The impact of Higher Education on socioeconomic and development dynamics: lessons from six study cases

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It has long been recognized that human capital, innovation and investment in research and knowledge are fundamental for obtaining sustained growth and social cohesion. HEI as major centers of knowledge and learning were confirmed in the 90's, on the scope of the so called Knowledge- Based Society, as a kind of engine of innovation, crucial to sustain the socioeconomic competitiveness of countries and regions in the global economy.

The debate about the role of HEI in society is often characterized by misunderstanding, over simplifications and/or an absence of evidence. It has often been limited to arguments about the market or 'close to market' activities of higher education institutions; with a particular emphasis on research and teaching that has a direct relevance to business and industry and is relatively easy to measure. This skews the argument, undermining the huge value of the total social benefits the sector brings.

The paper that we intend to present focuses on the gravitational effects that the presence of an Higher Education Institution (HEI) has in a territory, mainly related with the rejuvenation of the population through the attraction, each new academic year, of new young students and, afterwards, at the end of the training period by the fixation of new permanent residents. To the effect on the population dynamics it must be added economic and cultural effects as well, which in a greater or lesser degree, induce and transform the territorial "DNA".

From the analysis of 6 case studies: 4 Higher Education Institutions from Portugal (Universities of: Porto, Évora and Algarve; Polytechnic of Beja) and 2 HEI from Spain: Alcalá de Henares and Lleida, we will reflect on what is the role (and proof it with data collected) that higher education has as mainstay of territorial cohesion and sustainability, particularly in areas of low density. Each euro invested in higher education has an important and significant return and multiplier effect in the economic, employment and innovation dynamics and vitality.

Keywords: Higher Education, Regional Development, Socioeconomic Impacts.

1. INTRODUCTION

Higher Education Institutions (HEIs) are commonly recognized as organizations that not only provide for education, training, and applied research but are also key players in the socioeconomic dynamics, due to the interaction established with local, regional, and national administration, with companies and several non-governmental organizations, both public and private, with which they combine synergies for the benefit of economic activity and the qualification and development of the people who inhabit their territories and those who are attracted to the region.

The impact of an HEI clearly exceeds the effect inherent to the presence and daily action of an academic community comprising students, teaching and non-teaching staff, and researchers, among others. The activity of an HEI transforms the social biorhythm, the cultural DNA, and the economic pulsation of a territory. It induces value! A value which is measurable by the cash flow it generates, by the expenditure and revenue it promotes, by the volume of human resources it qualifies, by the expert consultancy it provides, by the applied research it produces, fostering the surge of new products and services. To these aspects, one could add other assets, more difficult to quantify, related to the cultural dynamics it promotes, the scientific activity it ensures, the profile of social participation and citizenship it creates, in conclusion, those key-factors of the socioeconomic structure of any community, particularly in regions considered as of low-density.

In a context in which, in Portugal, as well as somehow across Europe (mainly in the countries[1] assisted – directly or indirectly – by the International Monetary Fund (IMF), the European Central Bank (ECB), and the European Commission (EC)), there is great discussion about the role of the State in education and, more precisely, about the value of the mission and role of higher education in society and economic dynamics, we found it important to characterize the real impact of public HEIs on the territory where it are located.

Quantifying the impact of an HEI makes it possible to find answers to questions related to the degree of influence and importance it may have within the socioeconomic dynamics of its territory. The study cases carried out gives evidence, with measurable data, of the vital strategic role the HEIs play in the economic and social survival of the territories, particularly the low-density rural ones.

By selecting the six (6) identified case studies, we tried to gather objects that could present distinct social and geographically realities: the case of HEIs located in low density regions (in population and socio-economic terms) and, others, located in more populous municipalities/regions and with greater economic dynamism.

Additionally, the analysed HEIs have different organizational profiles: the Universities of: Algarve, Porto, Évora, Alcalá de Henares and Lleida, belongs to the university system and the Polytechnic Institute of Beja, to the polytechnic system, that exists in Portugal.

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[1] Ireland and Greece, under financial assistance, and Spain, Cyprus, and Italy, indirectly assisted.

The combination of these six case studies arises from a challenge made by the research team of the Polytechnic Institute of Beja (who is also the author of this paper) in bringing together in one book[2] the comparative analysis of the results achieved in the individual studies, given the fact that they share the same goal: to understand and quantify the socioeconomic impact of a HEI in the local/regional economy.

Despite the obvious social, economic, historical and cultural differences (particularly from two different countries) the combined analysis of the data, corroborates consistently the thesis that the investment in education has structural impact in the socio-economic dynamics of the communities.

2. STUDIES ON THE SOCIOECONOMIC IMPACT OF HIGHER EDUCATION INSTITUTIONS (HEIS): MODELS AND TYPES OF APPROACH

In Portugal, only very recently have the studies on the socioeconomic impact of HEIs gained some significance, unlike what happens in the USA[3] (where such studies have been conducted since the 1960s), and even the rest of Europe (where the impact of HEIs has been studied in the United Kingdom[4], France, Austria and Spain[5].

The history of socioeconomic impact studies reveals two different yet complementary stages, in what methodological approaches are concerned.

In a first stage, particularly between the 1970s and the 1990s, predominated studies based on models that determine the demand-side impact and the dynamics generated by expenditure. Among these, you can find the so-called ACE model, developed by Caffrey and Isaacs.

From the 1990s onwards, and complementary to this demand-side approach, many other studies and models have been introduced, now focusing on the assessment of the impact provoked by the outputs produced by HEIs, that is, on supply-side impact analysis. Within this framework, these studies analyze the impact of HEIs resulting not only from the education

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[2]   Saúde, Sandra *et al*. (2014). *Os impactos Socioeconómicos do Ensino Superior: um retrato a partir de estudos de caso de Portugal e Espanha*. Lisboa: Edições Sílabo.

[3]   In the USA, it is common to conduct these impact studies in every university, both public and private. In many cases this is done yearly. Several of these studies are available at http://tbed.org/economic-impact-studies-document-library/.

[4]   In the United Kingdom impact studies are regarded as demonstrative of the universities' social and economic responsibility. These studies are encouraged by central and regional governments and co-funded by the structures representative of Universities in the UK. The reports "*The impact of higher education institutions on the UK economy*", from 1997, 2002 and 2006, coordinated by the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, are good examples.

[5]   From the 1990s onwards, several studies have been carried out in Spain, among which we can refer those conducted at the Universities of Lleida (Sala *et al*, 1999), Rovira i Virgili (Segarra, 2003), Vic (Parellada and Duch, 2005), Alcalá (Garrido-Yserte, 2006), and Jaén (Garrido-Yserte *et al.*, 2008), at the Valencian universities (Pastor and Pérez, 2009), at the University of Granada (Luque, *et al.*, 2009), and at the Universities of Cantabria, Castilla La Mancha, Pública de Navarra, Islas Baleares, Extremadura, Zaragoza and UNED (Pastor and Peraita, 2010a, 2010b, 2010c, 2010d, 2011a, 2011b, 2012a). Some other studies analyze the contribution of the Spanish university system as a whole, such as the recent work by Duch *et al*. (2008), by the CYD Foundation (2004, 2005 and 2007) and by Pastor and Peraita (2012b).

provided and the qualification of human resources but also from applied research and innovation and technological transfer.

From a standpoint of combined logic in impact analysis, the approach centered on the I-O (Input-Output) model gained particular relevance. It was the most commonly applied in studies conducted in the 1990s, especially in the USA. Still within this second stage in the development of impact studies, it seems relevant to stress the greater interest in exploring and demonstrating the relationship between HEIs and regional development. Studies developed within this framework include:

- Karlsson and Zhang (2001): which aims to demonstrate the interdependence between knowledge, human and social capital, regional dynamics of the labor market, competitiveness and productivity.

- Ehrenberg (2004): which explores and compares the diverse econometric models applied/applicable to higher education result indicators such as: the return on investment rates, the dynamics and behavior of the labor market, the behavior of industry.

- Siegfried *et al*. (2007): which, from the analysis of major weaknesses in the economic impact studies conducted before, offers suggestions as to the procedures that must be taken into account when exploring the impact induced by supply, with particular emphasis on the effects related to medium and long-term impacts of the knowledge produced.

Both the studies focusing exclusively on the estimation of economic impact and those which attempt to explain the relationship between HEIs and regional development, or even the ones that seek to combine demand-side and supply-side analyses, all conclude that the impact and vital boost of HEIs on local and regional economy are undeniable. Regardless of the methodology applied, this is a consensual conclusion, common to the different "schools" of impact studies, whether in the USA (the pioneers and greatest supporters of such studies), or in Australia, New Zealand, and even Europe.

## 2.1. Estimating the demand-side socioeconomic impact

Due to their daily activity, all HEIs generate expenditure, which, directly or indirectly, influences the economic activity and trade flows of the territory. According to the models that estimate the socioeconomic impact created by demand, the following consumption "agents" can be identified:

1.   The HEI itself, due to current spending inherent to its regular activity;

2.   The HEI's employees: faculty, researchers, and other staff;

3.   The students;

4.   Visitors to students, staff, and the HEI itself (researches, other students, and external collaborators).

HEIs, as well as their collaborators and students, increase the money supply in circulation, due to their direct and indirect consumption. This circuit (see Figure 1) produces multiplier effects

inherent to the interdependent consumption chain: purchase, new consumption, and new purchase.

Figure 1. EXPENDITURE FLOW MODEL
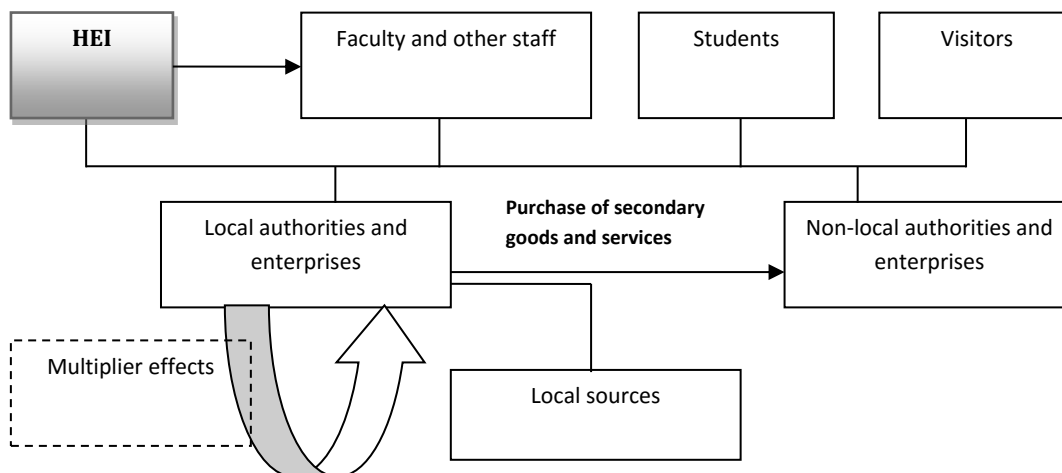
Wages

Source: Adapted from Caffrey and Isaacs (1971).

If identifying expenditure and consumption of HEIs is easy, based on the values controlled and calculated by their financial offices, the same does not happen in what concerns the students', employees' and visitors' consumptions. In this case the estimation can be obtained indirectly, through standardized indicators of economic activity, by resorting to the I-O model, or, directly (which some authors consider more reliable), through the application of questionnaires aiming to determine the values and the type of expenditure involved.

When estimating the demand-side impact, more specifically through the ACE model, the calculation structure will additionally imply the examination and discrimination of the effect of purely local businesses, i.e. carried out by local suppliers. It will also include the multiplier effect this consumption has on the production and sales chain. In order to estimate the total volume of the impact, it is necessary, in what this model is concerned, to complement the data obtained through the questionnaire (applied to students and staff) with the data provided by the institution and by several official sources[6], and also to apply the Retail Gravity Model to determine the factor of purchase (Caffrey and Isaacs, 1971). The Retail Gravity Model is based on Newton's gravity equation and defends that the amount of money spent on non-housing expenses is inversely proportional to the square of the distance to the point of sale (Ryan and Malgieri, 1992).

The ACE model involves the need to estimate the global economic impact of an HEI, based on three (3) vectors, according to Caffrey and Isaacs (1971):
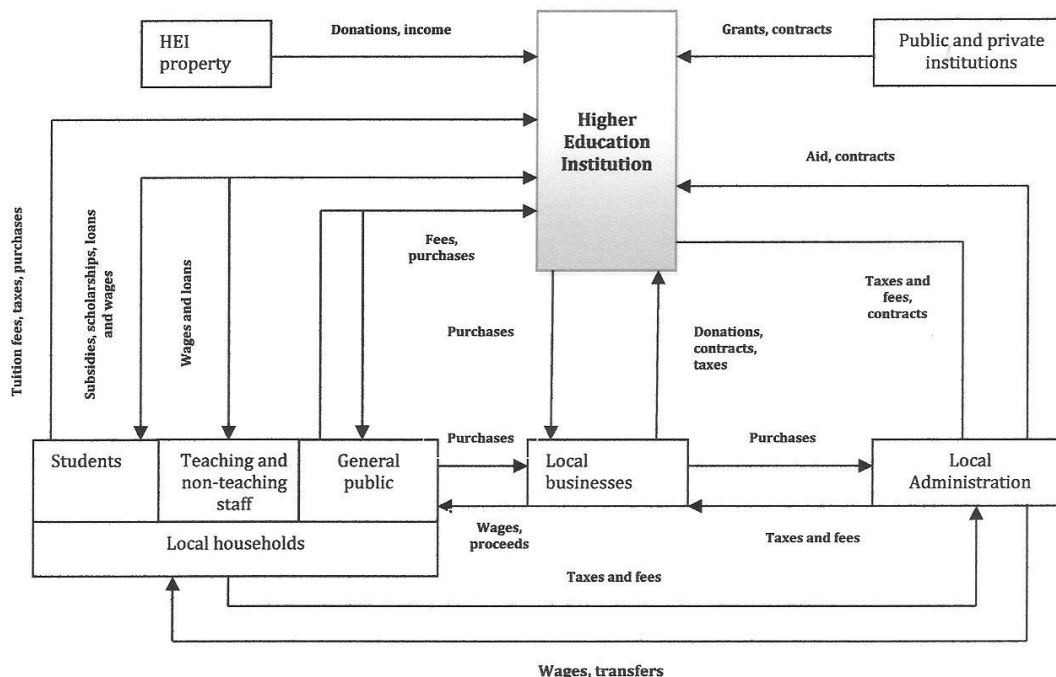
a)   The impact on local businesses

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[6]   In Portugal these sources include Banco de Portugal, National Institute of Statistics, Local and Regional Authorities, among others.

b)   The impact on local administration

c)   And the impact on individuals.

This estimation is also based on the monetary flow represented in Figure 2.

Figure 2. MODEL OF MONETARY FLOWS

Source: Adapted from Garrido-Yserte *et al*. (2008).

The estimation of the demand-side impact resorts to complementary methods: the I-O models, the Keynesian Multiplier or the Ryan Short-Cut method. These models, developed from regional and national socioeconomic indicators, are included in the so-called indirect estimation models.

On the other hand, by resorting to data directly collected from the source, through questionnaires or interviews, the ACE model, as well as its subsequent simplified versions, is comprehended in the direct estimation impact studies.

2.1.1. Direct estimation methods

The ACE model and the simplified ACE model

In 1970, the economists John Caffrey and Herbert H. Isaacs, from California State University, were assigned, by the American Council of Education (ACE), the task of developing a method to determine the quantitative estimation of the economic impact of a school (educational institution) in the territory or locality where it is based.

In 1971, Caffrey and Isaacs presented the result of their work, which was unanimously accepted and, in just 15 years, has been applied in over 25% of the North American universities (Leslie and Lewis, 2001). Since then, the method, known as ACE, has been widely used. Some adaptations have been developed in the meantime, the most commonly acknowledged of which is that developed by Leslie and Lewis, known as the simplified ACE model.

The ACE model comprehends the following (Table 1) dimensions and sub-dimensions:

Table 1. DIMENSIONS AND SUB-DIMENSIONS OF THE ACE MODEL

Dimensions	Sub-dimensions
Impact on HEI-related consumption/expenditure – local business (B)	B.1. HEI-related local business volume
	B.2. Value of local business property committed to HEI-related business
	B.3. Expansion of the credit base of local banks due to HEI-related deposits
	B.4. Local business volume unrealized because of the existence of HEI enterprises
Impact on local government (G)	G.1. HEI-related revenues received by local government
	G.2. Operating cost of municipal services provided to public school by local government
	G.3. Value of local government's properties allocable to HEI-related portion of services provided
	G.4. Real-estate taxes foregone through the tax-exempt status of the HEI
	G.5. Value of municipal-type services self-provided by the HEI
Impact on individuals (I)	I.1. Number of local jobs attributable to the presence of the HEI
	I.2. Personal income of local individuals from HEI-related jobs and business activities
	I.3. Durable goods procured with income from HEI-related jobs and business activities

Source: Adapted from Caffrey and Isaacs (1971).

Due to the lengthy and complex nature of these calculations, Leslie and Lewis (2001) defend the application of a simplification of the traditional ACE model. In this simplified version (see Table 2) the calculations focus on just two dimensions, as follows:

Table 2. DIMENSIONS AND SUB-DIMENSIONS OF THE SIMPLIFIED ACE MODEL

Dimensions	Sub-dimensions
1. B.1. HEI-related business	B.1.1. Local expenditure generated by the HEI B.1.1.1. Local expenditure of the HEI B.1.1.2. Local expenditure of staff (teaching and non-teaching) B.1.1.3. Local expenditure of students B.1.1.4. Local expenditure of visitors B.1.2. Purchase to local sources by local enterprises supporting the volume of HEI-related business B.1.3. Volume of local business stimulated by local individuals' expenditure (except the institution, staff and students) resulting from HEI-related income
2. I.1. Number of local jobs attributable to the presence of the HEI	

Source: Adapted from Caffrey and Isaacs (1971).

The calculation of the number of local jobs attributable to the presence of the HEI depends on the formula:

I.1 = B1+B2*(B3+B4)

in which:

- *B1* = number of HEI employees (faculty and other staff)

- *B2* = ratio between the number of full-time jobs and each euro of direct expenditure in the region – these figures are supplied by Statistics Portugal

- *B3* = value estimated for the local expenditure generated by the HEI

- *B4* = value estimated for the operating costs of municipal services provided to public school by local government (G.2.)

Even though the ACE model and its simplified version are broadly used, the approach is not without criticism and flaws, as follows:

- it makes no distinction between the expenditures (consumption) of local residents (students, staff and visitors) and non-local; this means that the "total consumption" is considered globally and as "new consumption," which, when multiplied by several formulae always generates a very expressive final estimation. This limitation, however, does not have a strong influence on the impact studies of HEIs located in small communities, which attract a quite significant number of non-resident students to the territory. The opposite happens when the method is applied to studies of HEIs located in bigger metropolitan areas, and residential areas where the influence of other HEIs may collide, thus causing an overestimation of consumption and, consequently, of the value of impact in the end (Stockes and Coomes, 1998; Garrido-Yserte and Gallo-Rivera, 2010).

In order to address this weakness, Beck *et al.* (1995) and Elliot, Levin and Mesiel (1998) propose that the studies only consider the spending/consumption by students and external collaborators (i.e. those who are not local residents) and the local residents that declare to be part of the community because they moved there to study or work. This gives rise to a new simplified version of the ACE model, which only considers the first line consumptions.

2.1.2. Indirect estimation methods

The Keynesian Local Multiplier (KLM) model

The existing literature broadly considers the Keynesian multiplier as a valid instrument to determine the economic impact of higher education institutions (Blackwell *et al*. 2002; Tavoletti, 2007; Jabalameli, Ahrari and Khandan, 2010; Sigurðsson, 2012).

Currency affects the real flow of any economy. This situation accounts for the fact that local economic growth, in a small open economy, depends on domestic monetary liquidity (Kohler and Souza, 2004). This is sustained on the assumption that no local economy is closed, and that there is interaction with the productive structure of other regions, which is capable of boosting demand (Lima and Pitaguari, 2005).

The Keynesian multiplier is thus founded on the existence of an autonomous variation of the planned expenditure. This variation increases the product in a dimension that exceeds the variation of the underlying demand.

Evidently, if the demand rises for exogenous reasons, the sales and services provided will outweigh those that would exist if the factor that triggered the increase in expenditure hadn't occurred. This increases the income, which, in turn, will make it possible to increment expenditure again. A cycle is therefore generated, in which a new expense gives rise to new proceeds, which, on the other hand, will encourage new expenditure and so on.

This cycle, however, is not infinite, since some loss occurs at every stage of the process. All the income available has two possible applications: consumption and savings.

Ultimately, this savings progressively reduces the multiplier effect at each stage of the cycle, until the marginal return and expenditure converge to zero. When such convergence happens, the multiplier effect ends.

Irrespective of the existence of multiplier reduction factors, there will be a fraction of demand for goods induced by additional revenues. The total final impact, direct or indirect, on the product and the return is necessarily greater than the initial direct effect. This would not occur only if the indirect effect was null. But it never really happens; the indirect impact is never null, even if the direct effect is. In situations where there is no direct effect, the usefulness of the Keynesian multiplier may be questionable.

The use of a Keynesian multiplier must reflect the particularities of the region where it is applied (Jabalameli *et al*., 2010; Sen, 2011). The calculation of the multiplier develops from the determination of the value directly injected into the local economy, in which:

E = L + G

where:

E = expenditure base

L = wages paid (labor services purchased by the institution)

G = goods and services purchased by the institution

The keynesian local multiplier for production is estimated by:

GOM = Yf / Y1

where:

>*GOM* = gross output multiplier

>*Y1* = the first gross local output

>*Yf* = the final gross local output (after all rounds of the multiplier process)

Therefore:

GOM = 1 + Y2 / ([1 − wc(1 − t) (1 − i)] Y1)

where:

GOM = gross output multiplier

Y1 = the first gross local output

Y2 = the second gross local output

w = proportion of staff spending on locally produced goods and services

c = the marginal propensity to consume

i = indirect tax rate

t = direct tax rate

Since the keynesian full multiplier for local disposable income is given by:

MLDI = Df / D1

where:

MLDI = multiplier for local disposable income

D1 = the first disposable income

Df = the final disposable income (after all rounds of the multiplier process)

so:

MLDI = 1 + (1 − t) (1 − i)Y2 / ([1 − wc(1 − t) (1 − i)] D1)

where:

MLDI = multiplier for local disposable income

Y2 = the second gross local output

w = proportion of staff spending on locally produced goods and services

c = the marginal propensity to consume

i = indirect tax rate

t = direct tax rate

D1 = first round impact on disposable incomes on local residents

The multiplier can also be estimated from the point of view of expenditure.

The deduction presented above allows us to conclude that the keynesian multiplier presupposes the existence of a constant marginal propensity to consumption over time. It also assumes other steady parameters, namely the propensity for local purchases, as well as the rates of direct and indirect taxes and the social security contribution.

Irrespectively, the main factors that determine the variation in the multiplier results are the proportion of the workers' spending on local products and the students' local expenditure.

The Ryan Short-Cut (RSC) model

The RSC model is an adaptation of the ACE model developed in 1981 by G. J. Ryan, who later improved it, in 1992. This model aims to overcome the limitations of the ACE method, resulting both from the Gravity Retail Model calculations and the need to apply questionnaires.

The RSC model does not estimate the number of jobs created (see figure 3). Besides, it is considered by several authors as conservative (Ryan and Malgieri, 1992; Seybert, 2003) insofar as it overlooks visitors' spending as well as intangible impacts and effects on human capital.

Figure 3. DYNAMICS OF ECONOMIC IMPACTS
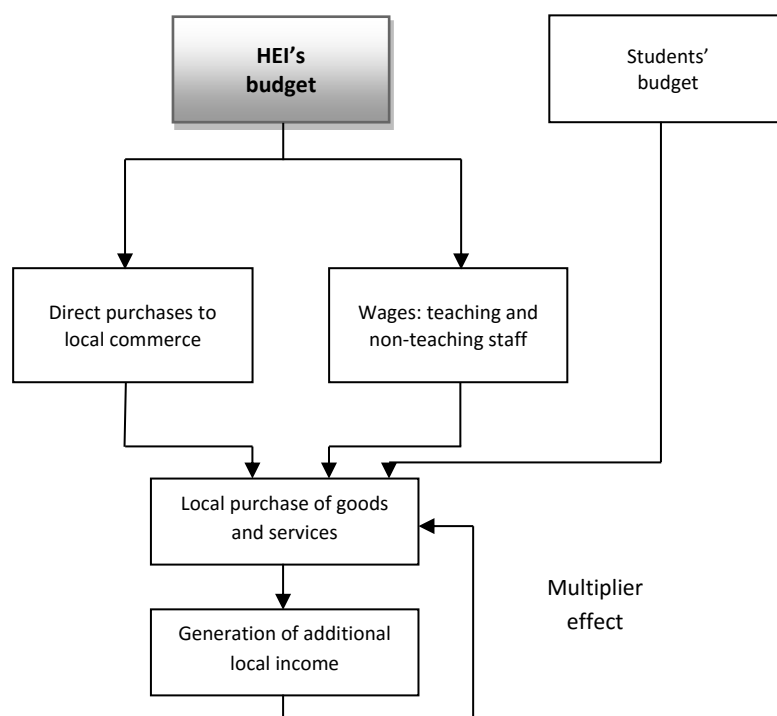
Source: Adapted from Ryan and Malgieri, 1992.

The RSC method reduces the complexity of data collection, when compared with the ACE model. It excludes the visitors' spending, and this is where it greatly differs from the ACE model. Whenever this happens, the estimation of the direct economic impact considers three fundamental types of expenditure, as expressed by this formula:

DEI = I + W + S

where:

DEI = direct economic impact

I = institution's expenditure

W = workers' expenditure

S = students' expenditure

The total economic impact is given by the product of a multiplier by the direct economic impact, in which:

*TEI = DEI * M*

where:

TEI = total economic impact

DEI = direct economic impact

M = multiplier

These described models have been applied in the 6 study cases, all aiming to identify the socioeconomic impact of each HEI on its regional context.

The Input-Output Analysis

This method shows where the resources that the HEI gives its providers go by identifying the products generated. It requires a considerable amount of information and the analysis could be as detailed as desired. This method is used when the input-output table of the location of the HEI is available, since it allows the disaggregation of sectoral information required for the analysis.

It is a demand model; this means that the demand is the exogenous element of the economy which originates a series of economic effects with the objective of being satisfied by the interior production. This method shows the effects in the productivity structure of a region as a result of a "shock" of the final exogenous demand. These effects, upon the main economic variables, are analyzed according to the different activities that compose the economy and can be characterized in: a) *direct effects* that take place in the initial volume of the investment and are the effects that take place in the production system in a first round or economic transaction sequence; b) *indirect effects* that take place in a second phase of economic exchanges among the different production branches of the system; the initial shock of the final demand gives way to a series of consecutive economic transaction rounds that satisfy the different needs of goods and services of every economic production branch, until the effect of the initial shock ends; and c) *induced effects* as a result of the production factors incomes; the increase of income deriving from the growth in the production system generates increases in the consumption of the economic agents, giving way to a series of additional economic transactions throughout the entire economic system (Garrido - Yserte and Gallo Rivera, 2010).

The main reasons to base these studies in the use of this method are that: a) it allows the comparison between HEIs and territories; b) it allows the assessment of the direct, indirect and consumers' induced effects; and c) the availability of the Input-Output tables allows the disaggregation of the information required in the model.

3. SOCIOECONOMIC IMPACT OF HIGHER EDUCATION INSTITUTIONS (HEIS): RESULTS FROM SIX (6) STUDY CASES

3.1. The 6 study cases

The six study cases have very different territorial and organizational profiles:

- two (2) are based on two Spanish universities: Alcalá de Henares and Lleida;

- four (4), are of Portuguese HEIs: the universities of Porto, Évora and Algarve and the Polytechnic Institute of Beja.

The studies were developed in different time periods, also by different research teams following, however, similar methodological approaches. The 6 studies are presented and analysed (respecting the respective copyrights for each study) in the scope of exploring the relationship between education and regional development.

Table 3. THE CASES – CHARACTERISTICS AND KEY DATA

Research Team (Authors Names)	HEI /Year of the Study	Territory of the HEI / Inhabitants (Population) by the date of the study	Students/Staff (teachers, researchers and services and administration personnel)
Sandra Saúde Carlos Borralho Isidro Féria Sandra Lopes	Polytechnic Institute of Beja (Portugal)/ 2011/12	Beja Municipality: 35.854 inhab.	Students: 3.190 Staff: 342
Conceição Rego	University of Évora (Portugal)/ 2012/13	Évora Municipality: 55.921 inhab.	Students: 7.500 Staff: 1000
João Albino Sérgio Santos	University of Algarve (Portugal)/ 2003	Algarve Region: 397.040 inhab	Students: 9.000 Staff: 1.360
Ruben Gonçalves Ana Paula Delgado	University of Porto (Portugal)/ 2006/2007	Oporto Region (includes all municipalities of Oporto Metropolitan Area): 1.261.864 inhab.	Students: 27.500 Staff: 4.000
Rúben Garrido Yserte María Teresa Gallo Rivera	University of Alcalá de Henares (Spain) /2009	"Corredor de Henares" Region: more than 500.000 inhab.	Students: 19.353 Staff: 2566
Joan Enciso Mariona Farré Mercè Sala Teresa Torres	University of Lleida (Spain)/2007	Lleida Municipality: 131.731 inhab.	Students: 7.610 Staff: 1.480

Source: Adapted from Saúde, S. *et al.*, 2014.

Figure 4. LOCALISATION OF THE 6 STUDY CASES

Source: http://www.vamosparaespanha.com.br/mapa_da_espanha.jpg, March 2015.

3.2. Results and Findings

A. Impact on the population dynamics

The influence of the HEIs reaches beyond the municipality/region of direct influence, stimulating its gravitational effect, which is reported, as it can be seen in Table 4, in all 6 cases:

Table 4. IMPACT ON POPULATION DYNAMICS

HEI	STUDENTS – NON NATURAL OF THE REGION
Polytechnic Institute of Beja (Portugal)	• 78% of students - non natural of the Beja Municipality; • 47,4% of students - non natural of the Beja District
University of Évora (Portugal)	• 70% of students - non natural of the Évora Municipality:
University of Algarve (Portugal)	• 41% of students - non natural of the Algarve Region; • 82.5% of students residing in the Algarve would study out of the region if there weren´t the University of Algarve.
University of Porto (Portugal)	• 80% of students - non natural of the Porto Region; • 4,3% of the total of students are international/foreign students
University of Alcalá de Henares (Spain)	• 9 out of 10 students would study at another university outside the region if there weren´t the University of Alcalá; • 19% of the total of students are international/foreign students
University of Lleida (Spain)	• 8 out of 10 students would study in another University out of Lleida if there weren't the University of Lleida.

Source: Adapted from Saúde, S. *et al.*, 2014.

In addition to this data, it can be also underlined that each HEI contributes unequivocally to the rejuvenation of the age structure of the population, since it attracts, from outside of the region, a large and expressive group of youngsters aged between 20 and 24.

B. Impact on economic activity

The direct and indirect economic impact (expenditure, taxes, revenue) of the IPBeja showed a minimum interval between 38.72 million euros and 46.88 million euros.

Table 5. IMPACT ON ECONOMIC ACTIVITY

HEI	ECONOMIC IMPACT
Polytechnic Institute of Beja (Portugal)	• Total Amount of the Impact: Between minimum: 38.72 million euros and maximum 46.88 million euros (it varies according with the applied estimation model); • For every euro received from the State Budget, the IPBeja injected between 3.20 and 3.88 euros into the local economy (based on the IPBeja budget in the year of the study); • The students spent an average amount of 19 euros (total year = 18 million euros); • The average expenditure of the employees amounted to 37 euros daily (total year = 4,5 million euros); • The expenditure of the IPBeja itself and that of students' and staff's visitors reached a total of almost one million euros, 986 thousand euros; • Among students' and staff's family and friends, 5,166 people visited the municipality and the town, spending an average of 60,5 euros a day.
University of Évora (Portugal)	• Total Amount of the Impact: 58 million euros; • For every euro received from the State Budget, the University of Évora injected between 1.20 and 1,30 euros into the district of Évora economy (based on the University of Évora budget in the year of the study); • The expenditure of the students represents – 3,6% of the PIBpmm (2001) of the Alentejo Central Region (NUTIII) and 1,2% of the Alentejo Region (NUT II).
University of Algarve (Portugal)	• Total Amount of the Impact: 75 million euros; • For every euro received from the State Budget, the University of Algarve injected 1,34 euros into the economy of Algarve region (based on the University of Algarve budget in the year of the study); • The students spent, in a year, a total of 25,286 million euros; • Each student received, in average, 4,4 visitors spending an average of 50 euros a day; • Each staff member received, in average, 6,6 visitors spending an average of 55,6 euros a day.
University of Porto (Portugal)	• Total Amount of the Impact: 140 million euros; • For every euro received from the State Budget, the University of Porto injected between 1, 49 and 1,51 euros into the economy of the Metropolitan Area of Porto (based on the University of Porto budget in the year of the study).
University of Alcalá de Henares (Spain)	• Total Amount of the Impact: 167,142 million euros; • The students spent, in a year, a total of 76,1 million euros (26% of this amount in house renting and 56% in purchase of local services and goods) ; • Among students' and staff's family and friends, 125.850 people visited the municipality and the town, spending a total of 10,8 million euros.
University of Lleida (Spain)	• Total Amount of the Impact: 161,884 million euros; • The students spent, in a year, a total of 30 million euros; • The expenditure of the employees amounted to 19 million euros; • The expenditure of the University amounted to 113 million euros.

Source: Adapted from Saúde, S. et al., 2014.

For every euro received from the State Budget, the activity of each HEI has a significant and crucial multiplier effect into the regional economy. In what concerns the volume of businesses generated by the influence of HEIs, those resulting from expenditure by students and staff are particularly relevant, as well by the ones made the visitors (students' and employees' relatives and friends). Detailed analysis of expenditure and revenue between the HEIs and third parties underlines the crucial role that each HEI play in the economic activity of the municipality, the district, and the whole region, in all sectors of activity, from agriculture to services.

C. Impact on employment

Table 6. IMPACT ON EMPLOYMENT – JOB CREATION

HEI	EMPLOYMENT – JOB CREATION
Polytechnic Institute of Beja (Portugal)	4th biggest employer of the Beja Municipality; - Indirectly is responsible for the creation of a minimum of 453 jobs and a maximum of 823 jobs (it varies according with the applied estimation model); - It induces a job multiplier effect of: 1,3 (minimum) to 2,4 (maximum).
University of Évora (Portugal)	- Indirectly is responsible for the creation of 2.200 jobs; - It induces a job multiplier effect of: 2,2.
University of Algarve (Portugal)	- Indirectly is responsible for the creation of 2.370 jobs; - It induces a job multiplier effect of: 1,74.
University of Porto (Portugal)	Not estimated
University of Alcalá de Henares (Spain)	- Indirectly is responsible for the creation of 4.822 jobs; - It induces a job multiplier effect of: 1,88.
University of Lleida (Spain)	- Indirectly is responsible for the creation of 1.688 jobs; - It induces a job multiplier effect of: 1,14.

Source: Adapted from Saúde, S. *et al.*, 2014.

Globally, and considering the direct and indirect impact on jobs, all studied cases accounts for structural and very expressive rates of all the employed population in the municipality or region.

D. Impact on scientific, cultural, and social dynamics

Additional data estimated in the six study cases can, also, confirm that each HEI transforms and promotes the cultural and social dynamics of the region, such as:

- Each HEI community is a significant consumer of the cultural provision of the municipality/region. Regarding cultural consumption/practices and the profiles of citizen participation we concluded that:

- on cultural consumption (theatre, cinema, concerts, fairs and exhibitions, bars and cafés, for example) each HEI community spent expressive amounts, in order to be referred as an structural audience of the local/regional cultural offer;

- both staff and students evidence a significant social participation, namely, on community activities, the majority for volunteer organizations, such as cultural and sports associations and clubs.

- Other benefits associated with the presence of a HEI include:

- the provision of facilities belonging to the HEI campus to the local community and entities: library, amphitheaters, gallery, classrooms, football field and multi-sports infrastructures, laboratories and testing centers, and so on;

- the promotion of various scientific, pedagogical and cultural activities and events, organized by its several organic units, departments, centers and offices, accessible to the whole community;

- the development of laboratory experiments and applied research, in collaboration with local and regional enterprises;

- the services provided to municipal and regional companies and institutions, in the fields of laboratory analysis and specialized consulting services on controlled cost;

- the participation in the social capital of several local and regional institutions and organizations;

- the provision of facilities used as the seat of local and regional institutions and organizations.

4. CONCLUSIONS

Higher education is today, worldwide, and particularly in the current context of economic and employment crisis, a key resource for the development of any country. Further is it to smaller regions of low population and economic densities.

The impacts of the presence of higher education are multiple, direct and indirect (for what it moves around in the local/regional economy and society). Higher education also induces short and long-term impacts, due the transformation that causes in the social and technological capital of the territory.

In addition to the it's two basic missions, training and research, the HEIs have strong ties of interdependence and mutual involvement with the community/region, that, although they are a result of its natural action, are often undervalued in terms of importance and impact.

Surely, the estimated economic impact, of each HEI included in this paper, is a conservative estimation of the global impact, since other dimensions have to be taken into account, such as the generated long-term effects. These consequences or qualitative type effects (impact of the institute on the citizens' quality of life, or as a determinant factor influencing company location, etc.) are important to acknowledge, even though it may be complex to undertake the analysis of these impacts.

The study of the HE socioeconomic impacts contributes to highlight the role that academic communities play in the development of local/ regional and national economies. In line with other socioeconomic impact reports, carried out worldwide, this paper aimed to deepen the reflection about the present and the desired future for Higher Education as key political instrument for region's and nation´s competitiveness.

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