

Social sciences and humanities R&D investment in South Africa: Current priorities, future needs

Executive summary

Expenditure on research and experimental (R&D) development in the social sciences and humanities (SSH) in South Africa has almost doubled over the past decade. However, analysis of patterns of R&D expenditure in SSH research fields over the period 2005/2006–2014/2015 reveals a number of critical issues for both institutional planning and national policymaking. We demonstrate that most SSH R&D expenditure in the 10-year reference period was targeted predominantly within just a few research fields: finance, economics, education, accounting, and political science and public policy. By contrast, investment in SSH research fields such as architecture and habitat, media and communication studies, psychology and transportation studies was strikingly low, with some research fields, such as dance or tourism, appearing to be at risk of decline. This policy brief uses these R&D data as a proxy, to propose that institutional R&D planners and national policymakers need to find a greater balance between current priorities and future needs, if SSH

R&D is to be 'leveraged' for larger socio-economic impacts, as envisaged in the new White Paper on Science, Technology and Innovation released in March 2019.

Introduction

In countries across the income spectrum, growing investment in R&D is predominantly targeted to advance the natural and health sciences, engineering, agriculture, and technology fields.¹ By contrast, investment in the SSH is typically a small fraction of gross domestic expenditure on R&D (GERD). This scenario is also true for South Africa: R&D expenditure on SSH fields as a percentage of total GERD is relatively lower than for science, technology and engineering fields.

However, our understanding of where investment in the SSH is targeted to specific fields related to national priorities has been somewhat limited. Yet, this is significant for evidence-informed research policy in South Africa, where social and human challenges lie squarely at the forefront of our current and future development agenda.

To redress this evidence gap, we disaggregated data for the SSH for the 10-year period 2005–2014, from the South African National Survey of Research and Experimental Development, conducted annually. Our goal? To identify patterns and trends of R&D expenditure within different SSH research fields over time.² A more fine-grained analysis than is currently available allows us to explore how national STI policy and institutional strategies, including funding policy, can be geared toward the mission of advancing and coordinating SSH R&D in South Africa.

Academic and policy context

The roots of the SSH in South Africa can be traced through the colonial and apartheid periods, and are mirrored in the development and advancement of knowledge transfer and knowledge production through the first universities and government-funded research institutes. After the democratic transition in 1994, the national policy framework on science and technology recognised that the SSH would have a significant place in post-apartheid society. In particular, the 1996 White Paper argued:

Human and social scientists play a vital role in providing critical analyses of national goals, choices about development policies and strategies, and other national issues pertaining to the transformation of South African society. Their involvement is crucial to a deeper understanding of social issues and to stimulating public debate that could lead to a reconsideration of chosen paths. Equally important to any society that seeks to be innovative in its response to the demands of global change is social research that identifies and explains global trends and their implications in political and economic life, communications and lifestyle changes. Research in the social sciences is therefore of fundamental importance, particularly at this point in our history. (DACST, 1996, p. 2)

This passage is instructive because it contains three key normative assertions about how the SSH should contribute to development in South Africa; that is, they have a role as a source of critical analysis, in deepening human understanding, and providing insight and explanation of social, political and economic phenomena. In the new White Paper on Science, Technology and Innovation (DST, 2019), there is an additional normative assertion about the SSH as extending beyond simply observation and commentary, to action: ‘The purposeful inclusion of the humanities and social sciences in the national system of innovation will be prioritised, not only in the role of observer and commentator, but also in the *conceptualisation, planning, and executing* of innovation initiatives.’ (p. 53; emphasis added)

What this additional role points to is an active mission for the SSH in a wider science, technology and innovation (STI) policy agenda; an agenda that is increasingly oriented to address the persistent societal and economic challenges of poverty, inequality,

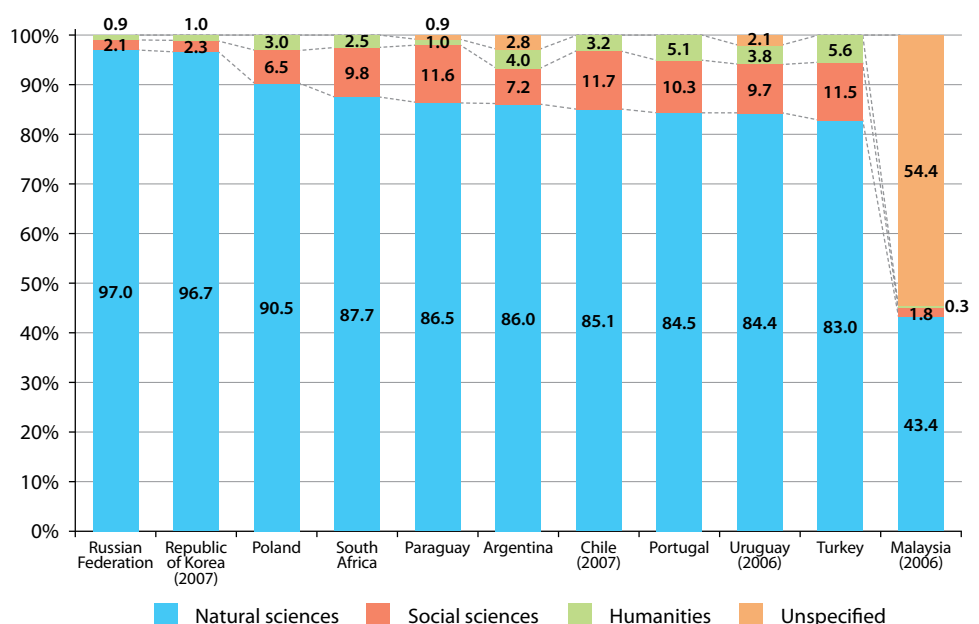
unemployment and weak growth. While the contextual realities South Africa faced in 1996 have perhaps become more complex in 2019 as a result of rapid and disruptive technological change, both the 1996 and the present policy outlooks express strong support for the place and value of the SSH in the country.³ But to what extent is the R&D conducted in the SSH oriented to address pressing societal and economic challenges in South Africa?

Review of key trends (2005–2014)

Is South Africa doing ‘enough’ R&D in the SSH?

Taken as an agglomeration of research fields, SSH R&D expenditure in South Africa has grown very substantially over a decade, especially when assessed relative to a range of developed and developing countries. Specifically, when compared to expenditure on R&D in the natural sciences and engineering over time, there has been a notable increase in the proportion of SSH R&D expenditure in South Africa – from 12.3% of GERD in 2005 (Figure 1) to

Figure 1: Country comparison of R&D expenditure within the social sciences and humanities, 2005



Source: Molotja & Ralphs (2018); OECD & UNESCO

Note: Data are for 2005 or the closest available year as indicated in brackets. The heading ‘natural sciences’ includes the following sub-categories: engineering and technology, natural sciences, medical and health sciences, and agricultural and veterinary sciences.

19.2% in 2014 (Figure 2). South Africa is in the company of countries such as Argentina and Malaysia, to report the largest proportional increase in SSH R&D between 2005 and 2014. Other emerging economies such as Chile, Turkey and Poland showed negative growth in SSH R&D expenditure over the same period.

Significantly, the data reflected in Figures 1 and 2 demonstrate that the ratio of GERD dedicated to SSH in South Africa by 2014 had grown substantially higher than that in a spread of countries, including BRICS countries, with small and large economies, and those with substantial societal challenges (for example, the Republic of Korea (3.6%), Russian Federation (4.1%), Malaysia (8.2%), Poland (9.0%), Chile (9.8%), Turkey (15.3%), Paraguay (16.2%) and Uruguay (17.1%)).

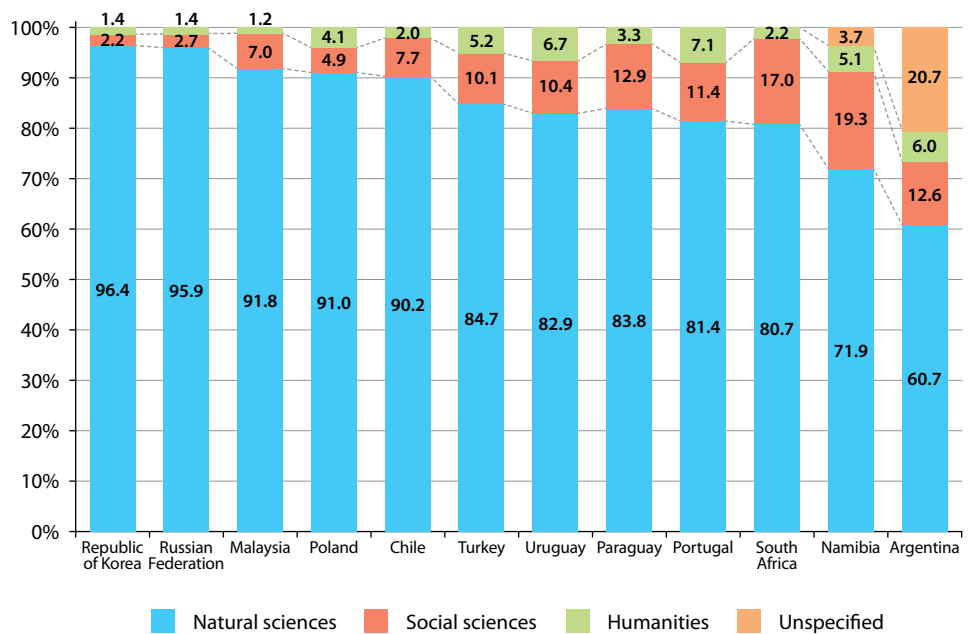
What SSH research fields are the biggest R&D spenders?

At the national level, the reported rand value of *social sciences* R&D expenditure over the 10-year period was ZAR27.8 billion. Social sciences R&D expenditure more than doubled between 2005 and 2014, from ZAR1.4 billion to ZAR5.0 billion.

Of a total of 19 social science research fields, 5 received 57.4% of this expenditure over the period 2005–2014 (Figure 3), with expenditure being highest in the finance research field. The next 4 research fields made up 18.1% of the expenditure, with the remaining 10 research fields making up 12.4%. Expenditure not classified⁴ by research field amounted to a relatively high 12.1% (Table 1).

Nationally, the reported rand value of *humanities* R&D expenditure over the 10-year period was much lower, at ZAR5.0 billion. Here too, Humanities R&D expenditure nearly doubled between 2005 and 2014, from ZAR350 million to ZAR657 million. Excluding unclassified expenditure, five research fields out of a total of seven made up 65.9% of the expenditure, with expenditure being

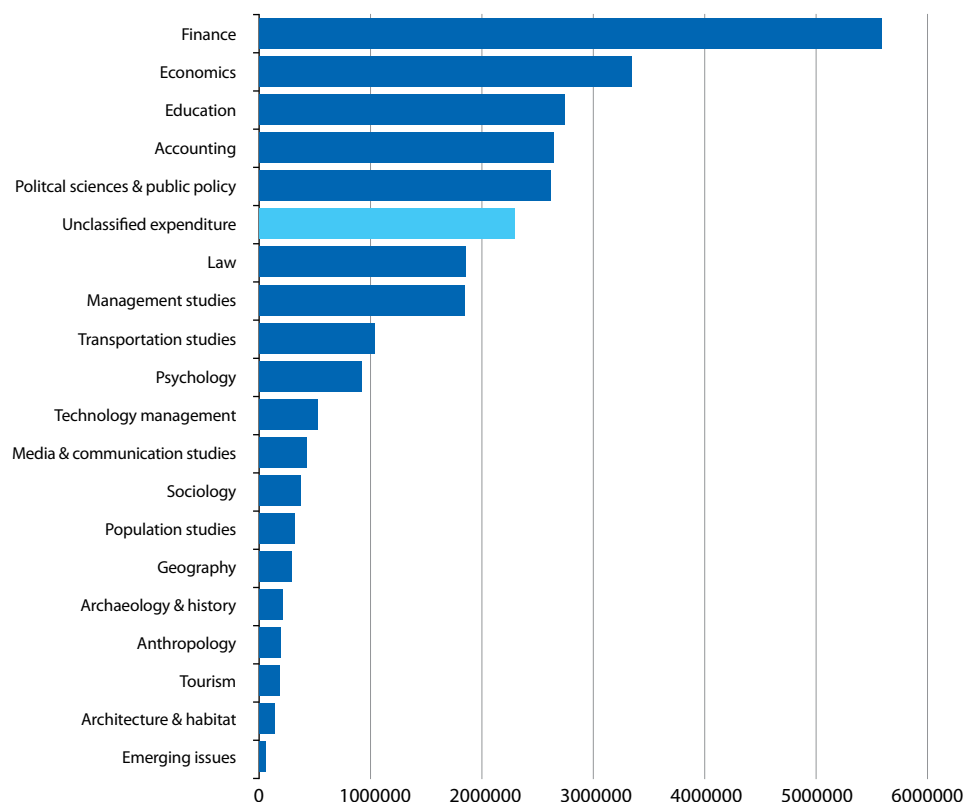
Figure 2: Country comparison of R&D expenditure within the social sciences and humanities, 2014



Source: Molotja & Ralphps (2018); OECD, UNESCO

Note: Data are for 2014 or the closest available year as indicated in brackets. The heading 'natural sciences' includes the following sub-categories: engineering and technology, natural sciences, medical and health sciences, and agricultural and veterinary sciences.

Figure 3: Nominal R&D expenditure across social sciences research fields, 2005–2014 (ZAR '000)



Source: Molotja & Ralphps (2018); Centre for Science, Technology and Innovation Indicators, HSRC

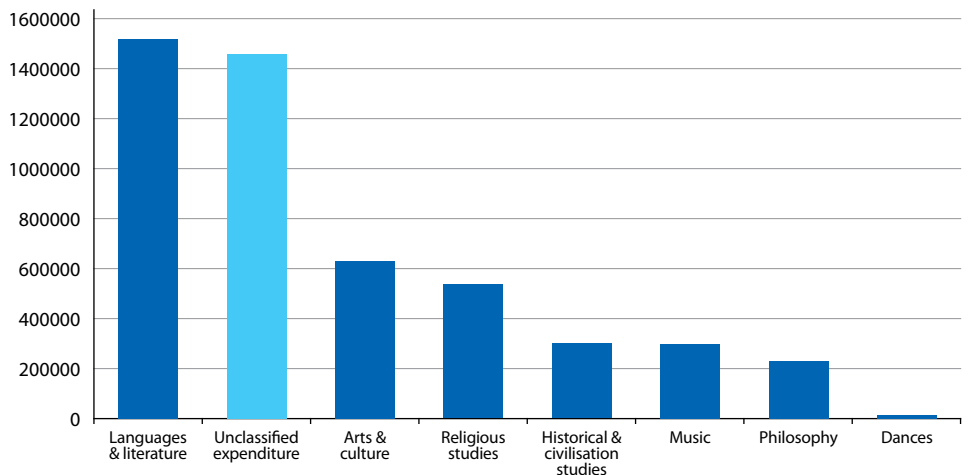
highest in the languages and literature research field (Figure 4). Two research fields (philosophy, dance) made up the remaining 4.9% of expenditure. Expenditure not classified by research field amounted to a very high 29.2%.

How do institutional sectors prioritise R&D in the SSH?

As Table 1 reflects, the higher education sector far exceeds all other institutional sectors in terms of the scale and proportion of R&D expenditure in the SSH, with the business sector accounting for 26% of expenditure. The question is how do these different institutional sectors prioritise R&D expenditure in specific research fields?

- **Higher education:** Expenditure was registered in all of the SSH research fields specified in the R&D survey. Expenditure for R&D in education (ZAR1.8 billion), law (ZAR1.7 billion), languages and literature (ZAR1.5 billion), management studies (ZAR1.3 billion) and economics (ZAR1.1 billion) was the highest over the 2005 to 2014 period. The next three research fields for which comparatively large amounts were spent were psychology (ZAR0.95 billion), accounting (ZAR0.86 billion), and political sciences and public policy (ZAR0.80 billion). More applied research fields such as population studies (ZAR0.02 billion)

Figure 4: Nominal R&D expenditure across humanities research fields, 2005–2014 (ZAR'000)



Source: Molotja & Ralphs (2018); Centre for Science, Technology and Innovation Indicators, HSRC

and transportation studies (ZAR0.01 billion) only attracted a small amount of R&D funding.

- **Science councils:** The bulk of SSH R&D expenditure (69.3%) was concentrated in a small number of research fields: political sciences and public policy (ZAR0.35 billion), education (ZAR0.35 billion), sociology (ZAR0.27 billion), population studies (ZAR0.24 billion), and economics (ZAR0.23 billion). Because of the low number of science councils that perform SSH R&D this trend is not necessarily surprising.
- **Government:** SSH R&D was performed across a wide range of

research fields, with expenditure being highest in the economics (ZAR0.66 billion), political sciences and public policy (ZAR0.64 billion), management studies (ZAR0.36 billion), law (ZAR0.16 billion), and arts and culture (ZAR0.13 billion) research fields.

- **Business:** Expenditure on R&D here was highest in the economic-related fields of finance (ZAR5.4 billion), accounting (ZAR1.8 billion), economics (ZAR0.59 billion), technology management (ZAR0.39 billion) and management studies (ZAR0.20 billion). Notably, in the finance research field, a sharp upward trend can be seen between 2011 and 2014.⁵ Also notable is

Table 1: Comparison of R&D spend in the SSH across institutional sectors, 2005–2014

Sector	Total R&D expenditure, social sciences and humanities (ZAR'000)	Proportion of total SSH R&D expenditure (%)	Total unclassified expenditure (ZAR'000)	Proportion of unclassified expenditure (% total)
Business	8 580 122	26.18	52 178	0.61
Not-for-profit	1 455 977	4.44	262 777	18.05
Government	3 063 845	9.35	349 382	11.40
Science councils	2 075 952	6.33	351 523	16.93
Higher education	17 598 571	53.70	3 794 335	21.56
Total	32 774 466	100.00	4 810 196	14.68

Source: Molotja & Ralphs (2018); Centre for Science, Technology and Innovation Indicators, HSRC

the increase in expenditure in the emerging issues research field, from ZAR0.952 million in 2013 to about ZAR17 million in 2014.

- **Not-for-profit organisations (NPOs):**

NPO R&D expenditure is typically a small fraction of total GERD. In 2014, for example, it was 2.7% while in 2005, it was 1.6%, with the bulk of funding provided by foreign sources. Between 2006 and 2008, R&D expenditure in the education research field registered a sharp decline (from ZAR0.06 billion to ZAR0.02 billion), while R&D expenditure in the political sciences and public policy research field increased (from ZAR0.04 billion to ZAR0.06 billion). By 2014, however, the trend had reversed, with education R&D expenditure (ZAR0.04 billion) surpassing that in the political sciences and public policy research field (ZAR0.03 billion).

Current priorities, future needs

What can R&D expenditure data tell us about South Africa's actual R&D priorities?

A first observation is that South Africa appears to invest proportionally more of its GERD in SSH than the countries for which equivalent data are available. Linked to this observation is that SSH research investment has virtually doubled over the period of a decade. At the macro-scale, this observation could reinforce the view that, in fact, the SSH are not being overlooked in South Africa, but rather, are supported by increased investment, driven by a recognition of the value of performing this type of R&D.

However, it would be premature to draw that conclusion – for all SSH research – without examining and analysing the expenditure across the different research fields and sub-fields, and the institutional sectors in which the R&D is performed, relative to national development priorities. Indeed, the analysis of SSH

R&D expenditure data from 2005 to 2014 showcased in this policy brief, reveals a picture of concentration in a few research fields, mostly related to economic growth. Analysis of expenditure by research fields shows that the R&D spend on SSH is very strongly geared to areas such as finance, economics, education, accounting and political science and public policy (Figures 3 and 4).

Commentators might perceive this situation as an accurate reflection of prevailing economic and social urgencies. However, a number of questions arise. What explanations can be attributed to the comparatively low spend in areas such as technology management or media and communication studies? Are R&D agenda setters and decision-makers now paying sufficient attention to the opportunities and challenges posed by exponential technological changes taking place, which in the future are expected to re-shape entire communities, cities and economies? In an era characterised by massive data and information flows, underpinned by advancements in the Internet and the use of multiple and digitalised media to communicate meaning, R&D within these areas is arguably crucial to preparing for the future of both societal interaction and the economy.

Equally, in the context of Africa's 'demographic dividend', low levels of R&D investment in research fields such as population studies, sociology and geography, are concerning.

Are R&D investments oriented sufficiently to address South Africa's societal challenges?

The comparatively low spend in human development oriented fields such as psychology, architecture and habitat, archaeology and history, sociology, and languages and literature is a concern. South Africa's complex colonial and apartheid legacies remain persistent and traverse geo-spatial, subjective and linguistic experiences of citizens and

communities. These play out frequently in service delivery protests, contests over restitution, land and state-owned property, and, most recently, at our universities. There appears to be a weak alignment between SSH R&D spend and these burgeoning, seemingly intractable societal challenges.

A similar logic applies in the case of the relatively low levels of research investment in areas such as transportation studies, tourism and dance. To the extent that these areas arguably represent important potential economic and social development opportunities for South Africa, South Africans, and, more broadly, the globe, we would argue that SSH research decision-makers need to be alert to the apparent decline of these research areas.

A further observation is that when disaggregating by institutional sector, the higher education sector spends by far the bulk on research in both humanities and the social sciences. As the key 'custodians' of the SSH disciplines, therefore, decision-makers from these institutions have an especially crucial role to play in advancing SSH research in South Africa, and in redressing any imbalances that might be leading to decline in critical research fields.

The other major players in SSH R&D are business, government, science councils, and NPOs, in that order. Driven by their mandates, these institutions are arguably the main producers of applied SSH R&D, addressed toward specific economic, advocacy or policy objectives (as opposed to basic research objectives). Their research agendas can be driven by the availability of research funds, whether local or international. Collectively, these institutions spend marginally more on social sciences R&D than do higher education institutions, although of course comparatively less on humanities R&D.

The question this pattern raises for decision-makers from all sectors relates

to the issue of societal impact, or perhaps more crudely put, value for money. What are the ways in which R&D expenditure in SSH fields is – and can be – oriented to address pressing societal challenges?

A caveat is in order at this point: To think that there is a linear relationship between R&D and the solving of complex societal challenges is to misunderstand the many and, in some cases, competing drivers that underpin R&D in different sectoral contexts, or within different research fields. Therefore, the patterns identified here are but a starting point, highlighting areas of concern. Further fine-grained analyses of data on research performance and expenditure – for example on publications and grants – are required at both sectoral and research field level, to illuminate the focal themes of the R&D conducted. Such analysis could contribute to greater clarity on the distinctive urgent priorities for diverse research fields, whether financial, personnel or systemic, and hence, identifying what national and/or institutional levers can be used to influence R&D expenditure at the research field level. In-depth analysis of disciplinary funding economies (Molotja & Ralphs, 2018) would also yield insight into the types of knowledge production prioritised through R&D investments and, conversely, those knowledge projects that are not given priority.

Conclusion

There is a strong narrative in both institutional and national policy discourse that SSH research has a vital role to play in helping us not only to understand, but also to address, the societal and economic challenges of our transition. The formation of the National Institute for Humanities and Social Sciences in 2013, and continued investment in R&D through the National Research Foundation, the universities, the South African Research Chairs Initiative, and the Human Sciences Research Council, are reflections of the state's commitment in this regard.

There has been a tendency in our discourse to consider the SSH as an afterthought to the natural sciences and, as a result, to limit or short change SSH research. Data presented in this policy brief show that the SSH in fact covers a multiplicity of research agendas, which are carried out under the umbrella(s) of different organisational interests or mandates. These may be in direct competition or contradiction with each other, or, indeed, with the vision of the SSH in the White Paper.

It is therefore not altogether helpful to characterise the SSH as a 'singular' entity in this way. Rather, what we need to ascertain is the nature of the disciplinary funding economies of SSH R&D, in order to assess whether inequities or skewed distribution of scarce resources (whether public, philanthropic or private) are hindering knowledge production in the public interest. This will help us to make more strategic R&D choices in line with current priorities to address poverty, inequality, unemployment and slow economic growth, as well as future needs, arising from the global transition to a more sustainable development pathway in the context of rapid technological and demographic change.

Policy recommendations

- **For national government STI policymakers:** To achieve the vision of the social sciences and humanities as enshrined in national STI policy, actors across the national system of innovation must be geared to perform R&D that is oriented to identifying, explaining *and* actively addressing current societal and economic challenges as well as anticipated future needs. The tools to hand remain the same: innovation incentives, building human resources, or targeted institutional support. However, these should be implemented on the basis of clear analysis of the disciplinary

economies (public, private, public-private) that represent the performance of R&D generally, and public-interest R&D in particular.

- **For institutional and corporate planners:** While the data show an alignment between R&D and the major societal trends, including and especially finance, what is also revealed is 'neglect' of future strategic R&D opportunities. Examples are within tourism, architecture and habitat, transportation studies, or communication and media studies. We recommend therefore that institutional and corporate planners consider the South African R&D data and suite of analytical products as one key source of evidence for planning current and future research and innovation activities, as well as in their forecasting and scenario building.
- **For public or private funders:** The data provide a mirror of the key R&D performance trends over a 10-year period, including those research fields that are thriving, and those that are diminishing. We recommend that funders, both private (corporate or philanthropic) and public (national, provincial) also pay particular attention to South African R&D data and results in funding allocation decisions, towards societal and economic objectives.

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End notes

- 1 R&D as referred to here is defined in terms of the OECD's Frascati Manual (2002, 2015): 'R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man (sic), culture and society, and the use of this stock of knowledge to devise new applications.' (p. 30) Expenditure, as used in this brief, refers to current and capital expenditure.
- 2 Data as reported in annual R&D survey reports aggregates expenditure for the social sciences and humanities, but does not detail expenditure at the level of individual research fields. To achieve this, we examined data at the level of research fields to arrive at a finer level of analysis.
- 3 At ground level, debate about the status of the SSH in South Africa came to a head in 2011, with scholars and commentators disputing whether the SSH had fallen into crisis or not (Mouton, 2011). What has emerged from this heightened attention on the status of the SSH in South Africa in recent years is a particularly useful, if partial, body of critical analysis of different sources of evidence that is helping to develop a more robust picture of SSH research performance. These sources of evidence include not only bibliometric and enrolment data, but also institutional profiling, qualitative data from interviews with SSH scholars, and political economy analysis (see Molotja & Ralphs, 2018).
- 4 In the R&D survey, respondents classify R&D expenditure according to research field. If the research field is not given in the survey questionnaire, then respondents tend to report expenditure as 'Other social sciences not elsewhere classified' and 'Other humanities not elsewhere classified'. The impact is that when reviewing the data, there is often significant expenditure reported under these headings – in all sectors (see Table 1).
- 5 In the review of unit level data, it was noted that a single entity reported significant R&D expenditure in the finance research field in this period, which would explain the growth.

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POLICY BRIEF AUTHORS

Gerard Ralphs, Programme Manager & Policy Analyst, Centre for Science, Technology and Innovation Indicators, HSRC

Neo Molotja, Senior Research Specialist, Centre for Science, Technology and Innovation Indicators, HSRC

Enquiries to: gralphs@hsrc.ac.za