 'Darwinian model' is in place at UBA. Although admission and tuition are free, not everyone is able to remain there and succeed in their studies, since there are few student facilities or scholarships for poor students. Only the fittest survive and 'natural' selection occurs though implicit mechanisms. With regards to scientific research, as we will discuss later, the consensual governance finally favors established research agendas and thwarts the prioritization of specific issues by the central research management office.

In this paper we will discuss the institutional research policies of the University of Buenos Aires. 'Institutional' policies are initiatives that are funded and implemented by the university itself and do not include the grants that UBA researchers may obtain from public or private, national or international sponsors. Although the resources that are under the care of institutional research policies amount to just 1.4% of national R&D expenditure (RICyT 2008), their symbolic importance is much greater. They define institutional guidelines for research and fund small groups before they become able to compete for greater grants. Universities in Argentina carry out no less than 30% of R&D, which is well over the OECD average and, in this framework, institutional research policies affect the consolidation of the academic research structure. UBA, in particular, was the first university in Argentina to develop institutional research policies in the late 1980s and its model was later transferred to many other public institutions in the provinces (Interview A). The time period we will analyze covers the resumption of research activities after the military dictatorship in 1983, the neoliberal age of structural reforms in higher education in the 1990s and the social and economic crisis of 2001 and its consequences.

THE RETURN OF DEMOCRACY IN THE COUNTRY AND THE UNIVERSITY

After almost seven years of military dictatorship, in December 1983 Argentina regained its democracy. The *de facto* regime was very harsh on intellectuals and political activists, including scientists, and many were either killed or forced into exile. After a period of reorganization, the UBA reverted to its traditional governance in March 1986 when Oscar Shuberoff was elected Rector by the university's full parliament. Soon after taking office the new administration convened the academic community to a three-day meeting within an isolated Patagonian village to discuss the new projects of the university. After the dictatorship, the main issue was to return the institution to the collegial governance system that was suspended by the military and to discuss the validity of tenures granted during that period. But in 1986, after three years of democracy, these issues had already been settled and there was a need for a new agenda (Interview B). Two proposals emerged: the enhancement of scientific research and the division and reorganization of the thirteen schools in regional centers (UBA, 1986).

The reorganization proposal was very ambitious and was drawn up with the experiences of the University System of California and the University of Paris in mind. However the central administration of the university lacked the power necessary to implement these large-scale changes. Some regional centers were created but the schools remained the main actors. In contrast, the proposal to improve scientific research was warmly welcomed. In 1986 a special Secretariat for Science and Technology (SCyT) was created in the university's central administration and an outside expert, Mario Albornoz, was called upon to fill the position. Albornoz had gained experience in science and technology policy both in Argentina and in Spain, where he was exiled, and had contributed to the restoration of science policy after Francoism. Challenging the institutional culture, Shuberoff appointed a person who was neither an alumni of UBA nor had any previous connection with the university. In an uncharacteristic decision in university governance, expertise in the field took precedence over trade-offs between the central administration and the schools.

THE CREATION OF THE UBACyT SYSTEM: THE 'WATERING CAN' POLICY

During 1986 the SCyT launched many initiatives in research policy: a scholarship program for graduate and undergraduate students, funding for expensive laboratory equipment and a general research grant program. The latter was the first of its kind in Argentina. Its objective was to fund research directed by university professors, regardless of their affiliation to any other research council. Until then most public funds for research were awarded through the national research council CONICET, but only researchers who were members of its system could apply. Admission to CONICET's researcher program was very difficult and many university researchers did not belong to it. For that reason the creation of institutional research policies and an internal university funding scheme were welcomed by the academic community. The creation of UBACyT constituted an assertion of the university that it was a place not just for teaching but also of inquiry. Although many researchers maintained their laboratories within university facilities, until this time their activities were funded and regulated by CONICET⁴. University authorities wanted to express a commitment to research administration and planning, as opposed to just teaching.

One of the main characteristics of the UBACyT system was its focus on "solidarity". Unlike other sources of research funding UBACyT adopted what was termed the policy of the 'watering can'. The amount of funding that the SCyT could allocate was very limited and a clear criterion for distribution needed to be found. As we noted earlier, the military dictatorship had been very harsh on university and research was scarce. The authorities of SCyT chose to assign funding in the manner of a 'watering can'. The meaning of this was that everyone that intended to undertake research should receive some amount of money as an incentive. Nobody received a large sum, but all disciplines and areas of research received something to begin with. Policy-makers followed this analogy. During the first stage, one waters the fields to locate the fertile area and then during the second stage resources can be directed to the areas that proved more fruitful (Interview A and Interview C). Within its initial years, UBACyT became a system that funded everyone intending to do research, ranging from small-time to competitive research groups. In addition, one of the conditions for participation in this program was to have a teaching appointment. Therefore all research funded by UBACyT was meant to have a positive influence on the nexus between teaching and research. Through the scholarship program implemented by the SCyT, young undergraduate students were included in research groups and

this facilitated their later enrollment as graduate students and even university teachers.⁵

Ever since the creation of the system, there had been a discussion centered on the orientation of research and establishment of priorities. The 'watering can' policy was thought to be only a model for the initial stage. As we will describe in the next sections, this issue resulted in many specific grant categories and earmarked resources.

PRIORITIES AND STRATEGIC RESEARCH AT THE UNIVERSITY OF BUENOS AIRES

The first call for grant proposals in UBACyT was opened in November 1986. Its characteristics reflected the work of the previous months. During the second half of 1986 a Delphi exercise was carried out by the staff of SCyT to identify priority areas for university research that included consultation with more than 500 experts. According to the final text of the announcement,

"priorities should be based on the intrinsic importance of the subject, from the perspective of both the development of knowledge and in accordance with a socioeconomic objective, (...) the contribution to teaching, its supportiveness to other disciplines or merely its academic tradition in the university" (Res 860/86, Annex, 1).

The document states that

"the methodology adopted in 1986 intends to migrate from a research system based upon individual projects in which objectives are set by researchers, to a system of priority objectives in which objectives are adapted to scientific, economic, social and cultural societal demands. (...) Following OECD, a science policy does not simply mean a policy for science (...) It should be considered to be a range of means to other objectives" (Res 860/86, Annex, 2.1)

The Delphi exercise generated three types of priorities: 136 general disciplinary fields (for established groups), 41 vacant areas (for new groups) and 14 'socioeconomic issues' divided into innovation-oriented and social development-oriented issues (for *special* research groups). After the review of 591 proposals, 449 were funded: 327 (72.8%) in the category for established groups in general priorities, 35 (7.8%) to new groups in vacant areas, 53 (12.1%) to

special research groups and only 34 (7.7%) projects were not included in any prioritization.

At first glance, it might appear that the entire organization of the grant system (first a Delphi to identify priorities and then a review and classification according to these priorities) attempts to follow the OECD recommendations of an 'instrumental' science policy. However, a closer look reveals that in this case priorities did not have the expected function of focusing research in certain areas. The problem lies in the kind of priorities selected. The 136 general priorities that governed the selection of 72.8% of the funded proposals were only disciplinary priorities selected by the experts in the Delphi exercise, but—as we noted earlier—the academic tradition of the discipline at UBA alone was enough to list it as a priority area. This kind of priority does not contribute to the conception of science as something different from 'policy for science'. The same applies to vacant areas that were only disciplinary vacancies. We can assume that the special research groups that received 12.1% of the grants were mainly oriented towards objectives external to science but scientists might still have strategies for disguising their basic science projects as applied research (Calvert 2006). If we resume our discussion of conceptions of relevance, in this case both general priorities and vacant areas were selected according to a *sectarian* conception. The Delphi exercise was not successful in identifying real societal priorities; it just reflected the trends in the scientific community. One may reflect on the usefulness of a priority-setting procedure that results in a list of 222 items for one university. In the previous section we described UBACyT as a science policy that emphasized solidarity. The 'watering can' model also applied to the selection of priorities. Almost every researcher could be regarded as working in a priority area. In this framework does it make any difference to have one's field listed as one of the 222 priorities?

In 1992 the special grants focused upon socioeconomic issues were discontinued and an initiative called Special Research Programs (PEI) was created. Policy-makers from SCyT recognized that "to attain an effective orientation of research it is not enough to define a list of priority issues" (Vaccarezza 1994, p. 113). The capability of university to respond to societal demands could not be accomplished through mere grant allocation. A greater program to enhance institutional capabilities in the designated areas was needed. The SCyT proposed thematic areas of interest for such programs that were later modified within the collegial governance bodies. For example, if the SCyT proposed "transit problems in the city" it evolved into "urban issues", while "food biotechnology" was simplified as "biotechnology". In this way, the number of professors that could

participate in this program was increased and the issues became more abstract and moved away from the initial social concerns. The intention of policy-makers was to gather all researchers with similar interests, encourage their interaction and coordinate the procurement of expensive equipment for joint projects. The result was not satisfactory. Many of the thematic groups were 'fake programs': the scientists just met to distribute the funding and there was no intention of discussing a joint research agenda (Interview C). Furthermore, in areas more closely related to industrial innovation it became rapidly clear that there was no demand for the outcomes of research. Argentina's industry was being destroyed by neoliberal economic reforms and no company was interested in the technologies the university could develop (Interview D).

The promotion of university-industry links was strong in the 1990s. UBA created a Technology Transfer division in the SCyT and later a public limited company called UBATEC to be able to take part in national public bidding. The objective of these actions was to provide "technological developments that enhance the international competitiveness of local production" (Res 973/90, Annex, 1.3). This orientation prevailed during the second half of the 1990s and can be recognized in the actions of the SCyT. Specifically, in 1996 a special call for "technological development projects" was opened. The objective was to contribute to the realization of processes or prototypes that could be either transferred to industry or used to provide specialized technical services. There were no priority areas, university researchers had to apply together with an external institution or company and UBA granted funding for the project, while expecting to be paid back with the resources obtained from the commercialization of results (Res 4042/96). The results of this experience were again unsatisfactory. There was very little interest from external actors in cooperating with university and researchers were not motivated by the initiative (Interview E). Moreover, researchers opposed these kinds of special initiatives promoted by SCyT since all the funding that was assigned to these special programs was deducted from the traditional disciplinary UBACyT grants that had been running continuously since 1986.

Throughout the 1990s all the afore-mentioned initiatives competed for funding with traditional UBACyT grants, which up until 1997 had very general priorities and from 1998 onwards no priorities at all. In this matter, although policymakers from SCyT tried to establish priorities and earmarked resources for strategic research, the powerful professor representatives in the Superior Council pressed for greater fragmentation so that nobody lost their share. These practices fit Kulati's description of consensus seeking governance in traditional

universities (2011). The 'watering can' model perpetuates itself as the preferred rationale for resource allocation and not just as a way of resuming research after the dictatorship. This dispersion of efforts is the least controversial option in the collegial bodies of governance and conspires against university capacities to establish links with external knowledge demands through prioritization and strategic research. Although in the SCyT we can find intentions and initiatives to leave a *sectarian* conception of relevance, in practice the continuity of traditional grants and the constant reformulation and failure of strategic policies proves that this has not been accomplished. Policymakers faced a double isolation. On the one hand they tried to distance themselves from the fragmented disciplinary needs of researchers through the aforementioned initiatives, but on the other hand knowledge demands from external actors were very weak and a virtuous relationship with them could not be easily established. The strong internal tendency towards fragmentation and the lack of external demands finally caused policymakers to surrender to the interests of researchers that represented the most important supporters of the institutional research policies in the Superior Council.

Regardless of their effectiveness, we can analyze the symbolic orientation of the initiatives for research orientation, the assumptions made about the relationships between university and society. In the strategic research policies designed and implemented by UBA we can identify combinations of three conceptions of relevance: *national*, *socio-environmental* and *mercantile*. In the first years of the selection of priorities for the premier UBACyT call and the PEI the explicit objectives were related to economic development and innovation as well as social development. Although we cannot claim that the university coordinated research activities at a national level, components of the *national* conception of relevance were present as the justification of priorities was made with reference to national development and not the creation of wealth or benefits for industry or the university. This *national* dimension coexists with priorities that are closer to the *socio-environmental* conception such as the inclusion of female workers in industry, sanitary problems and critical environmental conditions in urban slums. In the late 1990s innovation policies were aimed not just towards national development but also towards the capability to generate income for both parties. In those years the university was in need of external funding since the neoliberal reforms in higher education led to a reduction in institutional support from the state. The technological development projects of 1996 include intellectual property issues and promote external funding. Unlike previous initiatives, no priority areas or topics have been defined; it is up to the market to decide where the work of

university scientists should be directed. This fits the *mercantile* orientation of national science policies that conceived innovation as an end in itself regardless of the sector or actors involved. This kind of university-society relationship was encouraged mainly by the *Extensión* Secretariat not by the SCyT, but since 1990, the authorities in the *Extensión* areas of the central administration of the UBA adopted a market-friendly orientation that was expressed in many agreements with business actors for low-complexity technical services, training and internships. The Anglo-Saxon universities were taken to be an enshrined model by *Extensión* authorities (Interview F).

Institutional research policies tried to change the way in which university-society relationships were conceived. As a traditional 'professionalist' university the main link with society was through the training of professionals that society needed for its development. Research policies intended to highlight that university was not only a place for teaching but also for research. This was done through the grant and scholarship system as well as through large exhibitions for the general public where teachers and graduate students presented their research projects ('ExpoUBA' and 'Expobeca'). Although these initiatives tried to bring university closer to the community and might have helped to develop a better public understanding of science, the conception of relevance that was effective in research policies was sectarian and reinforced the position of university as an ivory tower. Through the Extension Secretariat the university focused on generating income through agreements with companies or public administration that did not involve the production of new knowledge. This embodied a demoted version of the entrepreneurial university. However, other external demands were strengthened by the economic crisis of 2001. The lower classes were even more impoverished and university could contribute with its expertise to help them. This led to a return to the original meaning of extension outlined in the 1918 Córdoba Reform and a relegation of the third mission of universities as a funding source.

NATIONAL CRISIS AND UNIVERSITY CHANGES: THE 'SOCIAL URGENCY' GRANTS

In 2002 there is a change in university administration. After 16 years Oscar Shuberoff leaves the rectorate, although he intended to be elected for a sixth four-year period. The coalition that triumphed over him nominated Guillermo Jaim Etcheverry as the new head of the university. Shuberoff had been heavily criticized in his final years, mainly because of unclear budgetary allocations and suspicions of

corruption. In contrast Etcheverry was a prestigious researcher and former Dean of the School of Medicine and represented the center-left faction of university professors, alumni and students. In the Secretariat for Science and Technology (SCyT), Etcheverry appointed Jorge Medina, a renowned researcher in physiology and Laura Noto, a research administration expert from CONICET, as his deputy. Medina was a typical basic researcher who had little experience in science policy and his main concerns were related to the improvement of PhD training at UBA and not the transfer of knowledge to society.

In 2001 and 2002 Argentina had experienced one of its worst economic crises. Unemployment had risen to 20% and the economy had been in recession for more than four years (Schamis 2002). In October 2002 poverty reached its historical peak: 57.5%. In this context, the SCyT was discussing a new call for grant proposals in the UBACyT system. The context forced them to include an interesting innovation: 'social urgency' grants. Although not one of their original platforms, authorities recognized it was time that university made a real commitment to society and not just a theoretical or rhetorical one (Interview G). 'Social urgency' grants aimed to bring relevance to ongoing experiences that were neglected by previous research policies and also to encourage new initiatives.

'Social urgency' projects (SUP) had to be 'directed towards the satisfaction of the needs of vulnerable social groups, with immediate application and fast transfer of results'. UBA acknowledged 'the existence of urgent economic and social problems that might find a solution through the concrete contributions of science and technology' and was confident that the university 'has a potential that could be directed at the search for these solutions' (Res 1542/03, Annex A, 2). Social urgency projects differed from traditional research projects in three further aspects:

- a) *Funding*: While for traditional projects the limit was Ar\$ 15,000, SUP could receive up to Ar\$30,000.
- b) *Review of proposals*: Unlike traditional grant applications, SUP were assessed twice: first by a traditional peer review board and then by external actors (NGOs, unions, professional and trade associations) that assessed not academic quality but social relevance.
- c) *Researchers' background*. Projects that include an interdisciplinary or transdisciplinary framework would be prioritized. (Res 1542.03, Annex A, 1)

The inclusion of an extended peer review procedure was completely new. For the first time a broader conception of expertise

was implemented. Although it is possible that in the Delphi exercise of 1986 some non-academic experts were involved, their effect was limited to the discussion of priorities that had only a very indirect impact on research. In contrast, in the assessment of SUPs the non-academics were involved in the selection and evaluation of concrete research proposals. University authorities wanted to explicitly avoid the disguising or tailoring of basic research as applied (Calvert 2006, Interview G).

The sole idea of 'social urgency' projects devoted to addressing the needs of vulnerable groups implied a radical turnaround in the conceptions of relevance that shaped institutional research policies. The concern about the commercial utility of results and the mercantile conception attached to it disappears and gives way to a strong political commitment. University tries to get closer to the poor and provide them with knowledge that could help them improve their situation. 'Society' is no longer defined as industry as implied in Gibbons (1998). Other societal actors with reduced lobbying power and no funds also start to be considered as society when university-society relationships in research are discussed.

Table 1
Applications to UBACyT 2004/2007 Call

School	Traditional Applications	%	Social Urgency Applications	%
Architecture	67	5%	3	6%
Agricultural Sciences	111	8%	0	0%
Economical Sciences	39	3%	1	2%
Exact and Natural Sciences	330	23%	3	6%
Veterinary Medicine	55	4%	1	2%
Social Sciences	133	9%	8	15%
Law	33	2%	4	8%
Pharmacy and Biochemistry	131	9%	8	15%
Philosophy and Literature	212	15%	4	8%
Engineering	68	5%	3	6%
Medicine	101	7%	3	6%
Dental Medicine	28	2%	1	2%
Psychology	91	6%	9	17%
Basic Cycle	5	0%	2	4%
Institute of Advanced Studies	26	2%	2	4%
Total	1430	100% ^a	52	100%

Source: UBA (2004)

Table 1 shows the differences between the applications for traditional grants and SUPs. While traditional research-focused schools like Exact and Natural Sciences and Humanities topped the charts in terms of disciplinary grants, most SUP proposals came from professional schools such as Psychology, Social Sciences and Psychology. The number of applications in each category also shows that the interest of the research community in these kinds of activities was still limited. The funded proposals included, among others, dental health in poor neighborhoods, multilingualism and basic literacy problems, soil and water pollution, community-run recycling, social housing and child malnutrition.

SUPs were implemented in 2003 and were then also included in the next call for proposals from the UBACyT system in 2005. In a future stage of this research we will analyze the results of these experiences on a deeper level. In 2006 the university went through a severe institutional crisis. Rector Etcheverry left office in May and his successor could not be appointed until December. Students objected to the favorite candidate because of his past actions during the military dictatorship and demanded greater democratization of university governance. The new authorities that took office at SCyT in late 2006 discontinued the SUPs and launched new interdisciplinary programs on climate change, renewable energies and social marginalization. In parallel with these changes, for the first time the Extension Secretariat launched 'extension grants' called UBANEX that were aimed at funding extension projects. Although similar to SUPs, they did not have the two-tier assessment by academic and nonacademic peers and their allocation was more discretionary. Another difference pertains to their orientation: SUPs intended to combine research and intervention, while UBANEX was focused only on direct intervention. From 2006, the Extension Secretariat again embraced the original concept of extension and SCyT focused on strengthening research capabilities in certain areas and continued with the 'watering can' methodology for disciplinary research.

CONCLUSION

In this paper we intended to analyze the content of research policies implemented by the UBA. In the period between 1986 and 2006 we were able to identify changes in the prevailing theoretical frameworks. In the first years, after the military dictatorship that severely compromised freedom of speech and research, the objective of policymakers was to return the university to being a place for research. To accomplish this, the policies implemented adopted the

'watering can' model, distributing small amounts of money to most research groups. But even in this first stage policymakers wanted to determine priorities, as the experience with the Delphi shows. Later, they recognized that listing priorities was insufficient and intended to generate a dialogue between researchers working in similar and prioritized areas. Up until 1994 priorities were grounded in a national-social conception of relevance, the promotion of innovation was considered a means to national socioeconomic development and not to the enrichment of business or university. In the late 1990s priorities disappear and the only strategic research policies are aimed at technological development projects partnered with external actors. Simultaneously the Extension Secretariat begins to generate income through training activities and technical assistance. In this period a mercantile conception of relevance emerges that is resisted by many researchers and students (Schugurensky 1994). The economic crisis of 2001 hastened a change in research orientation. 'Social urgency' projects recognized the social responsibility of university and its capacity to help with the crisis. This initiative had a disruptive character and embodied a politically engaged conception of relevance and confronted the established methodologies of the research community through changes in peer review methods. Nevertheless the traditional governance of the university, in which power lies in departments and schools and not in central administration, blocked the consolidation of a project of university research that went beyond the promotion of research activities as a whole⁷.

Our description of the institutional trajectory of UBA intends to highlight a reflection on the trajectory of Latin American university. At a national level, the 'watering can' model was adopted and adapted by many Argentinean universities (Vasen 2012), and at a Latin American level, the strength of the scientific community in the determination of research policy when external demand is lacking has also been described (Dagnino 2007). Our case study intends to show how a typical Latin American university has dealt with external recommendations about the role of academic research in a new 'knowledge economy' in a very different context from institutions in North America or Europe. It is interesting to highlight the opportunity opened up by the 2001 economic crisis and its impact on research policies, where a new and opposite conception of relevance could be included. In this respect, we believe that the permeability of universities to social demands (derived from the strong local 'extension' tradition) reinforces the idea of university not just as a place for the execution of research activities, but also as an *Agora* where a critical discussion about the sense and objectives of knowledge production can take place.

NOTES

1. See Kitcher (2003) for the concept of paymasters in science policy.
2. This section includes empirical interview work undertaken within my PhD research at the National University of Quilmes.
3. Bernardo Houssay, Nobel Prize in Physiology or Medicine (1947), Luis Federico Leloir, Nobel Prize in Chemistry (1970), César Milstein, Nobel Prize in Physiology or Medicine (1984)
4. University regulated and funded only teaching.
5. It should be noted that undergraduate studies in Argentina last no less than 5 years, making advanced undergraduates good candidates for initiation into research.
6. Finally 11 PEIs were approved: Advanced Materials, Biotechnology, Informatics, Fine Chemicals, Food Technology, Environment, Employment, Public Policy, Regional Integration, Urban Issues and Neuroscience.
7. Even if we consider the changes mentioned, we should be reminded that most research projects funded by the UBACyT system did not belong to these special calls (PEI, technological development, SUPs) but to general disciplinary areas and were assessed through traditional peer review. The greater part of the system still gave precedence to the academic priorities of researchers and their sectarian conception of relevance. In addition to this we should highlight that UBA is still a 'professionalist' university in which no more than 30% of teachers take part in research activities (Interview D).

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