MAPPING THE POPULATION, CAREERS, MOBILITIES AND IMPACTS OF ADVANCED DEGREE GRADUATES IN THE SOCIAL SCIENCES AND HUMANITIES (POCARIM)

Policy Report 1

The Careers and Impact of Doctoral Degrees in the Social Sciences and Humanities

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In the 21st century a highly skilled workforce has become one of the resources seen as essential to support the knowledge economies. Measures such as the Bologna Process placed increased emphasis on education’s third phase – that is, on doctoral education and research, which are seen as providing the most direct reinforcement for a highly skilled workforce. Original scientific contributions and new knowledge from PhD graduates are expected to bring ‘a breath of fresh air’ into European economies and to fuel economic and social development.

We still, however, know little about the usefulness of doctoral education for the PhD graduates themselves and for the economy and society - and to date there have been very few attempts to assess the impact of PhDs in the field of Social Sciences and the Humanities (SSH), and these are the target groups of this paper.¹ The reason for limited attention is that decision-makers assume that these fields of education and research are a less important area than Science, Technology, Engineering and Mathematics (STEM) or the Medical Sciences. However there is some evidence that SSH is increasingly important - not only for humanity in general, but for innovative society also.

In international terms, the majority of PhDs are employed in the academic field, although the proportion of non-academic jobs is increasing. The reason for the change in proportions is the result of three different processes

1. The number of PhD graduates is increasing;

2. Demand in the academic sector is increasing more slowly than supply, and this particular job market may well stagnate or decline from time to time;

3. Demand from the non-academic sphere, in today’s knowledge society, can be assumed to be on the increase.

A further important change in the PhD career path is that the job market has become internationalised - in terms of both academic and non-academic careers. International mobility makes it possible to continue a career abroad - either temporarily or permanently.

PhD education in Hungary is now 20 years old, and the number of graduates produced to date makes it possible to study their careers, their mobility (both across and within sectors) and the impact of this population. This is especially relevant since Hungarians now have easy access to international mobility as the country is a member of the EU and many foreign companies operate here.

Obtaining a PhD degree is a long-term and expensive investment for both the individual and for society, and, consequently, the usefulness or value of the investment raises vital questions for all concerned. This study focuses on a number of these:

How do career opportunities vary across employment sectors?

How do sectoral changes affecting SSH doctorates in the Hungarian job market follow international trends?

¹ This paper owes its existence to the EU’s 7th FP-funded POCARIM project (in full: Mapping the population, careers, mobility and impacts of advanced research degree graduates in the Social Sciences and Humanities). Thirteen countries (France, Germany, Hungary, Italy, Latvia, Norway, Poland, Portugal, Slovakia, Spain, Switzerland, Turkey and the UK - together known as the POCARIM countries) are participating in this project. They include small, medium and large economies with varying economic potential. In several countries the PhD degree has a long history whilst elsewhere it was introduced as part of the Bologna Process.
What is the main impact of the PhD degree on an individual’s career and how does this career develop during and after acquiring the PhD? In other words, do these investments ensure better positions on the job market or better career opportunities for PhD degree holders?

Are there any positive effects on their own organisations, on local, national or on global society?

Do Hungarian non-academic sectors need PhD graduates and are they able to absorb or utilise the additional knowledge, competencies and skills obtained via the doctorates? In other words, is there any value to society in the availability of PhDs in SSH subjects?

An investigation into both of these under-researched fields (Social Sciences and the Humanities) is needed since recent OECD surveys have confirmed that graduates in the Humanities face the highest level of unemployment in most of the countries studied, and those in the Social Sciences also face higher-than-average rates among PhDs. (OECD, 2010, 2013). They must also consider the difficulties in obtaining a suitable permanent position and the alternatives of a lower-level position or of a temporary as opposed to a permanent contract.

The first section reviews different strands of the literature, after which the second puts the research into a national context which examines the recent supply and demand of PhD graduates according to available (widely scattered) statistical sources. A non-statistical source, a mini-series of interviews, was employed to collect qualitative information on a statistically neglected area of demand - that is, on non-R&D jobs in the business sector and in other non-academic sectors for PhDs. It was important that this area of demand should be examined, since not only the balance between supply and demand but also types of demand are strongly influenced by the impacts.

The third section touches briefly on research methodology and describes the main features of the Hungarian survey sample. The special survey was crucial for identifying the diversity of the post-doctoral career paths of Humanities and Social Science graduates. This section also provides the e-survey-based empirical data and indices. This mapping exercise was a precondition for investigating the impact of PhD graduation on individual careers, personal satisfaction and the impact of degree holders on various levels and different segments of society. The fourth section deals with various effects, and in this section the empirical analysis contains both quantitative and qualitative information for discussing the impacts of doctoral degree holders.

The last section draws some conclusions, suggests further research topics and offers a number of policy recommendations.

**State of the art**

The impact of the role of PhD graduates in knowledge-based economies is a complex socio-economic issue which can be analysed from various perspectives. This might be the reason why we need to refer to different strands of international and Hungarian literature which have tried to address various aspects of PhD education, subsequent careers and their economic and societal impacts. What is, perhaps, the bulk of the literature deals with the specificities of PhD education and its impact on students, but here our focus is on the graduates who already finished their studies. Those strands of the literature which are more relevant to our research questions are, broadly, those which

1. Analyse PhD graduates’ labour market situation and career,
2. Examine the growing internationalisation of their careers or
3. Assess the impact of SSH on society and the economy.

Studies investigating ‘PhD careers from a labour market perspective (1) gained ground as more and more information was gathered about the changing expectations of employees’ skills and capabilities in the knowledge-driven economies. They argue that the value of knowledge embodied in employees - and thus the level of education - is becoming a crucial factor for an organisation. (Drucker 1993, Brown, Green & Lauder 2001) It can also be seen that PhD graduates are finding job opportunities more and more outside academia and their employment in the business sphere is growing. (EUA, 2009) This trend is fuelled by those companies most exposed to global R&D and innovation competition. There are also several surveys and empirical studies which examine various aspects of the ‘PhD career’ (Lavoie & Finnie 1998, HEA 2000, ENMOB 2003, ResCar 2007, Canibano et al. 2008)

One of the most cited sources is the OECD CDH survey (Auriol 2007, OECD 2010 & 2013) which tried to measure the PhD graduate population and the major features of their careers. It supports the view of the rapid expansion of PhD graduates in the OECD countries (over 5% annually excluding France and Hungary) and their higher quality workforce situation when compared to other levels of education (measured by the unemployment rate). Among the largest employers are, of course, Higher Education and the Government but their proportions vary very strongly among countries (from 90% in Hungary and Poland to 60% in Austria, Belgium and the USA). Most of these studies (as in Hungary) either focus on graduates from all fields of science or focus on the STEM fields – which are held to be the most relevant to the private sector. In Hungary there are few empirical studies available on the career opportunities open to PhDs. An ad hoc survey in 2002 (repeated in 2006-07) observed that state administration and regional autonomous organisations were creating some demand for PhDs in the Social Sciences, although the non-profit sector is hardly visible (Fábri 2008) A feasibility statistical survey on post-doctoral careers (Employing OECD CDH survey) produced interesting additional results. (Statisztikai Tükör 2011, no. 19 and Magyar Tudomány 2012, no. 8) The business sector is creating a demand for SSH graduates in a very few sectors, such as software development for linguistics, consultancy firms for economists as financial advisors, risk-analysers and business advisors.

The growing internationalisation of the careers of PhD graduates (2) is reflected in the studies looking at the mobility of the human resources of science and technology (HRST). The drive for scientific excellence creates an environment which is very attractive to young researchers and motivates them to move beyond their native borders. The studies investigating this phenomenon (e.g. Brain Drain project 2001, ENMOB 2003, Euraxess, IISER) identify the main trends behind these movements and record the global search for the most talented workforce. The mobility of HRST can reach a level which influences the development of human resources in a particular country. (OECD, 2008), and so there are regular expert studies in the EU looking at HR development and current mobility patterns within the European Research Area (EC 2009, Inzelt 2012, EC 2012). A number of these concentrate entirely on STEM graduates, supporting the view that they have become the main players in knowledge dissemination across sectors and borders. (Mangematin 2000, Fox & Stephan 2001, ResCar 2007)

Studies focusing on the SSH field more frequently raise questions of knowledge utilisation and impact on the broader society (3). They look at the impact of research results or at the validation of social interests (Landry et al. 2001, Mathieu, 2003, Jeffrey 2010). These studies usually focus on the general or programme-level and do not investigate the impact of the individual (e.g. EC 2010, UNESCO 2010). Other studies on impact assessment often concentrate on new, developing industries (e.g. Dermont et al. 2008) or on the health industry (e.g. Dannenberg et al. 2006) and so are only indirectly relevant to the careers of SSH graduates.
Among the few studies explicitly focusing on career and impact, we can find those looking at personal development through PhD education (e.g. Burgess and Wellington 2010) or which are investigating the retrospective satisfaction with the PhD education/degree (e.g. Campostrini, 2011) Personal career advancement was investigated in few cases (e.g. Kobayashi 2011, Schwabe 2011, MORE 2010, Fox & Stephan 2001) focusing on selected countries or topics. Consequently, their existence only highlights the major gaps in our current knowledge of this field.

The following sections will contribute to our existing knowledge of PhD careers and impact by analysing some of the empirical results from the POCARIM project on Hungary.

2. Supply and demand of SSH PhD graduates

The available statistics do not provide a clear picture of the supply of and demand for fresh PhD graduates, but they help us to recognise developing trends. We can also assemble both supply statistics and what we might term a ‘statistical patchwork’ of academic and business R&D demand.

2.1. The annual supply of SSH doctoral graduates

Systematic nation-wide records on the annual awarding of PhD degrees have been available since 2007 when the Hungarian Doctoral Council (ODT) was established and made responsible for the records. They tried to collect relevant data for previous years but not all HEIs could provide accurate retrospective reports. Table 1 presents the available supply data.

<table>
<thead>
<tr>
<th>Year</th>
<th>Humanities</th>
<th>Social Sciences</th>
<th>Total</th>
<th>Humanities</th>
<th>Social Sciences</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>152</td>
<td>121</td>
<td>717</td>
<td>21</td>
<td>17</td>
<td>100</td>
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<td>187</td>
<td>122</td>
<td>793</td>
<td>24</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>2002</td>
<td>283</td>
<td>123</td>
<td>983</td>
<td>29</td>
<td>13</td>
<td>100</td>
</tr>
<tr>
<td>2003</td>
<td>241</td>
<td>145</td>
<td>1067</td>
<td>23</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>2004</td>
<td>202</td>
<td>127</td>
<td>893</td>
<td>23</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>2005</td>
<td>271</td>
<td>147</td>
<td>1069</td>
<td>25</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>2006</td>
<td>246</td>
<td>165</td>
<td>1012</td>
<td>24</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>2007</td>
<td>170</td>
<td>181</td>
<td>1059</td>
<td>16</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>2008</td>
<td>223</td>
<td>217</td>
<td>1141</td>
<td>20</td>
<td>19</td>
<td>100</td>
</tr>
<tr>
<td>2009</td>
<td>253</td>
<td>224</td>
<td>1376</td>
<td>18</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>2010</td>
<td>218</td>
<td>178</td>
<td>1275</td>
<td>17</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td>264</td>
<td>211</td>
<td>1234</td>
<td>21</td>
<td>17</td>
<td>100</td>
</tr>
<tr>
<td>2012</td>
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<td>215</td>
<td>1242</td>
<td>20</td>
<td>17</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Authors compilation based on EUROSTAT http://epp.eurostat.ec.europa.eu/portal/page/portal/education/data/database

As table 1 shows the number of doctoral degrees has varied year by year. Before 2007, one quarter of new degrees came from the Humanities, but after 2007 this declined by a fifth. The proportion from the Social Sciences was from 13-19% throughout the period. Between 2000 and 2012 the annual supply was 152-283 in the Humanities and 121-224 in the Social Sciences. Not all of these graduates, however, were actually looking for relevant jobs. A PhD degree is not only a personal

Notes: Humanities – without Arts; Social Sciences – Social sciences, business and law. Doctorate degree is identified as ‘second stage of tertiary education leading to an advanced research qualification’ (ISCED 6).

Among degree holders part-time, correspondence-course graduates have increased significantly from 30% in 2003, 2004 and 2010) to 60% in 2011.
target for individuals, but has also become a requirement for employment in some professions, and the supply data reflect this. Some of the new graduates are simply job-keepers – that is to say, they wish to keep their jobs but to improve their position and remuneration - although a significant proportion are job-seekers, who need either a new job or at least a permanent rather than a temporary position.

2.2 Demand related statistical data

Existing statistical data only partly cover demand - and not always directly. R&D statistics provide data on R&D personnel in both the academic and non-academic sectors. (Public R&D institutes, Higher Education, and business organisations). Higher Education (HE) also requires doctorates for teaching purposes and these personnel are covered by the HE statistics. Since the same person can be both a researcher and a teacher in HEIs, double counting may occur by using simple head-counting and so here we use only R&D personnel statistics to illustrate the trend.

The traditional career path for PhD graduates is to become an academic researcher either in publicly financed research organisations (such as HAS institutes in Hungary) and in Higher Education. The R&D statistics track annual employee figures, their changing number, the number of PhDs employed and so on. The changing number of R&D personnel with or without a degree is not equal to that of the new PhDs employed, but it does give an indication of the demand for the population group investigated.

According to HCSO data, in 2000 there were 8,960 R&D personnel with a degree (PhD or above) from all fields of science. Their number grew by more than 60% (to 14,770) by 2012. In 2000 there were 1,405, growing to 2,887 by 2012, Social Sciences PhD holders - and 1,657 (in 2000) and 2,484 (in 2012) from the Humanities in R&D units.

Data on the number of researchers with a science doctorate (PhD or DLA) both by field of science and sector are available only from 2007. Since then the total number of researchers with a science doctorate has increased slightly in the Social Sciences (6%) and by rather more in the Humanities (16%). Considering all fields of science, the number of researchers with a science doctorate has grown by 16% during this period, whilst that of researchers (with or without such a degree) has grown by 12%. However the sectoral structure of employment has changed remarkably in the Social Sciences (see figure 1).

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4 Law on Hungarian Academy of Sciences (HAS) XL/1994 made the PhD degree a criterion for obtaining a better position or permanent employment. The Law on Higher Education (CXXXIX/2005) made the PhD degree a criterion for employment. There are several other types of organisation where a PhD degree is compulsory for some position.

5 Domestic employment statistics follow the group of more highly educated people, but doctorates are held by only a tiny fraction of these, a fraction which may be ignored from the point of view of employment. However the job-market position of this small population is very important in terms of the knowledge economy, the innovative society and the capability to accumulate, adapt and diffuse knowledge.

6 In this way we can avoid double counting and a debate on counting per capita for education or for R&D statistic. The overlap is clear but the proportion is not.
As Figure 1 shows, the increase in the relative number of researchers with a PhD/DLA degree was highest in R&D units in the business sector (42% growth) followed by Higher Education (15%) and then by public and other units (11%). However, the situation is not the same if we look at the different fields of science. Among Social Science PhDs, employment grew most strongly in the business sector (23%), although their numbers are below 100. Employment increased slightly in HEIs (9%) and decreased in public and other research units (-13%). In the case of the Humanities, employment grew most in public and other research units (32%) and to a lesser extent in HEIs (9%).

Demand from the business sector for R&D personnel is very important for the diffusion of new knowledge and its practical application, however the presence of PhDs in the business sphere is negligible in terms of the Humanities and very low in terms of the Social Sciences, although they are increasingly employed in the sector – albeit from a few specialised fields of the Social Sciences and in very specific business areas.

As the majority of Hungarian PhD students as well as the new doctorates belong to the younger generation who entered the PhD system within 1-2 years of obtaining their MSc, it is logical to look at the changing numbers of R&D personnel in younger age brackets (25-34 and 35-44). Figure 2 shows the changes.
In both fields investigated the number of researchers in the youngest group (25-34) has declined more dramatically in respect of the Humanities than of the Social Sciences. In the next age cohort (35-44) there is a modest increase in the Social Sciences, assuming that some of the R&D personnel who belonged to the youngest group in 2004 did not leave the field but simply grew older and now are in the second age group. (In any event the numbers entering the first bracket could not replace them.) In the Humanities there was no similar trend: the number of R&D personnel decreased in this group also.

To summarise, the various R&D sectors have generated only a limited demand for PhD graduates.

The academic job-market in Hungary is prone to fluctuation due to frequent changes in Hungarian Science, Technology and Innovation (STI) policy. From the point of view of the STI budget and budget appropriations for HE, the economic crisis was a good excuse to cut these budgets. Certainly the job market was influenced by the economic crisis and the weak performance of the Hungarian economy prior to the crisis, but some government programmes create academic jobs to keep young talent in the country or bring it home. Programmes such as these devote less attention to SSH doctorates than others.

2.3 Non-statistically revealed demand

In knowledge-based economies there are knowledge-demanding jobs outside the traditional academic sphere and beyond R&D jobs in the business sector. According to international experience, both central and local government, the health sector, social welfare institutions, the business sector and NGOs may actively look for PhD holders. It is true that the demand is much lower for non-academic jobs but this small fraction is useful to assess for learning about the actual and potential demand for SSH graduates as employees in these newly emerging fields. Regular statistics are weak in this connection: stratified sampling surveys of the labour-force in Hungary ignore them, and they feature among respondents only by chance.

To reduce the information gap we undertook a mini-series of interviews with various employers to learn something of the demand from non-academic sectors for non-R&D jobs.7

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7 Typically new phenomena are studied first by researchers and official statistics enter the arena later. Before that many attempts are made to determine whether a phenomenon is a one-off occurrence or emerging as something worth measuring statistically.
The careers of PhDs in the non-academic sphere may be a sign of increasing knowledge-demand - or merely a sign that such people are not left unemployed.

The mini-series of interviews covered 33 potential employers. Of these 27 were business organisations (multinational companies, head-hunters, market-research firms and banks), 3 were state organisations and the remaining 3 were museums and libraries. The last, incidentally, demand SSH PhDs.

Museum, libraries, archives and the like are searching for PhDs but they highlighted a few of the problems involved in employing them:

a. ‘If somebody starts a PhD course immediately following graduating as MA or MSc, this does not mean a measurable advantage for (for example) the museum. If someone goes back for his third degree after a few years of work experience and as a more mature employee, the value of the degree is higher.

b. Sometimes it is a problem if someone has an ambition to earn a degree but does not need it for his current position.’ (Museum)

Central Government Organisations may not be looking for PhD graduates but having such a degree is no hindrance to employment. Central government’s administrative structure, its strategic thinking and policy-formulating methods all influence the demand for sophisticated knowledge and for a well-educated labour-force. In recent years there have been enormous changes in governmental administrative structures, but a knowledge-based economy can still be served effectively by administration which is far from innovative, and some attempts at reform have been accompanied by cuts in financial resources.

Similarities were visible in the responses of different business organisations.

Head-hunters who responded had not met companies looking specifically for PhDs in any science field. According to their experience, a doctoral degree may well be important in the academic sphere but is irrelevant in others.

PhDs may have a good theoretical background, but this is hard to use in the business world. Companies are suspicious of someone who studies so much; someone like that cannot be practical! ... There are no advantages or disadvantages with the degree. A multinational company is not looking to specialise in a narrow field of scientific interest (headhunting company).

The attitude of multinational companies (MNCs) was similar to that of head-hunters (even if they were not clients of the latter). Some MNCs stressed that, if they needed highly qualified experts, they would not be interested in the PhD. All forms of knowledge enhancement are relevant after the

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8 Olivia Béládi and Brigitta Zsom (both PhD students) conducted the interviews either face-to-face or by phone.

9 More organisations were approached but some were unwilling to cooperate.

10 There are two new phenomen in Hungary: community work is alive in the state sector in that ex-employees of the state have been sacked but then reemployed as community workers (naturally for much less money). Such an environment does not create jobs for new PhDs. There is also a new initiative which badly effects SSH PhD-holders, since the government now wishes to recruit new civil servants only from a newly established university (the National University of Public Service). This narrows the knowledge base for state administration.

11 The problem of relevancy in the structure of Hungarian doctoral schools and the innovativeness of HE go beyond the scope of this paper.
Master’s degree, but this may come from adult post-graduate courses, work experience and even self-education. To them the origin of the diploma or degree – the organisation - is more important than the nominal level of the degree.

Another issue worth noting emerged from a market-research company:

A doctoral degree may have a practical advantage for a company if a public procurement call requires some employees to hold a degree, although professionally there may be no advantage to the company (market-research company).

When discussing the interest of the non-academic world in PhDs, a question frequently asked is whether these potential employers understand the meaning of the PhD degree and the relevant education. (This issue was also raised in our dissemination workshop). According to our mini-series of interviews, there were no differences between the opinions of respondents who had a PhD and those who did not. However, when thinking about SSH-based PhDs, such degrees were usually beyond their scope, even if they themselves had such a degree. Few segments of the business world are interested in SSH graduates and, even then, only from selected sub-fields. These segments, moreover, were scarcely affected by the economic crisis.

We can conclude that the non-academic world generates insignificant demand for any kind of doctorate and that that particular environment offers limited opportunities for PhDs - whether for new or older graduates. This limited demand has its effects on career paths, on mobility both within and between sectors and on the impacts of SSH graduates on society. This will be seen in our empirical study among SSH degree-holders.

3. Empirical research

Our previous short summary of the available information showed that we do not have sufficient material to respond to our research questions formulated in the introduction. Empirical research is vital if we are to know anything more about careers, mobility across and within sectors, and the impact of doctorates in the SSH fields for the graduates themselves, for the economy and society.

The EU-funded POCARIM project enabled us to run an e-survey and make face-to-face interviews among Hungarian SSH PhDs, one great advantage of an international project being the shared methods which allow comparisons among the participating countries.12

The analytical part of this paper on impacts combines the findings produced by both methods (e-survey and face-to-face interviews) as they complement each other qualitatively. Whilst the e-survey clarified the frequency of types of career and the general character of the impacts, the additional value of the interviews was to highlight the reasons for changing jobs, moving from one sector (or country) to another. The interviews helped to understand better what respondents include in the rather ‘woolly’ term ‘impact’ in different contexts. What are the respondents thinking when they evaluate the impact of their PhD on their personal capabilities and career and so on? Why are they feeling a limited impact on either the local community or the country? As this paper is focusing on the impact, we offer facts on careers and mobility only as they influence the impact potential.

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12 The e-survey methods are described in Kupiszewska, Kupiszewski, Kicinger, Ackers and Coy (2013) Work Package 4: Survey (Deliverable 6). For interview technique see Ackers, Bacova, Coy and Millard (2013) Narrative Report on qualitative interviews, Deliverable 10. We devoted another paper to comparing Hungary to smaller Pocarim countries, namely to Portugal, Norway and Latvia. (Csonka and Inzelt 2014)
3.1 Key features of the Hungarian sample

At the time of sampling there were 26 universities or similar institutions in Hungary, of which 18 operated a doctoral school in at least one of the SSH subfields. For the POCARIM survey 8 of these were selected with a view to tracking the careers of their PhD graduates. They were selected either from different regions or due to their special character.

In line with these criteria, the sample covers 5 of the 7 Hungarian regions, although one of these (Central Hungary) was the home of 4 institutions, since the country’s intellectual assets are concentrated in and around the capital. The 4 other regions each provided one.

In respect of character, the key selection criterion was that they should be high performers, and 6 belong to this group. Additional criteria involved selecting a foreign language speaking university and a newly emerging university with strong business links in a developed region. Table 2 shows the universities selected.

Table 2 Universities selected by region or by character

<table>
<thead>
<tr>
<th>Region</th>
<th>Specificity</th>
<th>Name</th>
<th>Nr. of SSH doctorate schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Hungary</td>
<td>Research University</td>
<td>Eötvös Loránd University, Budapest (ELTE)</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Research University</td>
<td>Budapest University of Technology and Economics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Excellence University</td>
<td>Corvinus University of Budapest</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Foreign University</td>
<td>Central European University, Budapest</td>
<td>2</td>
</tr>
<tr>
<td>South Great Plain</td>
<td>Research University</td>
<td>University of Szeged</td>
<td>6</td>
</tr>
<tr>
<td>North Great Plain</td>
<td>Research University</td>
<td>University of Debrecen</td>
<td>11</td>
</tr>
<tr>
<td>West Pannon</td>
<td>Newly emerging</td>
<td>Széchenyi István University, Győr</td>
<td>3</td>
</tr>
<tr>
<td>Central Trans-danubia</td>
<td>Excellence University</td>
<td>University of Pannonia</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Authors’ compilation

The next step was to prepare a register with e-mail addresses for an e-survey of those who obtained their SSH PhD degree at the selected universities. The response rate was 22% - which is quite good. The total size of sample is 242 persons, 145 of whom come from the Social Sciences and 86 from the Humanities. 25 interviewees were drawn from that sample, chosen from e-survey respondents who had expressed their willingness to be interviewed.

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13 Well performing universities are recognised as good universities nationally and some are also evaluated as good internationally. In Hungary two specific titles have been introduced qualifying our universities: Research University and Excellence University. Universities have to apply for these titles and undergo on evaluation process. Whilst ‘research universities’ have to cross certain thresholds in each of their studied fields of science the ‘excellence universities’ can acquire the title even if a few faculties (doctoral schools) do not meet the quality requirements.

14 Based on the Law on Protection of Personal Data and the Disclosure of Information of Public Interest (1992/LXIII) we were not allowed to obtain the e-mail addresses of graduates from the same source as their names. At the selected institutions there were 1,108 PhDs with available e-mail addresses.
The proportion of female respondents was higher in Social Science (57%) and a little lower in the Humanities (48%). By age group, the vast majority belong to the 30-40 age cohort (Table 3).

Table 3 Proportion of respondents by year of birth

<table>
<thead>
<tr>
<th>Years of Birth</th>
<th>% of respondents</th>
<th>Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947-1960</td>
<td>9</td>
<td>above 50</td>
</tr>
<tr>
<td>1961-1970</td>
<td>15</td>
<td>~ 40-50</td>
</tr>
<tr>
<td>1971-1980</td>
<td>69</td>
<td>~ 30-40</td>
</tr>
<tr>
<td>1981-1984</td>
<td>7</td>
<td>below 30</td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

In view of the relatively short history of the current three-level degree system, it is not surprising that only 11% of respondents obtained their degree between 2001 and 2007 and the remaining 89% between 2008 and 2012.

Graduates feature more strongly in some sub-fields of science than in others. Table 4 shows the proportion of respondents by subfield. Only those subfields are included in the table from where we obtained at least 10 responses.

Table 4. The percentage of respondents by SSH subfield\(^{15}\) (%)

<table>
<thead>
<tr>
<th>Social Sciences</th>
<th>Distribution of Respondents (%)</th>
<th>Humanities</th>
<th>Distribution of Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics and Business</td>
<td>25</td>
<td>Languages and Literature</td>
<td>17</td>
</tr>
<tr>
<td>Educational Sciences</td>
<td>8</td>
<td>History</td>
<td>10</td>
</tr>
<tr>
<td>Sociology</td>
<td>7</td>
<td>Archaeology</td>
<td>4</td>
</tr>
<tr>
<td>Law</td>
<td>7</td>
<td>Philosophy, Ethics and Religion</td>
<td>2</td>
</tr>
<tr>
<td>Psychology</td>
<td>4</td>
<td>Arts (arts, history of arts, performing arts, music)</td>
<td>1</td>
</tr>
<tr>
<td>Anthropology/Ethnology</td>
<td>3</td>
<td>Other Humanities</td>
<td>2</td>
</tr>
<tr>
<td>Political Sciences</td>
<td>3</td>
<td>Humanities</td>
<td>36</td>
</tr>
<tr>
<td>Other social sciences</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences</td>
<td>59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total: 100

Source: POCARIM survey database

One further feature is worth mentioning: three-quarters of PhDs in the Humanities and roughly two thirds of those in the Social Sciences work in the academic field.

At aggregated SSH level, we can see different structural patterns by sector. The differences are even more marked in terms of subfield (table 5).

---

\(^{15}\) Note: The Hungarian classification of scientific sub-fields is slightly different from the one used in the POCARIM project. In this paper the latter is used to keep the opportunity for international comparison.
Table 5 Differing sectoral distributions of PhDs in SSH

<table>
<thead>
<tr>
<th>Sector and type of organisation</th>
<th>Field of Science</th>
<th>SocSci</th>
<th>Hum</th>
<th>All16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governmental sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• State and local administration and public services</td>
<td>13.2</td>
<td>10.4</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>• Primary or secondary education institution</td>
<td>9.7</td>
<td>8.1</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Higher education and PROs (e.g. HAS Institutes, museums)</td>
<td>0.7</td>
<td>2.3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGO</td>
<td>63.4</td>
<td>77.9</td>
<td>69.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.7</td>
<td>2.3</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.8</td>
<td>0</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

The proportion of PhDs employed in the academic sector is much higher in the Humanities. Business, state and local administration and NGOs are more important for Social Science doctorates than the Humanities. That indicates that the non-academic sphere offers more job opportunities for Social Science doctorates than for Humanities. There is one type of organisation that is more important for doctorates in Humanities, namely general education. (The survey was done before a new law introduced the school teacher-researcher job in Hungary.)

Another important employment sector is public administration but the proportion is much lower when compared to HE. In this sector nearly 10% of Social Science doctorates are employed - roughly similar to the business sector. The Humanities are much less in demand in both sectors.17

Note: In the distribution of ‘All’ respondents the graduates in multidisciplinary field are also included.

According to our survey experience, it is always difficult to contact the unemployed and inactive. During the survey we had phone calls from people asking help from us but reluctant to respond in any way. Another group effectively missing are working in non-degree relevant jobs.

16 Note: In the distribution of ‘All’ respondents the graduates in multidisciplinary field are also included.
17 According to our survey experience, it is always difficult to contact the unemployed and inactive. During the survey we had phone calls from people asking help from us but reluctant to respond in any way. Another group effectively missing are working in non-degree relevant jobs.
3.2 Types of career path

Maps of Hungarian career paths were influenced by several country or region specific factors. This section presents the facts on career paths and mobility - information important to help us to understand the impact - discussed in detail in the next section.

As mentioned earlier, many respondents belong to the younger generation and so their time frame is limited for both work experience and mobility. These factors influence the labour-market behaviour of PhDs. In the investigation year 79% of the sample was in their first job (even if in a different position, with a different type of contract). The mobile group (those who have changed their job) is one fifth of the sample, which means 51 people changed their job before or after obtaining their PhD at least once. 21% of mobiles may be divided into two sub-groups: those changing before their PhD (6%) and those since (15%).

The relatively high level of immobility after graduating may be explained by the fact that the majority obtained their degree only a few years ago. Another reason may be that the survey period coincided with the economic crisis and keeping the job was the most important concern. The reason for moving before graduation might be to obtain a degree-relevant job at the time of graduation.

The sectoral distribution differs between mobiles and immobiles as Table 6 highlights the present job structure of the two groups.

Table 6. Sectoral distribution of mobile and immobile population in 2012\(^{18}\)

<table>
<thead>
<tr>
<th>Sector and type of organisation(^{19})</th>
<th>Immobile (185)</th>
<th>Mobile (51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governmental (public) sector</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>• State and local administration and public services</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>• Primary or secondary education institution</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Higher education and PROs (e.g. HAS institutes, museums)</td>
<td>74</td>
<td>54</td>
</tr>
<tr>
<td>Business (private) sector</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>NGO</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

The proportion of mobiles is much lower in the academic sphere, although all other sectors have increased their proportion. However this tells us nothing about the reasons for these changes. It may be that other sectors are more attractive or that the HE and PRO sector tended to push or reorient mobiles into other sectors – either into a degree relevant job or into less qualified jobs to avoid unemployment. (According to the responses, 11% of PhD degree holders have experienced a period of unemployment during their career, although typically this was no longer than 6 months).

3.2.1 In-sector and inter-sector mobility

Of 51 mobiles, 36 changed their job once and 15 more frequently, although a maximum of 3 jobs seems to be the norm (table 7 shows one-off mobiles.)

---

\(^{18}\) Original survey period lasted from October 2012 to December 2012 which was extended to February 2013. However Hungarian responses were received during the first period and so we quoted 2012 in the title.

\(^{19}\) Note: Table does not include those who are employed in other type of organisations (e.g. private higher education or general education, public & third sector NGOs) or does not responded.
Table 7 Sectoral movement of one-off mobiles (N=36)

<table>
<thead>
<tr>
<th>Trajectory of organization by type of employment</th>
<th>2nd (current) job</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HE (public)</td>
</tr>
<tr>
<td></td>
<td>HE (private)</td>
</tr>
<tr>
<td></td>
<td>Business</td>
</tr>
<tr>
<td></td>
<td>Gov. admin</td>
</tr>
<tr>
<td></td>
<td>NGO</td>
</tr>
<tr>
<td></td>
<td>General education</td>
</tr>
<tr>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>1st job after PhD attainment</td>
<td></td>
</tr>
<tr>
<td>HE (public)</td>
<td>10</td>
</tr>
<tr>
<td>HE (private)</td>
<td>4</td>
</tr>
<tr>
<td>Business sector</td>
<td>3</td>
</tr>
<tr>
<td>Gov. admin</td>
<td>1</td>
</tr>
<tr>
<td>NGO</td>
<td>1</td>
</tr>
<tr>
<td>General education</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

The matrix highlights the fact that the most frequent changes have occurred within the sector (55%). This means that mobiles whether from public or private HEIs wish to continue their activities and simply to get a better position or a permanent rather than temporary job. In the case of the civil service mobility might be illusory: restructuring public administration (frequent in Hungary) might have changed the organisation over the head of the employee.

The mobility direction among ‘multiple mobiles’ (15 PhDs) differs slightly from this matrix. ‘Multiple mobiles’ do not work at NGOs and none choose HE as their third job.

Mobility is to often considered as important for knowledge diffusion. Mobiles convey their codified and tacit knowledge (Polanyi, 1967) from one place to another. There is a similar knowledge diffusion function if highly skilled people have a dual-career. There are various reasons for dual-careers, ranging from an interest in different challenging jobs to simply earning more money.

A short overview of career paths has allowed us to divide the population into five preliminary career categories reflecting mobility:

1. Job-keepers in pre-doctoral occupation
2. Post-doctoral job-keepers (first job after degree, not changed)
3. Mobile within the sector
4. Mobile between sectors
5. Others (unemployed, employed in less qualified job)

The categories 2, 3 and 4 may have domestic or international dimensions. Detailed descriptions of these categories are beyond the scope of this paper.

4. The impact of Hungarian SSH doctorates

The impact of doctorates is a delicate issue and may be investigated on different levels. For individuals, their families and future generations it is important how the PhD influences the individual’s career, personal satisfaction, family life. Another level is the impact of doctorates on the capabilities and performance of the organizations they are working for. The third level of impact may be seen on society (in its broader or narrower sense). There are several layers of society such as the scientific community, local-, country-, or global society and the economy. According to our observations based on e-survey and face-to-face interviews, we find that most people felt it difficult
to think about any kind of non-measurable impact. (There are very few quantifiable measures such as some types of academic impact.)

The existence and strength of impacts were evaluated by SSH degree holders on the previously mentioned levels, and for evaluation we used the following categories: negative, neutral, beneficial and very beneficial. A common feature of their deliberation was whether the impact was more beneficial for an individual’s career, personal satisfaction and for the organisations worked for than for any level of society. Table 8 summarizes the average evaluation for two fields of science by main employment sector.

Table 8. Impact\(^{20}\) of doctorates by organisation and field of science.\(^{21}\)

<table>
<thead>
<tr>
<th>Sector / Type of organisation</th>
<th>Number of respondents</th>
<th>Personal Satisfaction</th>
<th>Personal career</th>
<th>Organisation (Employer)</th>
<th>Local Society</th>
<th>Country</th>
<th>Global Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher education / PROs</td>
<td>167</td>
<td>2.4</td>
<td>2.4</td>
<td>2.3</td>
<td>1.6</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>92</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>1.6</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Humanities</td>
<td>67</td>
<td>2.4</td>
<td>2.4</td>
<td>2.2</td>
<td>1.4</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Government or administration organisation</td>
<td>23</td>
<td>2.4</td>
<td>1.9</td>
<td>1.7</td>
<td>1.5</td>
<td>1.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>14</td>
<td>2.4</td>
<td>2.0</td>
<td>1.6</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Humanities</td>
<td>7</td>
<td>2.1</td>
<td>1.7</td>
<td>1.9</td>
<td>1.6</td>
<td>2.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Business / Commercial entity</td>
<td>17</td>
<td>2.3</td>
<td>1.7</td>
<td>1.7</td>
<td>1.4</td>
<td>1.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>242</td>
<td>2.4</td>
<td>2.3</td>
<td>2.2</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>145</td>
<td>2.4</td>
<td>2.3</td>
<td>2.3</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Humanities</td>
<td>86</td>
<td>2.4</td>
<td>2.3</td>
<td>2.1</td>
<td>1.5</td>
<td>1.6</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

As table 8 shows, there are modest differences between Social Sciences and Humanities by the organisation worked for. Doctorates in the Humanities feel a less positive impact on their organisation and local community than Social Scientists if their employers are HEIs or research organisations. The differences between the two fields may be seen at every level if the employer is government/administration or a local authority. However, the number of respondents from these sectors is very limited.

The following analysis by three levels of impact uses the aggregated e-survey results and relevant extracts from the interviews. Information from these sources is mutually complementary.

---

\(^{20}\) Here and other impact tables we used the following values to calculate the average: very beneficial = 3, beneficial = 2, neutral = 1 and negative = 0. The formula was: \((\text{very beneficial, pcs})*3 + (\text{beneficial, pcs})*2 + (\text{neutral, pcs})*1 + (\text{negative, pcs})*0 / \text{total, pcs}\). 

\(^{21}\) Table includes only those sub-fields/sectors which employ at least 5% of the respondents. Graduates with multidisciplinary degree are included in the ‘Total’ numbers. 82% of graduates employed by a business entity have a social science degree.
4.1 Impact on career and personal satisfaction

Personal satisfaction is influenced by many factors such as the scientific field, length of time since graduation, career path and various activities in which PhDs are involved. There are no major differences among PhD degree holders in terms of the impact of their degree on personal satisfaction, their career across subfields and the year of their graduation. Table 9 shows personal satisfaction by field of science.

<table>
<thead>
<tr>
<th>Fields of Science</th>
<th>Negative</th>
<th>Neutral</th>
<th>Beneficial</th>
<th>Very beneficial</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Economics &amp; Business</td>
<td>0</td>
<td>6</td>
<td>24</td>
<td>31</td>
<td>61</td>
<td>2.4</td>
</tr>
<tr>
<td>• Educational Science</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>19</td>
<td>2.4</td>
</tr>
<tr>
<td>• Law</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>12</td>
<td>17</td>
<td>2.6</td>
</tr>
<tr>
<td>• Sociology</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>8</td>
<td>17</td>
<td>2.5</td>
</tr>
<tr>
<td>Humanities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Archaeology</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>2.4</td>
</tr>
<tr>
<td>• History</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>10</td>
<td>24</td>
<td>2.2</td>
</tr>
<tr>
<td>• Languages Literature</td>
<td>0</td>
<td>2</td>
<td>19</td>
<td>19</td>
<td>40</td>
<td>2.4</td>
</tr>
<tr>
<td>Multidiscipline</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>11</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>16</td>
<td>101</td>
<td>116</td>
<td>236</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Source: POCARIM survey database

These data suggest that the PhD graduates had from their education more or less what they expected (if they expected anything). Law graduates are most satisfied and doctorates in history are below average. By year of graduation the earlier graduates are less satisfied (average 2.2) than those who obtained their degree more recently (average 2.5 and 2.6).

The PhD degree is an important condition for employment in the academic sector and a prerequisite for climbing the career ladder in HEIs and PROs. According to the rules, applicants cannot get a permanent job or a certain position in the academic sphere without a PhD. Advancement is not just a matter of honour; it brings a higher salary, greater prestige and better access to various scholarships and research grants dedicated to doctorates. Some of the researchers confirmed in the interviews that they targeted higher qualifications to keep their jobs and with good prospects:

- BS (sociologist): Before I started my PhD, I knew that I wanted to stay at the research institute, and did not want to look for a new job. I thought that my qualifications would secure this. For other job I do not need degree.
- EL (lawyer): I need the PhD degree to keep my position at the university.

---

22 Sum of social sciences, humanities and total contains those scientific subfields in which there were less than 10 responses.

23 The calculation of average is detailed in Table 8.
• LL (lawyer): the PhD not only served to ensure my survival, but has opened up more interesting career opportunities to me within the organisation that I work for, including permanent status

• KRe (regional economist): I was at the research institute part-time for 14 months... After that time, I was able to remain there as a PhD student and to continue teaching throughout (at university). As of September 2008, I got a full-time position at the university. After I finished all of my PhD courses, I immediately began working as a teaching assistant. Once I got my PhD degree, I became an assistant professor in barely a year, in September 2011.

A PhD degree was useful to get highly qualified jobs, but the job market does not seem very open for new graduates. If they cannot continue to work at the HEIs or PROs where they graduated or employed temporarily, it took couple of months (or years) for them to find qualification-relevant jobs.24

• Jhist (historian): Well, first I just looked around to see what is actually available with this degree. I realised that you first have to have a job and then get a PhD, and not the other way around, as I did. Maybe you can get a job with your PhD ... but I had never been unemployed.

• CE (economist): They (the college) needed a person with a PhD, and to start with them, we signed a basic contract of employment. Later though, I managed to improve the conditions for full-time research position.

Studying at the third level has broadened the horizon through international experience, as expressed in the following interviews:

• AE (economics): The degree itself was not (a positive impact), but the process was. In this sense, it was useful in many respects. It gave me an insight into international studies when I made brief trips abroad. I took part in research in all kinds of institution, saw all kinds of things. It really broadened my perspective compared to friends of mine who started working right after university.

• FE (economist): It definitely broadened my perspective to gain some insight into the lives of other people, other institutions, other cities and countries

• KRe (regional economist): My PhD ... opened up the world to me. I started to travel and go to conferences, meet people – all this really meant a lot to me on the personal level. It was also useful on the professional level.

The PhD process contributes to building professional relationships and can lead to job offer from outside the academic sphere also:

• IL (lawyer): “The (PhD) topic was very interesting at that time for different reasons. ... and I was invited to do further work on ... issue. So, while I was doing my PhD at the university, I also worked for the Commission through the Hungarian ministry. My involvement as an expert during my PhD process produced later an invitation to a permanent job at the Ministry, basically on the same topic.”

24 PROs do not have doctoral schools in Hungary but they are usually involved somehow in PhD graduation either teaching on courses, supervising PhD students, employing PhD students in research projects.
• TE (economist) “…the PhD had a positive influence on my career. Although I had to leave the university and move to the innovation agency that saw my degree as a positive asset. And I could not come back to the university without the degree. So I see it as a positive thing.”

The PhD degree has an important advantage in the academic sphere for ones career. PhDs can do research projects in their own rights and this opens up new opportunities to build professional relationships, to get in professional networks.

Personal satisfaction differs in terms of basic activities. Table 10 ranks these activities according to the proportions of Hungarian respondents who declared a positive impact on their personal satisfaction. Other columns show those POCARIM countries with the highest and lowest values relating to the given activity.

Table 10. Percentage of respondents and activities with a positive impact on personal satisfaction

<table>
<thead>
<tr>
<th>Activities</th>
<th>Activities</th>
<th>HU (N=242)</th>
<th>lowest %</th>
<th>country</th>
<th>highest %</th>
<th>country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic-related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publication</td>
<td></td>
<td>94</td>
<td>81</td>
<td>FR</td>
<td>99</td>
<td>NO</td>
</tr>
<tr>
<td>Teaching</td>
<td></td>
<td>89</td>
<td>83</td>
<td>CH</td>
<td>97</td>
<td>TR</td>
</tr>
<tr>
<td>Conference participation</td>
<td></td>
<td>66</td>
<td>43</td>
<td>ES</td>
<td>84</td>
<td>NO</td>
</tr>
<tr>
<td>Supervising students</td>
<td></td>
<td>66</td>
<td>47</td>
<td>PL</td>
<td>85</td>
<td>NO</td>
</tr>
<tr>
<td>Managing projects</td>
<td></td>
<td>64</td>
<td>52</td>
<td>IT&lt;sup&gt;25&lt;/sup&gt;</td>
<td>87</td>
<td>NO</td>
</tr>
<tr>
<td>Knowledge transfer</td>
<td></td>
<td>56</td>
<td>56</td>
<td>HU</td>
<td>86</td>
<td>PT</td>
</tr>
<tr>
<td><strong>Policy-related</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Political committees</td>
<td></td>
<td>28</td>
<td>28</td>
<td>HU</td>
<td>46</td>
<td>TR</td>
</tr>
<tr>
<td>Advisor in NGO</td>
<td></td>
<td>27</td>
<td>16</td>
<td>FR</td>
<td>45</td>
<td>LV</td>
</tr>
<tr>
<td>Advising policy-actors</td>
<td></td>
<td>26</td>
<td>14</td>
<td>SK</td>
<td>69</td>
<td>NO</td>
</tr>
<tr>
<td>Innovative products</td>
<td></td>
<td>23</td>
<td>15</td>
<td>SK</td>
<td>38</td>
<td>DE</td>
</tr>
<tr>
<td>Board member in company</td>
<td></td>
<td>15</td>
<td>4</td>
<td>IT</td>
<td>22</td>
<td>PL</td>
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<tr>
<td><strong>Media-related</strong></td>
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<tr>
<td>Giving interviews</td>
<td></td>
<td>52</td>
<td>33</td>
<td>SK</td>
<td>66</td>
<td>LV</td>
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</tbody>
</table>

Source: modified version of Zeynep ZAYCAN working table for quantitative analysis.

Publication and teaching generate most personal satisfaction. (Remember: the majority of respondents are from the academic world.) In this sense Hungarians are hardly different from other POCARIM countries where the two most important impacts on personal satisfaction are similar. Two thirds of Hungarian respondents feel that conference participation, supervising students and managing projects have a positive impact on their own careers. This puts Hungary in the middle of the POCARIM countries. In terms of the positive impact of knowledge transfer, Hungary occupies last place among POCARIM countries (56%). Unfortunately there are long-term problems with knowledge transfer in the country.

Regarding policy-related and media-related activities, Hungarians identified the greatest impact as participation in policy committees. However the proportion of this activity with a positive impact is

<sup>25</sup> A random sample has been drawn from the Italian sample to match sample sizes.
much lower than for academic activities and the lowest among the POCARIM countries. In the case of other policy-related activity, the Hungarian position is close to the bottom of the scale of the POCARIM countries - except for some highly country-specific regulation cases.

Two types of academic and policy related activity have very different impacts on personal satisfaction. Since most Hungarian respondents belong to the academic world, the different impacts show clearly the weak connection between the academic and public spheres.

By way of summary, the most important benefits of the PhD degree are currently the capabilities, skills and knowledge which the students acquire during their education. This prepares them to become a better employee than their counterparts who have had no such education. A PhD degree in SSH is more beneficial for those who are planning a career in the academic world and a less obvious choice for those heading towards the non-academic world.

4.2 The impact of doctorates on employers

According to our responses, the impact on the employer is relatively positive. The nature and extent of the impact is strongly linked to the sector where the PhDs are employed.

We mentioned earlier that most respondents are employed in the academic sector (by HEIs or PROs) but their sectoral distribution is somewhat different by science field. Those with doctorates who are working in the academic sector as teachers or researchers were able to identify a clear impact on the advancement of their subject and on students, but they were less certain in evaluating their degree in relation to other targets of their organisation. Nevertheless, they felt that their degree was at least beneficial for their employer. Practically all those interviewed who worked in the academic field emphasized the importance of their teaching activities and publications – both of which have a significant impact on the organisation. The impacts of these activities in terms of personal satisfaction and on organisations were closely linked. Beyond teaching, involvement in organisational activities related to education (such as managing doctoral schools, improving the international relations of their faculty) are also regarded as being among the beneficial/very beneficial impacts. Here are further examples:

- FE (economist): There have also been consequences for my professional life – the international contacts of our faculty are becoming more active at institutional level thanks to my personal contacts. ... the impact is more in teaching; I see improvement in individual students who develop into PhD students, or from beginners to experts.

- KRe (regional economist): I hear that there is competition between students to get me as their advisor, and this is a good feeling, because it means that my work and my methodologies are being recognised. I often get positive feedback when, sometimes years later, students tell me that they appreciate how I taught something or other.

- LL (lawyer): I think that I am in a position which has a good deal of impact on those around me. Through my activities organising the doctoral school, my teaching, and my organisational work at the faculty – these are all a central part of my work and of my life.

None of those interviewed mentioned as an example any kind of university Third Mission on which they have impacts even if some of them (such as the popularization of science) are visible in SSH faculties.

Since non-academic employers do not specifically demand doctorates, as interviews with potential employers have clearly shown, it is worth devoting a little attention to how doctors themselves evaluate their impacts on their employers. Their repeated argument was the acquired skills and
competencies as well as the actual PhD course are important for employers, and so in this sense PhDs have impacts on the organisations they work for. The following are good examples:

- **AE (economist)**: I gained so much knowledge at the university, such as statistical methods and SPSS analysis, that when we had to write analyses at (a bank), I was able to perform much better than my colleagues. At this job (another financial organisation) too, when I have to write an analysis, I have a completely different perspective.

- **Ghum (archaeology)**: There is no strict scientific work, but my experience, skills and the abilities acquired whilst doing my PhD are needed here. You have to make fast decisions, and use skills which are very similar to those needed in the academic sector.

- **IL (lawyer)**: But I have much deeper knowledge about the background of the fields that we are working with. ... it is also useful for the office because I can assist other people in the office by having this background knowledge of these fields.

- **Jhis (historian)**: So I think that having a higher degree can be important here in the sense that I can judge which documents of an organisation can be of interest from a historical perspective, because I have experience in research.

Some others were less positive on the usefulness of a PhD degree which is not fully recognized by companies. A statement heard frequently was that their PhD degree was not adequately rewarded by their company.

The interviews highlighted clearly that PhDs in non-academic jobs felt that their degrees were useful - but only partially. This evaluation of the impact of doctorates raises two issues: on the one hand the underdevelopment of professions in non-academic sectors - as discussed earlier, and on the other hand there is the one-dimensional character of Hungarian doctoral schools. The schools are devoted only to academic research education in most fields of science. SSH PhD education serves mainly the interest of academia and there are very few in government administration or the business sector that see the PhD degree as a positive and important asset of their employees.

### 4.3 The impact of PhDs on society – narrow or broad

The majority of Hungarian respondents belong to a young generation and so the impact on them might be lower than on their older or senior counterparts. The career stage of PhDs and their employers influence the extent to which they felt they had had or may have some impact on society, and the academic sector - as the main employer – dictates the specific features of any impact on society. Each mission of the universities (Education, Research and the Third Missions) may have an impact on society - at local, national or global level.

Apart from the difficulties in understanding the meaning of impact, an interesting observation is that there are small differences in impact with positive effect in terms of the level of society. Roughly half of the respondents felt that a PhD degree had a neutral impact on society. The proportion of ‘non-beneficial’ was highest in respect of local society (54%) and lowest relating to national (48%); the international impact was between the two. A relatively low positive impact on local society points to another view - of the weak role of universities as regional innovation organisers.

Looking at activities seeming to have a positive impact, a similar picture can be seen in relation to personal satisfaction (as shown in table 10) at national and global level. Two activities stand out: *media-related* and *innovative products*. They seem more rewarding at global rather than at other levels. This is a little odd since SSH doctorates are far from being an internationalised group in
Hungary. On the basis of the interviews, our impression was that the respondents are a little more optimistic (but less informed) on their international impact than on their local or national impact.

Publication was in first place amongst activities in terms of impact, and that impact is visible mainly in the academic sphere, in professional (scientific) societies at national and global community level. This is well exemplified by:

- AE (economist): Writing academic articles has also had a positive influence on the whole thing.
- KRe (regional economist): I now have citations, which shows that people have read my work and used it, which is always an important indicator in research.
- Some others were less optimistic about the impact of their publications:
  - FE (economist): I find the impact of publication very limited; it is hard to break through because so many other things are being published all the time.

Several PhDs stressed that their own impacts are interwoven with the organisation they work for. One, working at a Ministry, emphasized the impact at national level:

- IL (lawyer): ... Yes, I do believe that what we did (legal work) should have an impact on society. ... It is important both for everyday life and also for the market how it (a law) can work even if it is not so competitive or not a really optimal framework. And yes, it does have an impact also on the judiciary, how the courts interpret the current system, how they will interpret the new one... so, it should have a great impact.

Another recognised international impact relating to the internationalisation of the organisation he was working for. The interviewee emphasized:

- BS (sociology): I think that the (research institute) has an impact, because it has a lot of international projects. We can react quickly to international trends ...

Teaching may also have an impact at national level when new knowledge penetrates the everyday life of society.

- HE (economist): What we do see is that what we taught there at the department, such as a typical business plan, shows up later in official form at the (a government agency). So I can say that this was an impact on society, and that this was more important.

The popularization of science has developed accidentally among PhDs either at local or national level. Those involved in this kind of activity think that popularization is very useful and has a positive impact on local society (children, interested people) on professional associations (gardeners’ clubs, wine-lovers circles) and nationally also.

In Hungary it is a delicate matter if anything has an impact on policy. Some of the respondents have assumed some impact on policy formulation and management if any potential user of SSH-related knowledge commissions a study. In this sense the interviewee could identify some impact on policy-making at national level. Employing stricter criteria for impact mean policy-makers are using research results, commissioned work or advice in their everyday practice - or at least they discuss

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26 Policy activity is minuscule at local level. The national system is centralised. International policy is usually an issue for those who are making their careers as diplomats or working for international organisations.
their own initiatives with SSH-qualified experts before introducing them. Interviewees mentioned such examples in a few cases. Those working in public administration were more satisfied with their impact than those from the academic or business sectors.

- Jhist (historian): At the very least, in the respect that, if we get a new draft law from the Ministry, it generally goes to this department for review. ... So definitely I comment on virtually all of the draft laws received by my department from the Ministry. Of course, whether or not they take my opinion into account is quite another story...

Any impact on policy-making is a rare bird in the academic sector. It is usually related to Semi-research/Semi-advisory studies. One of the better examples was:

- BS (sociology): Recently ... we were commissioned to carry out a two-step feasibility study for (a government agency) We did some research and then provided a detailed description of what conditions are needed for a (brand new organisation) to back up systematically policy-making in the field of ... Since then, the (organisation) was set up and has been operating. The focus of this new organisation is the same as we proposed but its conditions are very different from our proposed one.

Visible impacts on different levels of society have highlighted a few types which are strongly influential at various levels on such things as publication and teaching. From the point of view of the impact of PhDs there are some weaknesses in Hungary such as the still weak connection between the academic and other sectors. Demand from non-academic sectors expressed by these organisations (section 2.3) produced not only few jobs for PhDs, but limited exploitation of their embedded knowledge. These facts are strong barriers to any kind of impact at any level.

Taking stock of the various impacts on society can bring us closer to understand the meaning of this fuzzy term.

Conclusions

International trends can be seen in the Hungarian job markets for SSH PhDs, although the non-academic sector has only a limited demand for SSH graduates. Their employment and use of their accumulated knowledge not only characterises career opportunities, shortages or surpluses on the job market but they are signs of how Hungary is progressing towards the knowledge-based economy. According to our findings, the demand for knowledge is slowly changing in different spheres of society. Public administration is not yet especially hungry for SSH doctors, but weak demand for highly educated staff may damage the organisational capabilities for adopting external knowledge – from their own background organisations or from other sources. This phenomenon limits the knowledge base for strategy formulation.

The business sector has created minuscule demand for SSH doctors, which means that emerging business demands such as advanced management, social responsibility, responsible research and innovation are scarcely visible.

Looking at the mobility pattern of the survey sample, apart from the somewhat short period since their graduation, two interesting trends may be identified. Most of the PhD graduates who have already held more than one position in their career are mobile intra-sectorally (such as from one HE organisation to another). The other trend is that PhDs employed in the private sector are relatively more mobile – at least a greater proportion are mobile than of those employed in the public sector. Their role may be important in knowledge dissemination in the non-academic sphere. Creating more
positions and opportunities for PhD graduates in those organisations might multiply the benefits for the whole economy.

In screening various types of impact, we devoted attention to reviewing several features of the current PhD education process. Firstly, the majority of PhD students enter their PhD courses with no work experience after their Master degree. At least for non-academic jobs, doctoral graduates would be more useful if they had some years of experience, and it is recognised that the more mature employee’s degree has a higher value for employers.

The PhD degree’s impact on a personal career is unclear. PhD education in Hungary is mainly organised to serve the aims of academia. In that environment the degree serves as a proof of capability but does not automatically offer better opportunities for degree holders. Training provides much useful experience, skill and knowledge – which can be useful also outside the traditional academic positions. However, these advantages are rarely appreciated – or example, by business organisations. Respondents employed in the private sector reported on these impacts of their education, but they also mentioned that these values played no part in their selection – even if they were later able to perform better using these skills and knowledge.

The character of Hungarian PhD education (variety of courses offered, research oriented education) are reflected in how the respondents evaluated the impact of their PhD degree. It was clearly positive for themselves (in terms of personal satisfaction) and for their careers (their ability to work in their desired profession). To a lesser extent they see a positive impact for their employers. They were much less sure about their own impact on local, national and global society. The impacts identified were mainly related to academic activities (e.g. teaching and consultation) and much less to other segments of society or the economy.

Based on our research findings, we may formulate recommendations to improve the usefulness of PhD graduation:

1. Upgrade knowledge absorption capabilities in public administration.
2. Encourage the business sector, NGOs to employ PhD graduates

In both cases the relevant incentives can help to put these targets into practice. One option is to allocate some support to organisations if they employ new PhD graduates (a maximum of 5 years after obtaining the degree). Two categories could be established:

   a. employment in degree-relevant job (full support)
   b. employment in non-degree-relevant job (partial support)

3. Awareness rising from HEIs and supportive measures from the government might help non-academic entities to appreciate the advantages of the PhD degree and to see the potential benefits of employing PhD degree-holders.

4. Improve collaboration with business sector representatives to identify common topics of interest. This may help the better understanding and acceptance of the PhD degree and may boost the demand for PhD graduates in the non-academic sphere.

5. Add to the teaching curricula of doctoral education topics which are important to non-academic jobs (without damaging research-education)
This particular research exercise has provided important information on the Hungarian SSH PhD degree holders’ population, career and impact. However there are numerous valuable research tasks ahead:

1) Analysing similar questions among STEM graduates would provide the opportunity to compare the situation in various fields of science, including SSH.

2) Surveying systematically those who are potentially creating demand for PhD graduates (in both the public and private sectors). Such a survey would produce valuable information about how to transform PhD education for the benefit of the whole economy.

3) Changing the dynamic of Higher Education and of the various emerging forms of training (such as a second Master degree) are challenging PhD education, and they may have a crucial impact on PhD education as well as on the demand for graduates.

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