

COHESION POLICY AND DEVELOPMENT PRIORITIES IN SLOVENIA

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ABSTRACT: *Slovenian Smart Specialization Strategy was adopted in 2015, identifying key priority areas of the country's future Research, Technology Development and Innovation (RTDI) policy. The aim of this paper is to find how well these areas correspond to the past development priorities in Slovenia. Since they have never been explicitly determined before, this paper seeks to identify them ex-post, based on the analysis of sectoral distribution of firm-level data on cohesion policy subsidies, distributed to firms for R&D activities between 2004 and 2011. We find that as high as 76% of subsidies going to manufacturing firms were concentrated in only seven sectors, which are in fact consistent with the recently defined future RTDI priority areas. This contributes to our understanding of cohesion policy in practice by recognizing that despite no explicitly identified priority sectors before 2015, cohesion R&D support in Slovenia has in the past been successful in identifying and promoting sectors which have later proved to be the most dynamic and promising parts of the Slovenian economy, and which still form the backbone of its current RTDI strategy.*

Keywords: *RTDI Policy, smart specialization, sectoral analysis, priority sectors, European Cohesion Policy*

JEL classification: E61, O25, R58

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1. INTRODUCTION

Slovenia has recently identified key priority areas for its Research, Technology Development and Innovation (RTDI) policy as part of the preparation of the Slovenian Smart Specialization Strategy² (also named S4). They were based on two comprehensive empirical studies³, which focused on the international competitiveness of specific economic activities and product groups. The studies took into account several aspects of competitiveness to determine key economic activities in Slovenia: technological specialization, analysis of comparative export-related advantages, the attractiveness of a specific area in terms of foreign investments, and dynamic analysis of performance in terms of productivity growth and export performance, as well as the untapped export-related potential at the level of products in comparison to the best performing EU Member States (GODC, 2015, p. 9). Based on the obtained data, key areas of the Slovenian economy were identified, forming

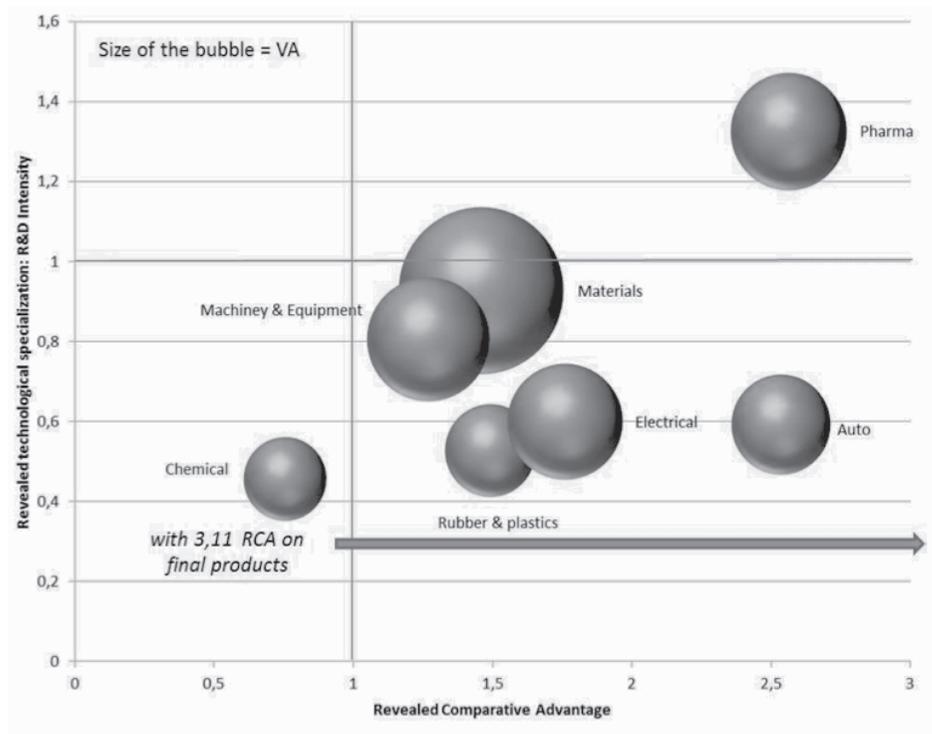
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² "Smart specialisation is a platform for concentrating development investments in areas where Slovenia has the critical mass of knowledge, capacities and competences and where there is innovation potential for placing Slovenia within global markets and thus enhancing its recognisability." (GODC, 2015, p.5)

³ Burger and Kotnik, 2014 and FIDEA, 2014.

“the backbone underpinning S4”. (ibid, p. 10). They are displayed in Figure 1 as economic activities with revealed comparative advantages in export (RCA⁴ above 1): Manufacture of Chemicals, Materials, Machinery and Equipment, Rubber&Plastic Products, Electrical Equipment, Automobile Industry, and Pharmaceuticals. The figure also demonstrates that all areas, with the exception of pharmacy, are technology-wise lagging behind the leading European countries.

Figure 1: Revealed comparative and technological advantage of key priority areas of RTDI policy, identified in Slovenian Smart Specialization Strategy (S4)



Source: GODC, 2015, p10

In view of the recently defined key areas of the S4, this paper seeks to find how they are aligned to development priorities of the Slovenian past RTDI policy. Has the ball game changed now that the priority sectors have been explicitly identified for the first time or has the policy focus proven to be consistent in the long term? The first question to ask is if such a focused approach to supporting RTDI existed at all in the past, or was it carried out on a purely horizontal basis.

⁴ RCA is a measure of revealed comparative advantage in export, calculated as $RCA = (EXP_{ij} / EXP_{it}) / (EXP_{nj} / EXP_{nt})$ where i is country index, n stands for set of countries, j is commodity index and t stands for the set of commodities.

The paper is organized as follows: section 2 presents cohesion policy support for firm R&D in Slovenia during 2004 and 2011, by introducing data, summary statistics and basic recipient firm characteristics. Since S4 is a platform for the placement of EU cohesion funds in the 2014-20 programming period, and these funds have also been used (in part) to stimulate the development potentials of Slovenia since its accession to the EU in June 2004, data on cohesion policy subsidies for firm R&D have been chosen for the empirical part of the analysis. Section 3 presents the sectoral distribution of these funds to find whether data on R&D support in Slovenia reveal a specific sectoral pattern which could be used to identify its past priority areas. In section 4 we address the question of a long-term consistency of Slovenian RTDI policy by comparing its priorities over an extended time frame. The last section concludes.

2. COHESION POLICY FOR FIRM R&D IN SLOVENIA

Cohesion policy aims to promote productivity and economic growth, stimulate the creation of jobs and promote investment in the EU regions, with the objective to stimulate a reduction in development disparities and at the same time to promote growth across the European Union. Slovenia has gained full access to cohesion policy after full membership, in the 2004-2006 period, for which €458 was negotiated. In the Financial Perspective 2007-2013, Slovenia was still considered as one region and since its development level was just below the 75% of EU average, it managed to negotiate €4.2 billion of cohesion funds (Kumar, Šlander, 2014). €1.7 billion of these funds have financed activities under the Operational programme »Enhancing the regional development potentials«, from which €402 million were distributed to finance productive investments to increase the competitiveness of Slovenian economy (by financing activities such as research investments, centers of excellence, subsidies and other means of finance for the small and medium sized companies, especially for the acquisition of technological equipment etc.).

Our analysis uses data on a large portion of these funds: cohesion policy subsidies for firm R&D in the period 2004-11 (combined payments from the EU+national co-financing). Table 1 presents basic summary statistics.

Table 1: *Cohesion policy subsidies for firm R&D (EU+national co-financing) in Slovenia between 2004 and 2011 (EUR); number of recipient firms*

| Year | Number of recipients/ firms* | Total CP R&D subsidies,paid out to firms (EUR) | Average subsidy (EUR) |
|-------|---------------------------------|---|-----------------------|
| 2004 | 9 | 726,919.47 | 80,768.83 |
| 2005 | 119 | 16,346,199.38 | 137,363.02 |
| 2006 | 255 | 30,631,232.40 | 120,122.48 |
| 2007 | 68 | 13,196,489.80 | 194,066.03 |
| 2008 | 324 | 44,745,381.72 | 138,103.03 |
| 2009 | 283 | 50,673,385.32 | 179,057.90 |
| 2010 | 233 | 81,260,547.68 | 348,757.72 |
| 2011 | 166 | 52,754,214.87 | 317,796.48 |
| Total | 1,457 | 290,334,371.00 | 199,268.61 |

Source: data provided by Government Office for Development and Cohesion Policy; own calculation

* A firm winning funds in multiple tenders in the same year is counted once for each tender.

As shown above, a total of €290 million R&D subsidies was paid out to 1457 firms in the 2004-11 period with an average subsidy of €199,269, showing a generally increasing trend since 2004.

Cohesion policy for firm R&D in Slovenia followed two broad goals in the past two programming periods (basic statistics shown in Table 2):

1. Heading / Priority theme 1.1 is dedicated to “*stimulating the development of innovation environment*” in financial perspective 2004-06, renamed to “*firm competitiveness and research excellence*” during 2007-13. During 2004-2011, 184 firms have received subsidies under this priority, in total value of €161 mio, with the overall average subsidy of €873,254. The average subsidy has doubled from the first to the second financial perspective to €1,1 mio as also the cumulative value funds available has increased. Substantial subsidies along with data on average firm size (cca 370 employees) also reveal that relatively large firms with larger projects have been selected to follow this goal. The largest recipient firm had almost 6,000 employees in the year of winning the tender.

2. Heading 1.3/Priority theme 1.2 allocates funds for “*stimulating entrepreneurship in firms*”. Between June 2004 and the end of 2011, a total of 1,015 firms received subsidies in

the total amount of €130 mio. The average subsidy here is substantially smaller, €127,740 for the entire period (though it has increased from €93,243 in 2004-06 period to €146,699 in 2007-11) but also smaller firms were selected in tenders, with an average size of approx. 36 employees. The largest company under this heading had 256 employees in the year of winning the tender.

Table 2: *Cohesion policy subsidies for R&D in Slovenia, paid-out directly to firms (EU+national co-financing), by priority theme in the period 2004-2006 and 2007-2011*

| Priority theme | 1.1 Development of innovation environment | | 1.3/1.2 Stimulating entrepreneurship in firms | |
|--------------------------------------|---|-------------|---|------------|
| | 2004-06 | 2007-11 | 2004-06 | 2007-11 |
| Number of recipients | 51 | 133 | 360 | 655 |
| Subsidies, total (EUR) | 27,539,598 | 133,139,136 | 33,567,434 | 96,088,205 |
| Average subsidy per firm (EUR) | 539,992 | 1,101,146 | 93,243 | 146,699 |
| Average firm size (nr. of employees) | 371.9 | 367.7 | 36.0 | 36.4 |

Source: data provided by Government Office for Development and Cohesion Policy (GODC); own calculation

To further analyse the characteristics of recipient firms, we merged data on subsidies with firm financial data, which is collected annually by Slovenian Agency for Public Evidence (AJPEŠ) for the entire population of Slovenian firms. 1-person entrepreneurs were omitted from the analysis due to unreliable data reporting and some firms were lost from the database via the data-merging process. This left us with 1,048 cohesion R&D subsidy recipients for which the relevant financial data are available. This number represents 72% of all recipient firms, but they account for €272.4 mio of subsidies, which is 94% of all cohesion R&D subsidies paid out to firms in the period under consideration. Table 3 presents relevant recipient firms' characteristics.

Table 3: Average absolute (in EUR) and relative* (in %) values of selected characteristics for recipients of cohesion policy subsidies for firm R&D one year before receiving funds

| Priority | 1.1 Development of innovation environment | | 1.3/1.2 Stimulating entrepreneurship in firms | | Cohesion Policy R&D total |
|----------------------------------|---|--------------------|---|--------------------|---------------------------|
| | Absolute values | Relative to sector | Absolute values | Relative to sector | Relative to sector |
| Number of firms | 180 | 180 | 868 | 868 | 1048 |
| Sales | 49,350,153 | 15.32 | 3,845,845 | 2.37 | 4.6 |
| Employment | 369 | 11.69 | 36.28 | 2.41 | 4 |
| Value added | 13,478,771 | 12.63 | 1,078,511 | 2.65 | 3.78 |
| Labour productivity | 40,843 | 1.27 | 35,307 | 1.28 | 1.2 |
| Profit/employment | 7,348 | 2.08 | 7,099 | 2.17 | 2.17 |
| Wages | 18,116 | 1.25 | 14,266 | 1.11 | 1.14 |
| K intensity (Capital/employment) | 83,551 | 1.63 | 71,051 | 1.61 | 1.61 |
| Energy intensity | 0.02 | 0.72 | 0.02 | 0.75 | 0.74 |
| Export share | 0.54 | 2.92 | 0.33 | 2.02 | 2.17 |
| Debt/capital | | 0.50 | | 0.48 | 0.49 |

Source: own calculations based on GODC and AJPES data

* Relative values are based on comparing the characteristics of CP recipients to their sectoral averages, based on 2-digit NACE Rev.2 (similar results are obtained by comparison with 3-digit sectors, see also Jaklič et al., 2012). Value 1 means that the average performance of CP recipients corresponds to that of their respective sector.

Table 3 shows (column “CP R&D total”) how the recipients of cohesion policy R&D support compare to other, non-recipient firms in their respective sector on average (one year before actually receiving cohesion funding to avoid the possible effect of funds on the selected firm characteristics). Data reveals substantial differences: firms winning the cohesion R&D tenders were on average larger (by a factor of around 4), more productive, more profitable (by 2-fold), paid higher wages (by 14%), were more capital intensive (by 60%), significantly more export-oriented (by a factor of 2), less energy-intensive (by a quarter) and substantially less indebted (by a half) than the average firm in their respective sector. **This means that firms receiving cohesion policy support for their R&D activities were above-average performers in their respective sectors even before obtaining subsidies.**

In the same table we also compared characteristics of recipient firms under both priority themes (columns 2-5). There is a notable difference in absolute values of their selected characteristics: firms, funded under priority “1.1. Development of innovation environment” were not only much larger (in terms of sales, employment and value added), but also more productive, more profitable, more capital intensive, paid higher wages on average and exported a larger share of their income.

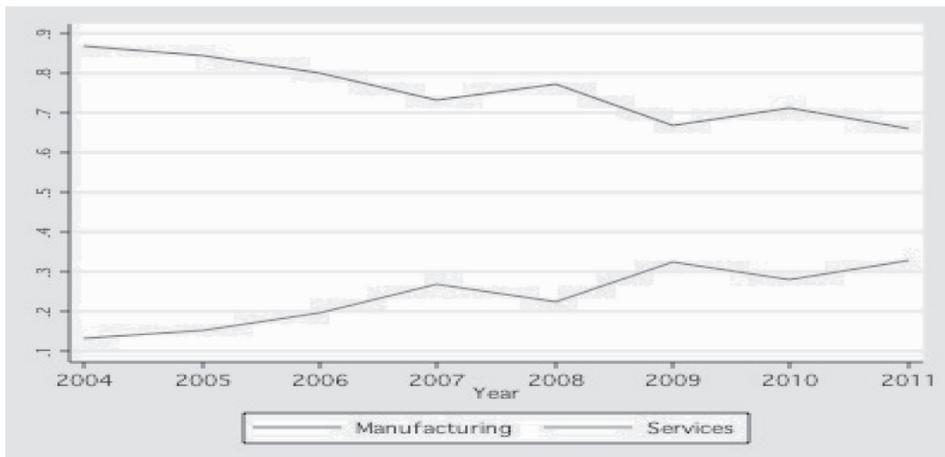
On the other hand, comparing their relative-to-sector results, apart from the relative size dominance and relative-to-sector export advantage of firms funded under priority 1.1 (Development of innovation environment), most of their relative-to-sector results are comparable between firms from both priorities.

3. IDENTIFYING PRIORITY AREAS FOR THE PERIOD 2004-11

This section is focused on identifying the possible sectoral focus of cohesion policy R&D support in the period 2004-11. The allocation of subsidies to sectors (2-digit NACE Rev.2 classification was used in the analysis) was calculated to find whether data reveal a specific sectoral pattern which could identify priority areas of the past RTDI policy in Slovenia or, conversely, to find that it has in the past been carried out as a purely horizontal policy.

To start in broad classification terms, there was a strong focus given to firms in manufacturing sectors (sectors C10-C33) - 72% of subsidies went to 727 manufacturing firms, while 28% of funds went to 322 service firms (sectors D34-S96). Nevertheless, a stable upward trend towards financing R&D activities of firms in the services sector is visible from Figure 2. **The share of funds paid out to services firms has increased from 13% in 2004 to almost 1/3 in 2011, at the expense of a declining share of cohesion R&D funds paid out to manufacturing firms.**

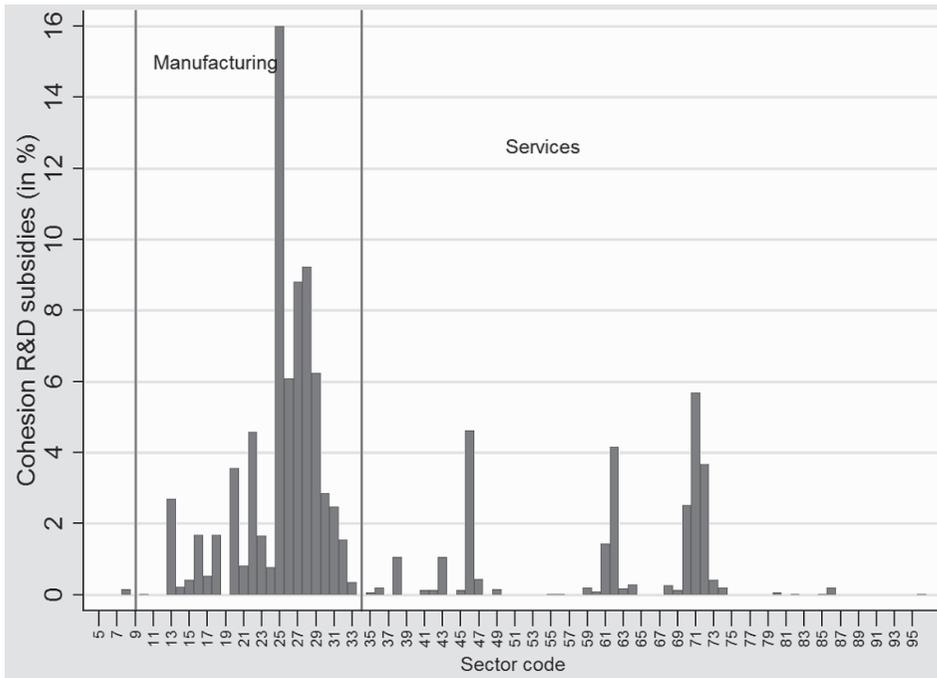
Figure 2: *Distribution of cohesion policy subsidies for R&D in Slovenia, paid out to firms in manufacturing and services sectors in the period 2004 - 2011*



Source: own calculations based on GODC and AJPES data

Further, Figure 3 reveals a more detailed picture of the sectoral distribution of cohesion R&D subsidies. 53 sectors have been funded altogether in the period 2004-11, but the variation of the intensity of subsidies is large and only **11 sectors received more than 3% of the total sum of funds**. Moreover, there is a visible sectoral policy focus here where firms in the 10 most strongly financed sectors received 69% of these funds.

Figure 3: *Distribution of cohesion R&D subsidies paid out to firms between 2004-11 by sector (2-digit NACE Rev.2)*



Source: own presentation based on GODC and AJPES data

The analysis presented in Table 4 shows that although cohesion policy for firm R&D in Slovenia during 2004-11 displayed a horizontal nature (most of the manufacturing sectors - 21 out of 24 - have received some level of financing), there is a visible cluster of sectors with a higher concentration of subsidized firms: as high as **76% of subsidies going to manufacturing** (and 46% of total cohesion policy R&D subsidies) **was distributed to firms in only seven sectors, which we identified as revealed priority areas of the past RTDI policy in Slovenia:**

- Manufacture of fabricated metal products, excl. machinery and equipment (sector C25)
- Manufacture of machinery and equipment (C28)
- Manufacture of electrical equipment (C27)
- Manufacture of motor vehicles (C29)
- Manufacture of computer, electronic and optical products (C26)
- Manufacture of chemicals (C20)
- Manufacture of rubber and plastic products (C22)

Among the services firms, the largest share (close to 6%) of total cohesion R&D subsidies went to firms in Architectural and engineering activities (sector code M71), followed by firms in Wholesale trade (4.6%, G46), Information technology (4%, J62) while 3.7% of total R&D funds went to firms classified in Scientific research and development sector (M72).

Table 4: *Distribution of cohesion R&D subsidies paid out to firms in the 2004-06 and 2007-11 programming periods under priorities 1.1 and 1.3/1.2 by sector (2-digit level NACE Rev.2)*

| NACE Rev.2 | Priority | 1.1 Development of innovation environment | | 1.3/1.2 Stimulating entrepreneurship in firms | | Total cohesion R&D funds |
|------------|-------------------------------------|---|---------|---|---------|--------------------------|
| | | 2004-06 | 2007-11 | 2004-06 | 2007-11 | |
| C10 | Food products | 0% | 0% | 0% | 0% | 0.02% |
| C13 | Textiles | 15% | 2% | 1% | 1% | 2.69% |
| C14 | Wearing apparel | 0% | 0% | 1% | 0% | 0.21% |
| C15 | Leather and related products | 0% | 0% | 1% | 0% | 0.42% |
| C16 | Woods, products of wood and cork | 0% | 0% | 4% | 4% | 1.69% |
| C17 | Paper products | 0% | 0% | 2% | 1% | 0.52% |
| C18 | Printing | 0% | 0% | 3% | 4% | 1.67% |
| C20 | Chemicals, chemical products | 3% | 5% | 1% | 2% | 3.55% |
| C21 | Pharmaceutical products | 0% | 2% | 0% | 0% | 0.81% |
| C22 | Rubber and plastic products | 2% | 1% | 8% | 10% | 4.58% |
| C23 | Other non-metallic mineral products | 0% | 1% | 3% | 3% | 1.65% |
| C24 | Basic metals | 0% | 1% | 1% | 1% | 0.76% |
| C25 | Fabricated metal products | 6% | 11% | 19% | 26% | 16.00% |

| | | | | | | |
|-----|--|-----|-----|-----|-----|-------|
| C26 | Computer, electronic and optical products | 3% | 9% | 2% | 3% | 6.07% |
| C27 | Electrical equipment | 5% | 14% | 6% | 2% | 8.80% |
| C28 | Machinery and equipment | 12% | 7% | 13% | 10% | 9.23% |
| C29 | Motor vehicles, trailers and semi-trailers | 28% | 6% | 4% | 2% | 6.24% |
| C30 | Other transport equipment | 6% | 4% | 1% | 1% | 2.85% |
| C31 | Furniture | 0% | 1% | 7% | 3% | 2.47% |
| C32 | Other manufacturing | 0% | 2% | 2% | 1% | 1.54% |
| C33 | Repair and installation of machinery and equipment | 1% | 0% | 0% | 1% | 0.34% |
| D35 | Electricity, gas, steam and air conditioning supply | 0% | 0% | 0% | 0% | 0.06% |
| E36 | Water collection, treatment and supply | 2% | 0% | 0% | 0% | 0.20% |
| E38 | Waste collection etc | 0% | 2% | 1% | 0% | 1.05% |
| F41 | Construction of buildings | 0% | 0% | 1% | 0% | 0.12% |
| F42 | Civil engineering | 0% | 0% | 0% | 0% | 0.12% |
| F43 | Specialized construction activities | 0% | 0% | 2% | 3% | 1.06% |
| G45 | Wholesale and retail trade and repair of motor vehicles and motorcycles | 0% | 0% | 1% | 0% | 0.13% |
| G46 | Wholesale trade, except of motor vehicles and motorcycles | 0% | 5% | 4% | 6% | 4.63% |
| G47 | Retail trade, except of motor vehicles and motorcycles | 0% | 0% | 1% | 1% | 0.43% |
| G49 | Land transport and transport via pipelines | 0% | 0% | 0% | 0% | 0.14% |
| I55 | Accommodation | 0% | 0% | 0% | 0% | 0.01% |
| I56 | Food and beverage service activities | 0% | 0% | 0% | 0% | 0.01% |
| J59 | Motion picture, video and television programme production, sound recording and music publishing activities | 0% | 0% | 1% | 0% | 0.19% |

| | | | | | | |
|-------|---|--------|---------|--------|--------|---------|
| J60 | Programming and broadcasting activities | 0% | 0% | 0% | 0% | 0.09% |
| J61 | Telecommunications | 0% | 1% | 2% | 2% | 1.43% |
| J62 | Information technology service activities | 3% | 6% | 2% | 2% | 4.15% |
| J63 | Information service activities | 0% | 0% | 0% | 0% | 0.17% |
| K64 | Financial intermediation, except insurance and pension funding | 3% | 0% | 0% | 0% | 0.29% |
| L68 | Real estate activities | 3% | 0% | 0% | 0% | 0.27% |
| M69 | Legal and accounting activities | 0% | 0% | 0% | 0% | 0.12% |
| M70 | Activities of head offices; management consultancy activities | 2% | 4% | 0% | 1% | 2.52% |
| M71 | Architectural and engineering activities | 4% | 7% | 4% | 4% | 5.67% |
| M72 | Scientific research and development | 2% | 6% | 1% | 1% | 3.67% |
| M73 | Advertising and market research | 0% | 1% | 0% | 0% | 0.42% |
| M74 | Other professional, scientific and technical activities | 0% | 0% | 1% | 0% | 0.19% |
| N80 | Security and investigation activities | 0% | 0% | 0% | 0% | 0.05% |
| N82 | Office administrative, office support and other business support activities | 0% | 0% | 0% | 0% | 0.02% |
| P85 | Education | 0% | 0% | 0% | 0% | 0.02% |
| Q86 | Human health activities | 0% | 0% | 0% | 1% | 0.20% |
| S96 | Other personal service activities | 0% | 0% | 0% | 0% | 0.00% |
| | Total | 100% | 100% | 100% | 100% | 100% |
| Total | Cohesion R&D funds (mio EUR) | 24,992 | 132,503 | 29,343 | 85,554 | 272,392 |

Source: own calculations based on GODC and AJPES data

*Sectors receiving more than 3% of total funds are highlighted

A further examination of data shows that **the focus of cohesion R&D policy on the seven key sectors highlighted above was consistent between both priority axis** (they received 78% of manufacturing funds in priority axis 1.1. and 72% in 1.3/1.2 priority axis) despite the fact that they tended to target firms with very different characteristics (see Table 3 for details). Further, **the consistency of priority areas also applies to both programming periods** – 70% of funds in 2004-06 and 77% in the 2007-11 period were paid out to firms in these seven sectors, which means that the sectoral focus of the R&D policy has even increased in the last programming period.

4. ASSESSING LONG-TERM CONSISTENCY OF PRIORITY AREAS OF SLOVENIAN RTDI POLICY

To assess the long-term consistency of priority areas of Slovenian RTDI policy we compared the revealed sectors most heavily supported in the past (identified in the previous section) with the seven future priority areas, defined recently in the Slovenian Smart specialisation strategy (S4) as:

- Materials, composed of: Manufacture of other non-metallic mineral products (C23), Manufacture of basic metals (C24) and Manufacture of fabricated metal products (C25)
- Manufacture of chemicals and chemical products (C20)
- Manufacture of rubber and plastic products (C22)
- Machinery and equipment C28+C33
- Manufacture of motor vehicles, trailers and semi-trailers (C29)
- M. of electrical equipment (C27)
- M. of basic pharmaceutical products and pharmaceutical preparations (C21)

Table 5 sets out a presentation of the alignment of past and future key priorities of RTDI policy in Slovenia and shows that as high as 72% of cohesion R&D subsidies for manufacturing (52% of total R&D subsidies) in the period 2004-11 were paid out to firms belonging to the seven future priority areas. **This indicates that the consistency criteria for RTDI policy in Slovenia has been met and means that despite the fact there were no explicitly identified priority sectors before 2015, the cohesion policy for R&D has in the past been successful in identifying and promoting sectors which have later proved to be the most dynamic and promising parts of the Slovenian economy⁵.**

⁵ To say whether the cohesion policy has also contributed to the successful development of the sectors under consideration, a further analysis on its effectiveness is needed.

Table 5: *Presentation of the alignment of key priority areas of Slovenian development policy 2004-11 and future RTDI policy (set out in S4)*

| Key priority areas of future RTDI policy | Key priority areas of past RTDI policy | Subsidies 2004-11 (as share in total cohesion R&D subsidies for manufacturing)going to future key priority areas defined in S4 |
|---|---|--|
| Defined ex-ante in Smart specialization strategy | Identified ex-post based on empirical evidence in Section 3 | |
| Materials , composed of: C23, C24 C25 | C25 | 25.5% |
| Chemicals (C20) | C20 | 5% |
| Manufacture of rubber and plastic products (C22) | C22 | 6.3% |
| Machinery and equipment C28+C33 | C28 | 13.3% |
| Manufacture of motor vehicles, trailers and semi-trailers (C29) | C29 | 8.7% |
| M. of electrical equipment (C27) | C27 | 12.2% |
| M. of basic pharmaceutical products and pharmaceutical preparations (C21) | / | 1.1% |

Source: own calculations

Further, there is only one future priority area – Pharmaceutical industry – which has not been seen substantial R&D support in the 2004-11 period. Considering that this is the only industry in the Slovenian economy which reveals both comparative and technological advantage over their European counterparts, the case of Pharmaceutical industry seems to indicate that, at least in this case, Slovenia was able to avoid the danger of a deadweight effect of funding firms with sufficient own resources.

Besides evidence of consistency at the level of sectors, supported in the past and identified presently, there also seems to be consistency at the level of types for recipient firms within those sectors. As presented in Section 2, Slovenian RTDI policy in the 2004-2011 period supported above-average performers (even before receiving R&D subsidies) within sectors, which might imply that this funding has contributed towards greater specialization within diversified economic structure.

5. CONCLUSION

Slovenian Smart Specialization Strategy (S4), approved by the European Commission in autumn 2015, identified seven key economic areas of the future Slovenian Research, technology development and innovation (RTDI) policy: Manufacture of chemicals,

Materials, Machinery and equipment, Rubber&plastic products, Electrical equipment, Automobile industry, and Pharmaceuticals. Since this is the first time that Slovenia has explicitly defined its priority sectors, the question arises of their alignment with the country's RTDI activities in the past.

This paper seeks to find whether there is a long-term consistency of priority areas in Slovenian RTDI policy. Since they have not been defined in the past, we first sought to confirm whether they existed in the first place, as opposed to financing R&D as a purely horizontal measure.

Since RTDI policy in Slovenia has and will continue to be largely financed by the European cohesion policy, we based our empirical analysis on firm-level data for cohesion policy R&D subsidies between 2004 and 2011. €290 million has been distributed to 1,457 firms in this period under two headings: "*Stimulating the development of innovation environment*" and "*Stimulating entrepreneurship in firms*". Analysis of the recipient firm characteristics shows that they were above-average performers in their respective sectors in terms of size, productivity, profitability, export intensity and capital intensity even before receiving subsidies. They were also less energy intensive and less indebted.

An extensive empirical analysis of the sectoral distribution of subsidies between 2004 and 2011 has then been carried out to find whether the data reveal a specific sectoral pattern which could be used to identify priority areas of the past RTDI policy in Slovenia. First, we found that although there was a strong focus of funds given to firms in manufacturing sectors (72% of subsidies in the entire period), there was also a stable upward trend towards financing the services sector, which ended up to account for almost one third of R&D subsidies in 2011 (up from 13% in 2004). Second, even though cohesion R&D policy during 2004-11 was characterized by a horizontal nature (most of the manufacturing sectors - 21 out of 24 - have received some level of financing), as high as 76% of subsidies to manufacturing were distributed to firms in only seven sectors, which we identified as priority areas of the past RTDI policy in Slovenia: Manufacture of fabricated metal products (C25), Machinery and equipment (C28), Electrical equipment (C27), Motor vehicles (C29), Computer, electronic and optical products (C26), Chemicals (C20) and Rubber and plastic products (C22).

Finally, comparison of the revealed priority sectors supported in the past and those identified for the future (by Slovenian Smart specialization strategy – S4) led us to conclude that the consistency criteria for RTDI policy in Slovenia has been met and that despite the fact that there were no explicitly identified priority sectors before 2015, the cohesion policy for R&D has in the past been successful in identifying and promoting sectors which have later proved to be the most dynamic and promising parts of the Slovenian economy. In fact, there is only one area – pharmaceutical industry – which is amongst future priority areas but has not been heavily subsidized for R&D in the 2004-11 period. Considering that this is the only industry in the Slovenian economy which reveals both comparative and technological advantage over their European counterparts, this is a positive signal that, at least in the pharmaceuticals case, Slovenia was able to avoid the danger of a deadweight effect of funding firms with sufficient own resources.

SOURCES AND LITERATURE

Burger, A. & Kotnik, P. (2014). *Strokovna analiza kot podlaga za Strategijo pametne specializacije*. Available at: http://www.svrk.gov.si/fileadmin/svrk.gov.si/pageuploads/Dokumenti_za_objavo_na_vstopni_strani/Smart_specialization_metodologija_Final.pdf.

FIDEA SIA (2014). *The assessment of industry growth potential*. Available at: http://www.svrk.gov.si/fileadmin/svrk.gov.si/pageuploads/SPS_predstavitve/Fidea_2014_-_SI_Industry_Growth_Potential.pdf.

GODC (Government Office for Development and Cohesion Policy) (2015). *Slovenia's Smart Specialization Strategy*. Available at: http://www.svrk.gov.si/fileadmin/svrk.gov.si/pageuploads/SPS_predstavitve/S4_dokument_2015_october_eng_clean_lekt.pdf.

Jaklič, A. et al. (2014). *Evalvacija izvajanja politike podjetništva in konkurenčnosti v obdobju 2004-2009*. Available at: http://www.mgrt.gov.si/fileadmin/mgrt.gov.si/pageuploads/DPK/CRPi_2010/Koncno_porocilo_CRP_konkurencnost.pdf.

Kumar, A. & Šlander, S. (2014). The EU cohesion policy as part of the development policy in Slovenia. In Kandžija, V. (Ed.), *Absorption capacity of EU pre-accession programs in the Western Balkan countries*. Cemafi International.