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Original Citation:

Availability:

This version is available http://hdl.handle.net/2318/1743141 since 2020-07-06T12:55:07Z

Published version:

DOI:10.1080/03075079.2018.1506917

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12 October 2024

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Rossi, Federica and Goglio, V. (2018) Satellite university campuses and economic development in peripheral regions. Studies in Higher Education , ISSN 0307-5079. (In Press)

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Satellite university campuses and economic development in peripheral regions

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Abstract

Satellite university campuses – whereby established universities decentralise part of their activities, often to areas previously lacking a university – contribute to the diversification of university systems. While satellite campuses, due to their small scale and limited resources, might perform some activities less efficiently than their larger parent universities, we argue that they are uniquely placed to serve the needs of their localities. Based on the case of a satellite campus in North-West Italy, we show that: (i) the campus' main contribution lies in widening access to higher education to residents who would not attend university in the absence of local provision; (ii) the campus contributes to local development also through research and business and community engagement, and by stimulating local demand for knowledge-intensive services; (iii) research and engagement are more effective for local development where local firms possess relevant absorptive capacity and where there is a favourable institutional framework.

Key words: satellite university campuses; higher education decentralisation; local economic development; economic impact; human capital development

This is a post-print version of the paper published in *Studies in Higher Education*:

Federica Rossi & Valentina Goglio, 2020, 'Satellite university campuses and economic development in peripheral regions' in *Studies in Higher Education*, Volume 45, 2020 - Issue 1
(https://www.tandfonline.com/doi/full/10.1080/03075079.2018.1506917)

1. *Introduction*

As a consequence of the ongoing massification of higher education, university systems across the world have progressively changed from collections of small, homogeneous institutions dedicated to educating an intellectual elite, to large and complex systems that include very diverse institutions in terms of size, specialisation, and particularly institutional missions (Birnbaum 1983; Rhoades 1983; Ulrick Teichler 1988; Ulrich Teichler 2004; Kyvik 2004; Morphew, Fumasoli, and Stensaker 2018). The diversification of higher education systems has taken many forms, including, among others: mission diversification, with some universities specialising in high quality research and postgraduate education, other universities specialising in large scale provision of undergraduate teaching, and yet others (very often technical universities) combining high quality applied research with interactions with industry (Teichler 1988; Kyvik 2004); diversification in mode of delivery, with some institutions specialising in the provision of distance or online learning (Schuetze and Slowey 2001); diversification in access provision, with some universities maintaining strict admission requirements and others embracing widening participation objectives (Schuetze and Slowey 2001, 2002).

Satellite university campuses constitute a form of mainly geographical diversification, whereby existing universities decentralise part of their activities, very often to areas previously lacking a university (Altbach 2012; Pinheiro, Charles, and Jones 2016a). Satellite campuses are usually smaller and more limitedly resourced than their older, larger, and mainly urban parent universities. Hence, they might be less efficient in performing activities that benefit from scale economies (Charles, 2016), and it might be argued that funding would be more efficiently spent in the parent universities. On the other hand, satellite campuses are uniquely placed to serve the needs of their localities, in ways that would not be possible if funds were concentrated in the parent universities; that is, it can be argued that, rather than simply duplicate efforts, satellite campuses can make a qualitatively different contribution.

Building on a diverse literature, this study articulates the range of contributions that satellite university campuses can make to their local economies, by engaging in all of their missions: teaching, research, and business and community engagement. Then, by considering the case of a satellite university campus located in the North-Western Italian region of Piedmont, it analyses the extent to which the campus makes a contribution, which would not occur in its absence, to the economic development of its locality. The research, which involved 449 students, academics and technical-administrative staff (21% of the total population), shows that the satellite campus contributes to local economic development by building local human capital: it facilitates access to tertiary education, reaching a segment of non-traditional students

(e.g., workers) or of people from disadvantaged socio-economic backgrounds, who would otherwise not have attended university. The satellite campus also contributes to economic development by stimulating local demand for goods and services, particularly knowledge-intensive ones, as well as through research and business and community engagement, although this occurs unequally across departments, with greater contribution made by those departments that show greater capacity for integration with local specialisations.

The article is structured as follows. In section 2, we briefly describe the satellite university campus phenomenon. In section 3, we discuss how satellite university campuses can contribute to the economic development of their localities. In section 4, we illustrate the contribution of a satellite campus to its local economy by discussing the case of the satellite university campus of the University of Turin based in the province of Cuneo. Section 5 presents some conclusions and policy implications.

2. *The decentralisation of university educational provision*

Over time, numerous higher education systems have undergone some form of geographical diversification, aimed at decentralising the provision of higher education to peripheral towns and regions (Charles, 2016). In the UK, the Further and Higher Education Act of 1992 granted university status to numerous higher education institutions that provided vocational training, many of which were localised in small and medium sized towns and in economically peripheral regions (UK Department of Education and Science 1991), with the explicit objective of better fulfilling local educational needs. The transformation of vocational higher education institutions into universities continues to this day. University campuses located in peripheral regions are also found in the Netherlands, Denmark, Ireland (Boucher, Conway, and Van Den Meer 2003), the Nordic countries (Makkonen, 2012; Pinheiro, Geschwind, and Aarrevaara 2016). In the United States, some public higher education institutions have been organized into a state-wide system of universities characterized by generalist full campuses sharing the same mission and opportunities but established at different locations, such as the University of California or the University of North Carolina (Creswell, Roskens, and Henry 1985; Kerr 2001).

Satellite university campuses (sometimes called 'branch' campuses) are a particular case of the decentralisation of the provision of higher education. They involve existing universities setting up new campuses, often (but not always[1]) in

[1] Several universities (particularly North-American, British and Australian ones) have developed programs of expansion overseas (in particular in the Arabic Gulf, China and Southeast Asia) which range from the opening of full university branches issuing degree

peripheral regions in which the provision of tertiary education had previously been lacking.

Satellite campuses feature in Australia, where they were created as a consequence of the growing demand for higher education and of institutional concerns towards an equitable provision across the whole territory (Pinheiro, Charles, and Jones 2016a). They also feature in the US, where the phenomenon of universities opening up satellite campuses, often in rural locations (Wolfe and Strange 2003), dates back to the 1960s (Motter 1999; Parkyn 1999). Expanding the student base, by opening to new market niches of under-served students who are geographically constrained by lack of resources or family commitments, has been the main rationale for the in-country development of satellite universities (Altbach 2012). Canadian universities have also experienced, since the 1960s, a period of expansion of branch universities located in remote communities or in rapidly expanding suburbs positioning themselves as providing an alternative to the existing supply of higher education (Addie, Keil, and Olds 2015). These experiences have proven to be beneficial for both students and localities (Niva 2011; Fonseca and Pond 2007), raising participation in higher education of local low-income students who could not afford to move outside of the local community, or to commute over long distances (Frenette 2007 in Addie, Keil, and Olds 2015). In the UK, starting from the 2000s numerous universities have opened secondary campuses, some of which are in metropolitan areas, and some in small towns and rural areas (Charles 2016). Similar demand-driven phenomena have been observed in emerging economies—like Botswana (Oladokun 2010) and Mozambique (Langa 2017), where the opening of new campuses originated in the post-colonial period. The expansion was left largely unregulated, which produced large disparities between institutions in terms of education quality.

In Italy, satellite university campuses are widespread: according to Zuliani (2006), by 2004-05, 80% of Italian state universities had enacted some form of decentralisation of their educational provision (in 52% of cases, also of some of their research activities) to other towns besides their main campus. Considering both main and satellite campuses, in the academic year 2015/16, 56 provinces hosted at least one university campus and 251 towns offered at least one university course (ANVUR 2016).

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programs, to focused joint research ventures (Youtie et al. 2017). Unlike intra-country establishments of satellite campuses, this process has two main objectives: (i) to expand the revenue base represented by international students and boost the image and brand of the university; (ii) to develop partnerships in countries with great potential in terms of economic prospects and human capital supply (Altbach 2011, Olds 2007, Addie, Keil, and Olds 2015).

As in other countries, the rationales for setting up satellite universities in Italy included: facilitating the access of underrepresented population segments to higher education (Pennucci and Mayfield 2002; Briscoe and De Oliver 2006); boosting or preserving the competitiveness of local economies (De Give and Olswang 1999; Allison and Eversole 2008); satisfying new potential demand for education (Morrill and Beyers 1991); consolidating or expanding political or institutional influence over peripheral areas (Pinheiro, Charles, and Jones 2016b). Italian satellite campuses share some common features (Goglio and Parigi 2014). They were rarely set up as a result of deliberate expansion plans enacted by the parent universities (Morrill and Beyers 1991; Knapp, Roffman and Cooper 2009). Rather, most of them blossomed in response to demand from local administrators and other stakeholders (Animali and Seri 2009). The latter also bore most of the costs associated with setting up the infrastructure, resulting in a wide variety of arrangements across the country. Being devoid of autonomous governance structures, these sites are administratively and financially dependent on their parent universities, and are usually located close by, in small and medium sized towns within the same or neighbouring provinces. They offer a very limited number of courses—prevalently at undergraduate level—compared to those available in the main campuses. Moreover, academics who teach at the satellite campuses are permanent staff members, and teach courses also at the main campuses. Some of these features are quite common to satellite campuses internationally: small size, lack of autonomous governance, location in peripheral towns and focus on the teaching of undergraduate courses (Charles, 2016). Others, like the financial support provided by local administrations and the reliance on permanent staff members based at the main campuses, are more specific to the Italian case.

3. *Satellite university campuses as agents of local development*

There is a paucity of studies specifically on satellite campuses (Fonseca and Bird 2007), and the literature in this area, mostly originating from the US, is eclectic, with studies focusing on students' motivations and experience (Hoyt and Howells 2012) and characteristics (McClelland and Daly 1991), on faculty's experience of working in a satellite campus (Motter 1999; Nickerson and Schaefer 2001; Wolfe and Strange 2003), on service provision (Lee 2004) and particularly use of technology (Marx 2005). Few studies have comprehensively discussed satellite campuses' contribution to local economic development. In Italy, in particular, an academic debate on the effects of the decentralisation of universities' educational provision has only recently emerged. This has joined a political debate that often takes on negative undertones. It has been argued, in fact, that decentralisation processes follow logics of political convenience, being motivated by the desire of local institutions to increase their towns' prestige and attract public funding, without an in-depth analysis of the areas'

specific needs (Animali and Seri 2009). This would lead to numerous problems such as the duplication of courses already available at relatively nearby sites; the creation of courses that are redundant, inefficient, and not relevant to the local contexts; and the establishment of campuses based on criteria of economic convenience and political logics, as opposed to a careful analysis of the local demand for skills (Animali and Seri 2009).

On the other hand, numerous international academic studies of universities localised in peripheral regions – including but not limited to studies of satellite campuses – have singled out their benefits, particularly for their host local economies. It has been argued that isolated universities in peripheral locations are of greater importance for the region's development than many smaller universities in core locations, particularly if the latter compete with each other, and that newer and technical universities are more likely to be involved in regional development than older ones (Boucher, Conway and Van der Meer, 2003). The potential contributions of universities to local economic development have been highlighted by a diverse literature, comprising economic geography studies on universities' role in regional development, applied economics studies on the economic returns to education and on the economic impact of specific universities, and higher education research on the peculiarities of campuses in rural and peripheral regions. Integrating some of these findings enables the tracing of an articulated picture, summarised in Table 1, of the potential advantages and drawbacks of satellite university campuses in relation to their contribution to economic development.

1. *Stimulating local demand for goods and services and, in turn, local revenue production and employment.* Probably the most visible effect of the presence of a university campus in a specific location is the increase in economic activity (Florax and Folmer 1989; Bleaney et al. 1992). In fact, the campus attracts students, academics, technical-administrative staff, and various types of visitors (guests, institutional visitors, and seminar, congress, and event attendees) who feed the local demand for goods and services. Furthermore, academics attract additional financial resources, which are also mostly invested locally, through scientific research projects, provision of consultancy and other services, third party research contracts.

2. *Developing local human capital*, in particular: (a) widening access to university education to new categories of students who would not have pursued their studies beyond secondary school, and (b) facilitating access to the (local and non-local) job market.

Table 1
Satellite campuses' contribution to local development: advantages and drawbacks

Areas of potential contribution	**Advantages**	**Drawbacks**
1. Stimulating local demand for goods and services and, in turn, local revenue production and employment	• Attracting academics, students and visitors who spend at least part of their income locally • Generating local demand for more knowledge-intensive services	• Increasing demand for rents and local services leading to price increases
2. Developing local human capital	• Extending access to tertiary education, in particular to student categories who traditionally do not attend university • Facilitating students' access to the job market, both local and external • Encouraging the broader population to improve their competencies	• Duplicating courses that are already held in relatively nearby campuses • Creating courses that are unrelated to the local context may produce human capital that is not demanded locally • Increasing competition with local residents on the job market
3. Increasing local business productivity	• Offering scientific competencies, knowledge and equipment / infrastructure particularly suited to local business needs • Encouraging local entrepreneurship • Encouraging companies to offer more qualified jobs	• The knowledge produced may be irrelevant to local companies • Less focus on research may lead to lower quality of both teaching and research • Difficulties in communication between university and local industry
4. Improving services and physical assets available to the local community	• Attracting public and private funds and external partnerships, delivering local policies, creating infrastructure • Improving local social and cultural activities • Preserving and regenerating physical assets	• Congestion, pressure on local services

Some empirical studies have shown that satellite campuses can make an important contribution to widening access to university education, enrolling many local students who, in the absence of local higher education provision, would not have gone to university after finishing secondary school (Pennucci and Mayfield 2002; Briscoe and De Oliver 2006; Animali and Seri 2009; Bertolini and Melis 2010). These students mainly belong to social categories that are under-represented among the university population: students from families with below-average educational attainment (Cassone 2009), and mature students, already active in the job market (McClelland and Daly, 1991; Goglio 2011). The former might prefer to attend university classes locally in order to contain their subsistence, accommodation and transportation expenses (as they can continue to live with their parents). Choosing to attend a course at a local campus might also enable students to overcome the objections of those families who would expect their children to get a job immediately after secondary school. Mature students would find it difficult to commute away from their workplaces and homes. Using Italian data, Bratti, Cecchi, and De Blasio (2008) found that an increase in the offer of courses or, similarly, the creation of new campuses in a certain region, increases the chances of enrolment for low and middle class students, but not for others. Instead, upper social class students tend to move more to universities outside of their own region. Increases in regional educational provision are linked to higher enrolment rates, but not to higher probability of graduating within the stipulated time frame. This suggests that students use attendance at a regional campus as an alternative to unemployment, or that they more often hold down a job while studying, and therefore require more time to graduate. In regard to this last finding, however, the evidence is mixed: Goglio (2011) found that students enrolled at a satellite campus had, on average, lower dropout rates and faster time to graduation compared to students enrolled at the same faculty in the main university campus.

In terms of ease of access to the job market, some empirical evidence suggests that satellite campus graduates achieve better outcomes than their counterparts from the main campuses in terms of job contracts, pay levels, and success rates in finding jobs more closely related to their field of study (Animali and Seri 2009; Goglio 2011). This may be due to satellite campuses being pressured to hold courses on subjects that are relevant to local needs (Bratti, Cecchi, and De Blasio 2008), but it may also be possible that studying locally makes it possible to nurture formal and informal personal relationships that facilitate access to the job market after graduation.

In the long term, the presence of a local university may stimulate the general population to improve their competencies—for example, by supporting and promoting entrepreneurship and demand for advanced competencies (Boucher, Conway, and Van Den Meer 2003; Abel and Deitz 2012). This may be particularly

important in regions with substantial productivity deficits, that have plateaued at low levels of human capital, and that may find it difficult to retain those resources capable of promoting growth, as they increasingly tend to concentrate in urban areas with higher returns (Parr 2002). Limited research and innovation activities, low demand for knowledge-intensive services and for qualified workers, hinder the development of competencies, as workers have no immediate incentives to develop innovative and creative capacities. The university could then help the region to break out of the vicious circle by which a lack of demand for qualified workers discourages the development of competencies, and a lack of supply of competencies discourages the creation of knowledge-intensive jobs (Arbo and Benneworth 2006). However, such potential needs to be measured against the local context; the degree of development of a local production system is an important intervening variable that mediates the possibility of fully exploiting a university campus's potential (Iacobucci and Micozzi 2012; Pinto, Fernandez-Esquina and Uyarra, 2015).

3. *Increasing local business productivity*, not only by training a more qualified workforce, but also by offering scientific competencies, knowledge and advanced scientific equipment/infrastructure. In fact, the university can make its own research and testing infrastructure available to local firms and offer them consultancy and research services; disseminate national and international scientific knowledge in the local context (Benneworth and Hospers, 2007); facilitate access to scientific knowledge developed externally thanks to its connection to a wider network of inventors and university researchers (Goddard et al. 1994; Keane and Allison 1999). The university can also increase local entrepreneurial activities through the creation of spin-off companies, which create high tech, well paid jobs, and further strengthen the links to their university of origin (Benneworth and Charles 2005).

A study conducted by Cowan and Zinovyeva (2007) empirically confirms the importance of local university research for local business innovation processes. Using data on the creation of new science, medicine and engineering departments in Italy between 1985 and 2000, they find that the establishment of new university departments increases regional innovation activities: not only patents filed by academics increase within a two-year period (which is probably just an effect of the increase in the number of academics working in the region), but so do patents filed by regional firms within a three to four-year period. It can be argued that academics working at satellite campuses are particularly incentivised to pay attention to the needs of the areas in which they operate, as they receive a high share of their funding from local government and local business. Conversely, some recent studies have raised doubts about the ability of universities to greatly contribute to economic development in peripheral regions, due to a disconnect between the university and its surrounding local entrepreneurial and innovation ecosystem (Brown 2016), characterised by low absorptive capacity, which can render the latter unreceptive to

spillovers of knowledge from academic research (Warren, Hanke and Trotzer 2005; Garcia-Aracil and Fernandez De Lucio 2008; Bonaccorsi 2017).

4. *Improving services and physical assets available to the local community.* First, the university can act as a bridge between the local communities and the outside world. In peripheral regions, universities can play a key role in local development policies and provide a hub around which the offer of a wide range of social services can be organised. In fact, unlike firms, universities are relatively permanent institutions and therefore "safer" for development policy measures (Huggins and Johnston 2009). For example, in the US, the support provided to universities for research and innovation had become a channel suited to enacting public health development policies and supporting small enterprises. Similarly, in Cambridge, universities receive national funding for science, education, and innovation, and this generates important synergies and benefits for the surrounding area: universities integrate national policies at the local level (Goddard 2005). Satellite campuses can also attract external capital and investment and set up research and commercial partnerships with other institutions (Arbo and Benneworth 2006).

Second, the university can contribute to local social and cultural activities, by promoting exhibitions, performances, festivals, museum activities, sport events, and other initiatives; these, in turn, increase an area's attractiveness to both tourists and potential new residents (Armstrong, Darrall, and Grove-White 1997). These are the very contributions to the local community that enable a university institution to become more rooted in an area (Chatterton and Goddard 2000). The presence of high numbers of students may have positive effects on the demand for cultural and entertainment activities, on safety, and on the local quality of life (Ohme 2003). However, some negative effects are also possible —such as increased traffic and pollution, rent increases (Armstrong, Darrall, and Grove-White 1997; PACEC 2004), pressure on local services, competition with local residents in the job market, and difficulties in the coexistence between residents and the student population (PACEC 2004).

Third, universities contribute to the development and maintenance of physical assets, enabling the refurbishment of vacant or underused property, developing and acquiring cutting edge scientific instrumentation, preserving historical artefacts, disseminating, preserving and archiving bibliographic, audio-visual, and handwritten materials (Cassone 2009); furthermore, they contribute to urban requalification and regeneration projects (Roberts and Sykes 2000; Perry 2005).

4. *The case of the Cuneo campus of the University of Turin*

4.1 Satellite campuses

The decentralisation of some of the faculties of the University of Turin to the province of Cuneo began in the 1990s. The main aims were to ease congestion at the main campus, and to contribute to local development by investing in higher education. The province of Cuneo is one of eight provinces of the North-Western Italian region of Piedmont, whose regional capital is Turin. Piedmont is one of the most technologically advanced regions in Italy, with higher investment in R&D, particularly business R&D, compared to the rest of Italy (Bodas Freitas, Geuna and Rossi 2013), and scientific and technological performance in line with the EU average (European Commission, 2014). In 2015, per capita GDP in PPP was slightly above the EU (27 countries) average[2]. In the same year, the province of Cuneo's per capita GVA was in line with the regional one, but the composition of economic activity was different[3]. The Cuneo province is more agricultural, with 5.3% of provincial value added generated by agricultural activities (the corresponding regional figure is 1.7%) and low urbanisation (the population density is only 85 inhabitants/sqkm, vs. a regional average of 201 inhabitants/sqkm). The share of manufacturing value added in the province is quite high (34.3% vs. 28.3% for the region). Finally the province is less oriented towards services (60.3% vs. 70%) particularly knowledge intensive ones (26.3% vs 33.7%). The orientation to traditional agricultural and manufacturing activities is underpinned by a lower share of qualified human capital. Census data (Istat 2001) show that the proportion of resident population aged over 25 with a degree is only 6.58%, vs. an average of 8.28% for Piedmont and of 9.51% for Italy. Only seven other Italian provinces have a lower share of graduates than Cuneo.

By increasing the provision of higher education available to residents of the Cuneo province, the satellite campus was meant to reduce the inequalities in the access to education faced by some categories of people, especially mature students and people with limited financial resources. This was also done in consideration of the fact that, in Italy, initiatives aimed at widening access to higher education are few, segmented at the regional level, and chronically underfunded[4]. Local governments thus petitioned individual faculties of the University of Turin to set up some of their courses in the province. The faculties acted individually, without any

[2] Eurostat data from http://ec.europa.eu/eurostat/cache/RCI/# (accessed 23 April 2018)
[3] Provincial and regional data relating to 2015 are drawn from http://dati.istat.it/ (accessed 23 April 2018)
[4] The percentage of students eligible to receive some form of support (tax break, study grant, free lodging) had stalled at around 10%-11% of the university population for around ten years. Further, among those eligible, the beneficiaries were roughly 8% of the university population, with large regional disparities (Laudisa 2017).

coordinated plan from the University. At any rate, the expansion project would have not cost the university anything, as the facilities' refurbishment and maintenance costs and the academics' transfer allowances would be paid by the province and local municipalities[5].

The courses on offer have changed over time. During its phase of greatest expansion, in 2011/12, the satellite university campus was distributed among three towns in the Cuneo province: Cuneo itself, with eight bachelor and one master degree courses; Savigliano, with four bachelor degree courses; and Alba, with one bachelor degree course. Some other postgraduate courses were also present, all linked to the area's agricultural and food production specialisation. In recent years, the satellite campus has rationalised its teaching provision by reducing the number of courses offered. In 2016/17, the satellite campus offered 11 bachelor degree and one master degree courses, some individual classes for another master course, and a Bovine Clinical Specialisation School.

4.2 The data

In order to identify and, in part, measure the economic contribution made by the satellite campus to the local economy, we collected data from both secondary sources and several surveys carried out in 2011.

First, between June and July 2011, we contacted by email all students and staff (academic and non-academic) at the satellite sites (Cuneo, Savigliano, and Alba), inviting them to fill out an online questionnaire aimed at collecting information on some of their economic and demographic features and on their consumption habits in the province of Cuneo. Table 2 shows the numbers of students, academic and non-academic (technical and administrative) staff of the satellite university campus in 2010/11 (data sources: Academic Division and Student Secretariats; Institutional Activity Division, Decentralised Sites Sector, and University of Turin Conventions).

The questionnaires for students were emailed to the 1,759 addresses provided by the Student Secretariat, and yielded 263 responses (14.95% response rate, as summarized in Table 2)[6]. It should be noted that this sample was smaller than the

[5] Interviews with one of the academic directors of the Cuneo site (7 June 2012), and a lecturer of the University of Turin involved in the setup of the Cuneo site (17 October 2012).

[6] The relatively low response rate of the student population was due to the fact that, for most of them, the only available email address was the institutional one supplied to students by the University of Turin, a mailbox used by the university to communicate with the students and only occasionally opened by the latter. Personal email addresses were only obtained for 837 students of the Faculties of Law, Political Science, and Medicine (and 45 of these were found to be invalid). This explains why these three faculties had higher response rates. No significant differences in response rates were found in relation to gender or level of study (bachelor or master degree).

Cuneo student population. The sample included students enrolled in bachelor and master degree courses, but not students enrolled in postgraduate diplomas and in specialisation courses. Moreover, the Agriculture and Economics faculties managed their enrolments through their central office in Turin, and did not provide us with a mailing list of students attending the satellite campus.

The questionnaires for staff were sent to a total of 395 addresses among academic and non-academic staff (both permanent and temporary staff were considered); 186 of them responded (response rate of 47%, see Table 2 for a detailed figures for academic and non-academic staff). The academic body of the Faculty of Medicine is relatively large because it includes numerous clinical personnel employed by the Italian National Health Service[7].

Table 2
Students, academics and non-academic staff of the satellite university campus (2010/11)

Faculty (year established)	Location	Students	Academics	Non-academic staff
Agriculture (1993)	Cuneo-Alba	24	30	3
Economics (2004)	Cuneo	166	26	1
Pharmacy (1999)	Cuneo	168	22	2
Law (1993)	Cuneo	294	18	1
Interfaculty (2002)	Cuneo	114	–	–
Medicine (1998)	Savigliano	452	206	4
Education (2002)	Savigliano	253	25	5
Political Science (1994)	Savigliano	288	43	1
Secretariat, concierge and library				8
Total sample		1,759	370	25
Respondents		263	166	20
Response rate		14.95%	44.86%	80%

Secondly, we sent a brief questionnaire to each of the eight satellite campus faculties in order to collect information about their interactions with the surrounding locality. The respondents were asked to report the activities they had carried out during the year 2010 in the following fields: research (research projects, conferences, and seminars), technology transfer (patent filing and creation of spin-offs), and

[7] No significant differences in response rates were found in relation to gender or campus location (Cuneo, Savigliano, or Alba). The response rate was higher for non-academic staff than for academics, and for the social sciences and humanities compared to science and medicine.

public engagement. We received responses from all faculties except for one (Education).

In order to estimate the economic impact of the satellite university campus on the local economy, we also gathered information from the Convention for university sites in the province of Cuneo, from the University of Turin's budget, and we collected data on the average prices of some goods and services in the province of Cuneo (public transport, hotel stays, cinema tickets, and average daily visitor expenses) by making enquiries at the Chamber of Commerce, at the Municipal Council, and at the regional tourism observatory.

4.3 The impact on the local economy

Part of the research attempted to estimate the economic impact of the satellite campus on the demand for local goods and services and, consequently, on production and incomes. The methodology we adopted, based on the calculation of sector multipliers (Leontief 1936), is commonly used to measure the economic impact of campuses (for a critical review, see Siegfried, Sanderson and McHenry, 2007). Based upon this approach, the economic impact of the presence of a university on the local economy is measured as the sum of three effects: direct, indirect, and induced.

The direct effects are the resources that are attracted into the local economy due to the presence of the campus—i.e., the expenditures directly made by the campus, by the academic and non-academic staff and by the students. To estimate the direct effects, we consider only those expenditures which would not have been made had the campus not been there. These local expenditures generate further positive effects on the economy because they translate into an increase in production factor purchases (intermediate goods and services, pay checks) and, consequently, in a further increase in local expenditures, in a multiplicative cycle. In particular, there is an important distinction between indirect and induced effects.

Indirect effects refer to the fact that an increase in local expenditures leads to an increase in purchases of the intermediate goods and services necessary to meet the higher demand, which increases the level of economic activity in these sectors; in turn, suppliers of intermediate goods and services increase their demand for goods produced by other sectors, setting off a cascade effect. Indirect effects are calculated by applying to the expenditure vector a vector of multipliers—called type I Leontief multipliers, calculated based upon the local economy's input-output table—that provide a measure of how every euro spent in each sector translates into an increase in local income as a consequence of an increase in the local production of goods and services.

Induced effects refer to the fact that an increase in expenditures leads to an increase in received income; this generates further consumption, which, in turn, is translated into further income, and so forth. Induced effects are calculated by applying to the vector of those expenditures that constitute direct effects a vector of multipliers—called type II Leontief multipliers, calculated based upon the local economy's input-output table modified to take into account the share of income that is related to pay checks—that provide a measure of how every euro spent on each sector is translated into an increase in local income as a consequence of locally received incomes.

Therefore, once the direct effects of the presence of the satellite university campus had been calculated[8], we estimated the indirect and induced effects by applying to them the appropriately calculated Leontief vectors[9]. Figure 1 shows these estimates disaggregated by source of expenditure (based on whether the expenditures had been made by the university campus staff, by the students, or by the campus itself).

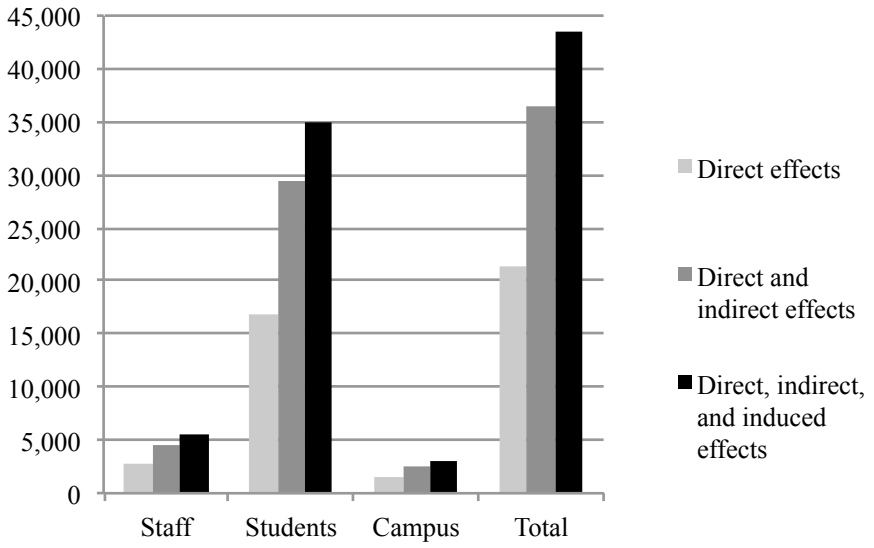
The yearly direct impact of the presence of the campus on the local economy was equal to roughly 21 million euros; most of the economic impact was due to student expenditure and consumption. The injection of these expenditures into the local economy generated an increase in production for a total amount of more than 36.5 million euros (the type I average multiplier was equal to 1.72). Furthermore, the increase in production had further effects on the increase of locally received incomes, which enabled further consumption, with a total effect equal to more than 43.5 million euros (the type II average multiplier was equal to 2.05). In terms of multiplicative impact, the satellite university campus represented the tenth sector in the local economy: a euro invested in the satellite campus generated a lower impact than a euro invested in sectors such as construction, commerce, and bank intermediation, but a higher impact than a euro invested in all other state funded

[8] Table A1, in the Appendix, recaps the criteria used to estimate the direct effects of the presence of the satellite campuses, calibrated to take into account, inasmuch as possible, only of those expenditures that would not have been made in the province of Cuneo in the absence of the campus. Table A2, also in the Appendix, reports the sum of the direct effects of the presence of the campus, classified according to whether they were expenditures made by the campus, by its staff, or by the students. In the case of academics and of technical-administrative staff, the main contribution to the direct effects generated by the presence of the campus was made by the salaries that the campus paid to its Cuneo resident employees who, had they not been working for the campus, would have been living elsewhere (or would have been living within the province but could have been unemployed). The expenditures made in the province of Cuneo by non resident staff represented the second contribution in order of importance. In the case of the students, the main contribution to the direct effects came from the expenditures made within the province by students attracted (either as residents or as commuters) by the presence of the campus, and by students who, in the absence of the campus, would have been residing in the Cuneo area anyway, but would have been studying or working elsewhere.

[9] To calculate the type I and II Leontief multipliers, we used the input-output table for Piedmont (IRPET 2003), as, at the time of the data collection, input-output tables with a higher degree of disaggregation were not available. To estimate the proportion of total family incomes derived from salaries, we further used INPS (2009) and CNEL (2004) databases.

sectors (defence, health, and primary and secondary education). In 2009, the province of Cuneo's GDP was equal to 17,741 million euros (Istituto Tagliacarne 2011). This means that the presence of the campus contributed to about 0.25% of the province's GDP.

Figure 1
Estimation of the indirect and induced effects of the presence of the satellite university campus on the local economy by expenditure source (values in thousand euros, 2010)



It is interesting to examine more in depth some aspects of the demand for local goods and services originating from the campus and its staff and students. The third sector in terms of economic impact (after retail and wholesale trade, and hotels and restaurants) was that related to 'real estate, leasing, IT, research and development and corporate services', with an overall impact of almost 3.5 million euros; while roughly half of this impact was due to student demand for lodgings, the other half was fed by the demand for services generated by the campus's administrative structure, which contracted local companies for services such as security, building maintenance, IT equipment and networks installation and maintenance, and the management of library services. Therefore, the demand generated by the campus, at least in part, had an impact on local knowledge-intensive business services, which, if properly recognised and supported, can play a role in stimulating the development of locally based advanced competencies.

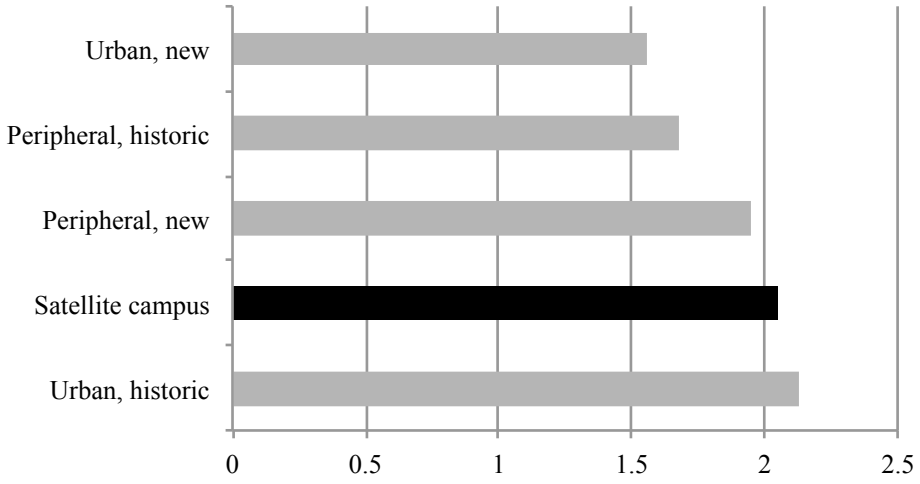
Furthermore, the presence of students and academics contributed to increase the local demand for cultural, sport, and entertainment activities. Survey data report that,

on average, the students allocated to these kinds of activities almost 23% of their monthly expenditures, while, for staff, the proportion was roughly 18%. In particular, we estimate that the presence of the campus (and of its students and staff) increased the local demand for cultural, sport, and entertainment activities by roughly three million euros; taking into consideration the indirect and induced effects, this translates into a total amount of more than 6.3 million euros.

These estimations should be interpreted with caution, as they are influenced by many discretional choices[10]. However, the results obtained in terms of the multiplicative effect are fairly in line with the findings of international studies that, adopting a similar methodology, estimated the economic impact of university campuses on local economies. This can be seen from Figure 2, which compares the multiplier obtained for the Cuneo satellite campus with the average multipliers obtained for university campuses of different types (we have averaged the multipliers obtained across four categories indicating whether the university is located in a urban or peripheral location, and whether it is a historic institution or one founded in the last couple of decades). Interestingly, the Cuneo campus (the only satellite campus in this group of studies) has a multiplicative effect that is close to that of peripheral, recently founded universities, and only slightly lower than that obtained by the most impactful universities, historical ones in urban location. In this sense, the satellite campus was able to generate a multiplicative impact for each euro of public investment that is comparable to that of non-satellite university sites, particularly those located in peripheral areas and recently created. The absolute economic impact is of course smaller than that of large university campuses, given the smaller amount of investment made in the satellite campus.

Figure 2
Comparison with other studies on the impact of universities on their local economies

[10] Among which, for example: the ways in which expenses are allocated to the various economic activity sectors; the estimations of the prices of various goods; the way in which the income differentials of those students who, in the absence of a satellite campus, would not have gone to university, are calculated; the choice of considering all the expenditures of those students who, in the absence of a local campus, would be studying elsewhere while residing in the province of Cuneo (it is likely that, in such an instance, those students would in any case make some of their expenditures in the province of Cuneo); the choice to not consider any of the expenditures made by locally resident staff members who, in the absence of the campus, would have continued to live in Cuneo (if they worked outside of the province of Cuneo, their expenditures within it would be lower), and so forth. While the use of a regional multiplier instead of a provincial one, due the lack of disaggregated input-output tables at the provincial level, may lead to a minor overstimation of the indirect and induced effects, many calculation choices were made with great caution; it is therefore likely that the various effects balanced each other out.



Note to figure 2: this figure is based upon the multipliers published in: Felsenstein (1996) on Northwestern University, USA; Harris (1997) on the University of Portsmouth, UK; Gagnol and Heraud (2001) on the University of Strasbourg, France; Van Lantz, Brander, and Yigezu (2002) on the University of New Brunswick, Canada; Martin and Benoit (2003) on the University of Montreal, Canada; Glasson (2003) on the universities of Oxford Brook and Sunderland, UK; Jafri, Durgam, Jackson, and Pomerenke (2004) on Tarleton State University, USA; PACEC (2004) on the University of Hertfordshire, UK; Quddus, Quazi, Williams, and Langley (2006) on the University of Prairie View A&M, USA; Knapp and Shobe (2007) on the University of Virginia, USA; Shauer and McHelroy (2007) on the University of Texas El Paso, USA; Fondazione Rosselli (2009) on the University and the Polytechnic of Turin, Italy.

4.4 The development of local human capital

The available data highlight that a substantial proportion of the Cuneo university campus students would not have been attending university in the absence of the satellite campuses, which is a net positive contribution to the development of local human capital.

Most of the students who completed the questionnaire resided in the Cuneo province (88.9%); among these, most would still have been residing there even in the absence of the satellite campus (79.4%). Taking into consideration the Cuneo student population who, in the absence of the satellite campus, would still have been living in Cuneo (who we will call 'stationary'), a substantial proportion of them (47%) would have attended the same faculty in Turin, which implies that the lack of a satellite campus would not have stopped them from attending their chosen faculty by commuting on a daily basis.

A non-negligible proportion of them (15.1%) would have attended the university in Turin but they would have chosen a different faculty from the one they ended up attending in Cuneo. Therefore, in order to study in Cuneo, these students settled on a different faculty from their preferred one, which was only available in Turin. Only 7% of the stationary students would have chosen a university other than that of Turin, located either in Piedmont or elsewhere; electing to keep their domicile in Cuneo would have precluded them from attending very distant campuses. Finally, a substantial proportion (33.5%) of students would not have attended university at all, had there been no satellite campus in the Cuneo area.

Let's consider, instead, the resident Cuneo student population who, in the absence of the satellite campus, would have moved elsewhere (students who we will call 'mobile'), which represented 15.9% of all resident students. Of these, most would have elected to study in Turin (51.4% would have attended the same faculty, while 13.5% would have attended a different one), 24.3% would not have gone to university, and 13.5% would have attended a different university either in Piedmont or, more often (10.8%), elsewhere. These students differ from the stationary ones mentioned above in relation to some important features[11]: they mostly resided in Cuneo because of their studies (and not due to family ties); a larger proportion of their income came from their parents and from grants (as opposed to jobs); and they were mostly enrolled in the Faculty of Law. The mobile students' profile was therefore closer to that of more traditional university undergraduates; in fact, they would have gone to university anyway, even in the absence of the satellite campus.

The satellite campus did not strongly appeal to students from other areas. Only 11% of the satellite campus students were non-resident and, among the resident students, a small share (9.4%) had chosen to live in Cuneo specifically to attend university. Had not it been for the satellite campus, most of the latter (54.5%) would have moved elsewhere.

The specificity of a satellite campus should be that of widening access to groups of people who are less likely to attend university. Let's therefore focus upon stationary resident students, who, in the absence of the satellite campus, would not have been attending university. These were mostly workers (80.4%); this differentiated them from the stationary resident student population who, in the absence of the satellite campus, would have been attending university anyway, despite the fact that most of them (53.9%) were working[12]; furthermore, the former

[11] This was based upon a Probit regression on the 'mobile' variable', defined on the 184 students residing in the province of Cuneo, that took a value of 1 if, in the absence of the satellite university campus, the student would have moved elsewhere, and of 0 if he or she would have stayed.

[12] Based on the chi-square test, the difference between these two populations is significant with *p-value* < 0.001.

were self-employed more often (31.3%) than the latter (16.4%)[13]. There were no gender differences between these two student populations.

Overall, the students who, in the absence of the satellite campus, would not have been attending university, were 30.6% of the students residing in the Cuneo area. In relation to the enrolled population, this means that, over the course of one academic year, the Cuneo university campus provided tertiary education to almost 600 students who would not otherwise have continued their studies. Under the assumption that half of these students were first year ones, and that the proportion of those who eventually graduated was in line with the national average (equal to 45% in 2005, according to 2009 OECD data), this implies that, in one academic year, the Cuneo university campus contributed 135 units to the province's graduate population. According to the latest census (ISTAT 2001), the resident population of the Cuneo province was equal to 28,064 units; therefore, the satellite campus increased the local graduate population by at least 0.5% per year. To these students should then be added those who, in the absence of the satellite campus, would have moved elsewhere, and who would very likely have stayed outside the province once they had completed their studies; by retaining these students in the province, the university contributed further to the increase of local human capital. As the share of graduates in the province of Cuneo is particularly low compared to the Italian average, this is a relevant outcome .

Another contribution made by the satellite campuses to the local human capital stock consists of the creation of highly qualified jobs, some of which are taken by individuals who decide to take up residence locally. Of the 166 academics who responded to the questionnaire, 57 resided in the province of Cuneo, and 25 of those did so as a result of working for the university. When answering the question: "Were you not in your current job, would you be living in the province of Cuneo?", all of the latter responded in the negative. Therefore, the presence of these 25 academics (who we can call 'mobile') constituted a net increase of human capital due to the university. Of these, six worked at the faculty of Agriculture and the remaining 19 at the faculty of Medicine. Conversely, the 32 academics who lived in Cuneo for reasons other than their current job declared that they would likely remain there even in the absence of the university (we could call these academics 'stationary'). If we compare the feature of mobile and stationary academics in the same faculties (Agriculture and Medicine), we find no statistically significant difference in terms of their scientific productivity, gender, and role. The proportion of mobile academics in the interviewed sample was 15.1%, which, in relation to the population of academics resident in Cuneo, corresponds to 53 individuals, or the 0.03% of all the province's

[13] Based on the chi-square test, the difference between these two populations is significant with *p-value* < 0.1.

service sector employees. The relatively small size of this contribution could be explained by the fact that many academics were able to commute from Turin instead of moving their main residence to Cuneo.

4.5 Interactions with local business and communities

In order to gain a view of other impacts of the satellite campus on the local economy that are more difficult to quantify, but are nonetheless relevant, we collected information from the faculties of the Cuneo campus pertaining to their research, technology transfer, and public engagement activities in 2010, asking them to indicate the share of those activities that had been specifically targeted to the local context.

In 2010, the faculties had initiated 69 research projects, signed nine research contracts, set up eight paid student internships, and created an academic spin-off (of the faculty of Agriculture), in which the University of Turin held equity, that employed three persons[14]. No faculty declared ownership of patents[15]. Furthermore, in the same year, they organized 64 conferences, 23 public events, three training courses, and a summer school.

Research projects had enabled the satellite campus academics to establish relationships with external partners: overall, 39% of all projects involved six or more institutions and 42% had more than one funding agency. Substantial contributions were also made by private companies, which financed 17 research projects (roughly 25% of all projects) and mainly collaborated with the faculty of Agriculture. Fifty per cent of all projects were worth less than 55,000 euros, while 25% were worth more than 150,000 euros.

Sixty percent of all projects had a local focus—i.e., they concerned topics of interest to local companies and public agencies (they dealt with technologies and methods pertaining to the province's production chains—e.g., chestnut timber, beekeeping, hazelnut harvesting—or with analysing locally relevant issues—e.g., the territorial and functional autonomy of the province of Cuneo). Conversely, a minor percentage of all projects had a national—or even international—focus, such as a study of Antarctic aeolian dust.

Table 3 compares the characteristics of those research projects with a mainly local focus and those with a national and international focus. It shows that the latter, on

[14] We do not have any figures on student entrepreneurship.

[15] We cannot however exclude that some academics may appear as inventors in patents filed by other organisations—e.g., research companies or agencies, a phenomenon that is highly relevant both in Italy and in other countries in continental Europe (Geuna and Nesta 2006; Lissoni et al. 2008).

average, involved a larger number of people and of institutional partners—especially from outside the Cuneo area—and attracted higher funding. Regional Foundations, whose institutional mission is to serve the local area, only funded projects with local focus.

Table 3
Comparison between research projects with local and non-local focus (2010)

Research project characteristics	Local focus	Non-local focus	t-statistic	Significance
Projects[1]	42	22		
Persons involved (average)	9.4	14.3	1.67	*
Local institutional partners (average)	2.1	2.4	0.38	
Non-local institutional partners (average)	4.9	8.3	1.51	*
Funding agencies (average)	1.6	1.3	-0.84	
Average funding (in euros)	153,761	599,730	1.80	**
− MIUR-funded	2.4%	9.1%	1.20	
− funded by other national public agencies	66.7%	50.0%	- 1.29	
− funded by other regional public agencies	19.0%	18.2%	- 0.08	
− EU-funded	9.5%	18.2%	0.98	
− funded by other international agencies	2.4%	4.5%	0.46	
− funded by national foundations	16.7%	4.5%	- 1.39	
− funded by regional foundations	11.9%	0.0%	- 1.69	*
− business-funded	28.6%	31.8%	0.26	

Significance levels: *** 0.001, ** 0.05, * 0.1

[1] The total number of projects is 64 (and not 69) because for five projects we did not have enough information to determine their local or non-local focus.

Based upon these data, it is difficult to quantify the actual contributions made by the projects to the local economy; while, from a purely financial point of view, projects with national or international focus attracted a much larger amount of resources (they were 34.4% of all projects, but accounted for 67.3% of all funding), we have no information relating to how much the knowledge they generated benefitted the local area—e.g., in terms of increasing employment rates or improving business competitiveness. Although not all interactions are the same and it is important to bear in mind that different activities bring different types and amounts

of resources to the territory (e.g. the local economy may benefit less from a conference than from a research project), we can however see how these projects generated a relevant number of interactions between the university and external organisations. The 64 projects active in 2010 for which we have complete information involved 139 collaborations with local institutional partners (61.2% of which pertained to projects with local focus), 388 collaborations with non-local institutional partners (53.1% pertaining to projects with local focus), 96 interactions with funding agencies (68.7% pertaining to projects with local focus), and 19 interactions with companies (63.2% pertaining to projects with local focus). Therefore, although projects with local focus attracted a lower share of funding, they were responsible for most of the research interactions with external actors.

During the same period, the faculties also engaged with the public in several ways. Of the 49 conferences for which we have detailed information, 32 were on local interest topics; the conferences involved, overall, 5,121 attendees (59.9% of which at conferences dealing with local interest topics), 88 speakers from the university and 130 external speakers. Of the 21 public events (such as exhibitions and debates) on which we have information, 19 dealt with local interest topics; the events, overall, involved 2,835 attendees (97.8% of which at events dealing with local interest topics), 43 speakers from the university and 38 external speakers. In addition to these activities, the faculties ran three training courses and a summer school, which, overall, involved 270 participants (67.6% of which participated in courses on topics of local interest, such as forestry), 13 speakers from the university and 34 external speakers. The focus on local interest topics may explain the high public attendance recorded by these initiatives.

A comparison between the various faculties present in the province of Cuneo reveals that the distribution of the research, technology transfer, and public engagement was very asymmetrical. 89% of research projects were run by the faculty of Agriculture. Due to the local economy's strong agricultural tradition, 67% of those were focused upon topics of particular local interest, while the rest were of national interest. The faculty of Agriculture's projects generated 94.9% of all collaborations with local institutional partners, 94% of all collaborations with non-local institutional partners, and 89.5% of all collaborations with firms. Furthermore, the faculty of Agriculture organised 35.4% of all conferences and 47.8% of all other events. These figures are particularly impressive since the faculty of Agriculture only employed 8% of Cuneo's overall academic staff (30 academics; see Table 2), resulting in an average of 2.1 research projects per academic. The high research productivity and high amount of external interactions of Agriculture academics suggests that the closeness of the discipline to the economic specialisation of the local area facilitates the establishment of economically relevant interactions; this is in line with the findings of other studies, which found that local area receptivity is a fundamental

element for the success of the technology transfer (Gál and Ptaček, 2012; Iacobucci and Micozzi 2012; Pinto, Fernandez-Esquina and Uyarra 2015).

5. *Conclusion*

Given that satellite university campuses are smaller and more limitedly resourced than ther historical, larger, and mainly urban parent universities, there could be efficiency arguments for concentrating resources in the parent institution rather than duplicate efforts in other locations. Through the analysis of a case study, this paper shows that the satellite university campus under investigation makes a specific contribution to the economic development of its locality, which would not be realised in its absence, and hence it is not merely duplicating the activities of its parent institution. Although our evidence does not allow us to say whether it would be comparatively more efficient to invest an additional euro in the parent campus or in the satellite one, it suggests that investment in the satellite campus produces qualitatively different outcomes in terms of local development, which would not occur had the investment been made in the parent campus. In particular, we found a range of contributions emerging from the satellite campus.

In regard to the economic impact upon the demand for goods and services, the multiplicative effect on the local economy of the expenditures brought to the local area by the presence of the Cuneo university campus was similar (in relative terms) to that of non-satellite university campuses, particularly of peripherally located, recently founded ones (and only slightly lower than the average multiplier obtained by studies on the most impactful urban historical universities). This impact mainly manifested itself on service supply activities; importantly, there was some impact on the demand for knowledge-intensive business services, which could play a role in stimulating the development of competencies in this area (Pinto, Fernandez-Esquina and Uyarra 2015) which are particularly lacking in the province. The demand for cultural, sport, and entertainment activities also benefitted from the presence of the university, suggesting that it could contribute to increase the attractiveness of the local area. These were, however, small-scale effects, the impact of which could increase were their potential to be adequately recognised and sustained. For example, the reliance on permanent academic staff based in Turin to deliver most of the teaching probably acted as a drag on the ability of the satellite campus to stimulate a local demand for highly qualified competences, and to generate local networks of competences. A strategy to boost the latter might involve recruiting permanent academic staff whose teaching and research activity is entirely based at the satellite campus.

More relevant was the campus's contribution to the development of the province's human capital: the presence of the satellite campus increased the province's graduate

population by 0.5% every year, besides retaining in the province many students who, in the absence of the satellite campus, would graduate elsewhere. The evidence confirms the findings of other studies conducted on satellite campuses—i.e., that those who benefit the most from them are non-traditional students, who tend to be older, often work for a living and are not financially supported by their parents. While Charles (2016) based on case studies of six rural campuses in the UK, suggested that the educational benefits of these campuses might be quite limited, we were able to quantify this contribution and found it to be not negligible. Increasing Italy's graduate population would be important in relation to closing the country's gap with most other advanced economies. Between 2000 and 2016, the proportion of graduates in the overall 30 to 34 year old population has increased[16] from 11.6% to 26.2% (Eurostat database)[17], but, being only higher than that of Romania, it is still lagging behind all other European countries and is much lower than the European headline target of 40%. Moreover, promoting access to university education for mature students is one of the linchpins of the continuous education strategies promoted by the EU, with respect to which Italy is lagging behind.[18]. In both of these respects, it appears that satellite campuses can perform an important role.

With the data at our disposal, we were neither able to estimate the economic impact of research and technology transfer activities conducted by the satellite campus academics—e.g., on the local companies' innovation processes—nor to compare the performance of satellite campus academics in these contexts with their counterparts at the main university campus. However, our findings suggest that satellite campuses are able to contribute to local development through research and business and community engagement. Research projects were particularly focussed upon local interest topics, and involved, on average, a high number of institutional partners (both from the province of Cuneo and external to it) and of external funders, including companies. Research projects with local focus generated the most interactions with the local communities. Numerous conferences and events, many of which were also focused upon local interest topics, generated significant public participation. Some factors turned out to be important to promote locally focused projects and interactions. First, local funding bodies were crucial in promoting research that has local focus and that is able to generate local impact. Hence, the presence of local funding bodies is important for local development, as international

[16] Mostly due to the reduction of the duration of undergraduate courses from four to three years, in line with the 'Bologna process', which enabled many already enrolled students to quickly complete their studies (Giannessi 2006). The possibility offered to many public sector workers to quickly graduate by utilising training credits also fed this phenomenon.

[17] Data extracted from the Eurostat Europe 2020 Indicators databse: http://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy/headline-indicators-scoreboard (last accessed on the 23rd of October 2017).

[18] According the Istat data for 2016, only 8.3% of individuals aged between 25 and 64 had attended a training course within the 12 months preceding the survey (ISTAT 2017).

projects are less likely to foster relationships with the local context (Rego, 2006). Second, the faculties' ability to set up economically relevant interactions with the local area seems to be partly a function of the closeness of the latter's discipline's context and the latter's economic specialisation.

This study represents a first attempt to comprehensively frame the potential contributions made by satellite campuses to the economy of their local areas, and to estimate the size of some of them. However, it focuses on a single case, and any generalisation to other contexts, in Italy and even more so internationally, must be handled carefully. In order to further deepen our understanding of such contributions and of the role played by satellite campuses in local economies, it would be relevant to carry out case studies of satellite campuses in other contexts, as well as comparisons between satellite campuses and older urban universities in terms of how they respond to the demand for skills and how they perform research and business and community engagement activities. It would also be useful to analyse in greater detail the interactions between a satellite campus and its local institutional and production context, deepening our understanding of the relationship between a university's strategies in terms of its integration with its local area on the one hand, and the local area's ability to respond to such stimuli on the other.

Appendix

Table A1
Distribution of the responses to the sample survey by category, and of the related expenditures considered in computing direct effects

Response category	Response %	Equivalent population	Direct effects considered
ACADEMICS			
Not resident in the province	65.7	242.95	Expenditures made in the province of Cuneo
Resident in the province − in the absence of the campus, would reside elsewhere	15.1	55.72	Whole pay check
− in the absence of the campus, would reside in Cuneo anyway	19.3	71.33	Income differential
Total	100.0	370.00	
TECHNICAL-ADMINISTRATIVE STAFF			
Not resident in the province	80.0	20.00	Expenditures made in the province of Cuneo
Resident in the province − in the absence of the campus, would reside elsewhere	5.0	1.25	Whole pay check + visitor expenditures
− in the absence of the campus, would reside in Cuneo anyway	15.0	3.75	Income differential
Total	100.0	25.00	
STUDENTS			
Not resident in the province	11.6	203.23	Expenditures made in the province of Cuneo
Resident in the province − in the absence of the campus, would move elsewhere	14.7	259.29	Expenditures made in the province of Cuneo, comprehensive of lodging + visitor expenditures
− in the absence of the campus, would reside in Cuneo anyway but would study elsewhere	49.0	861.98	Expenditures made in the province of Cuneo
− in the absence of the campus, would reside in Cuneo anyway but would not study	24.7	434.49	Income differential

Table A2
Estimation of the direct effects of the presence of the campus in the province of Cuneo (values in euros, 2010)

Sources of expenditure	Categories of expenditure	Amounts
Campus	Management expenses	857.103,02
	Operating expenses	474.119,20
	Institutional activity visitors	171.301,88
	Spin-off companies	83.945,84
	Total	1.586.469,93
Staff	Salaries (including income differentials)	1.656.557,59
	Visitors	67.424,70
	Various expenses	993.363,18
	Total	2.717.345,46
Students	Income differential	3.846.008,68
	Visitors	318.470,10
	Various expenses	12.783.055,77
	Total	16.947.534,56
	Total direct effects	21.251.349,95

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