

The Researchers Report 2012

Country Profile: Sweden



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1. Key data

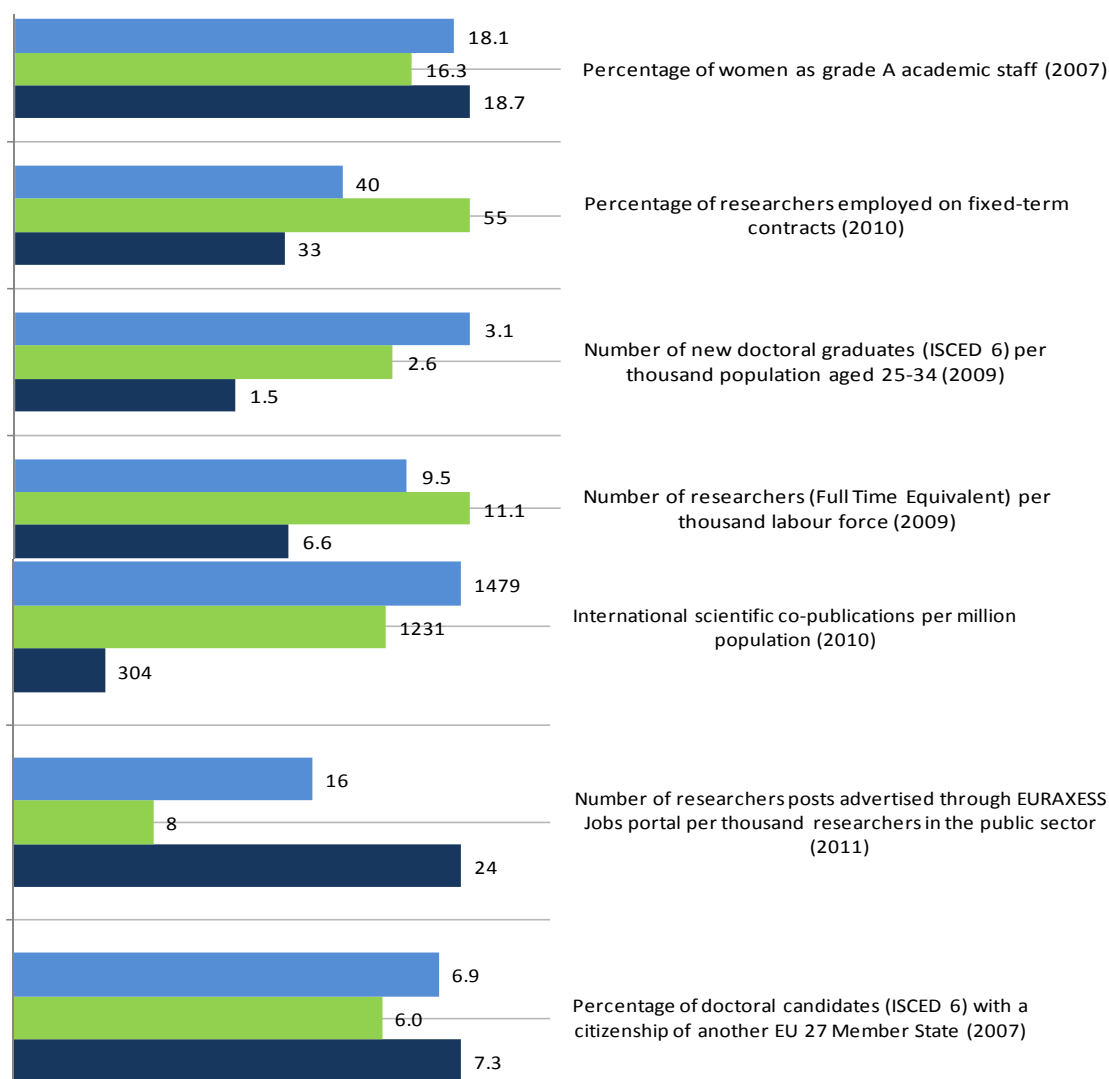
National R&D intensity target

“The most recent figures for Sweden on R&D intensity are 3.6% (1.06% public + 2.54% private). This is still below its probable peak level of 2001 (4.18% of GDP). The downward variation is mainly due to changes in private sector R&D investments. In view of 2020, Sweden is considering a preliminary national R&D target of 4% of GDP. Given the trend scenario presented below, a 4% R&D intensity target is realistic given that both public and private R&D investments are increasing. In its most recent research bill, for the period 2009–2012, the government substantially increased its R&D expenditures, despite the financial crisis at the time. In this research bill, public R&D expenditures identified ‘strategic areas’ for research and innovation in Sweden in the coming years, in particular medicine, technology and climate.”¹

Key indicators measuring the country’s research performance

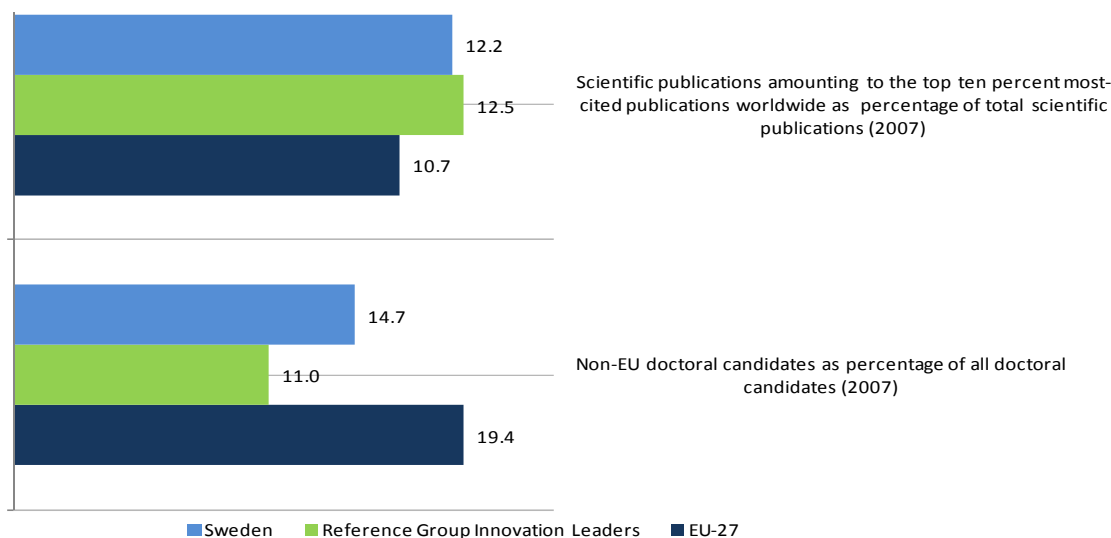
The figure below presents key indicators measuring Sweden’s research performance against a reference group and the EU-27 average².

Figure 1: Key indicators – Sweden



¹ European Commission (2011), “Innovation Union Competitiveness Report 2011”.

² The values refer to 2011 or the latest year available.



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, Science Metrix/Scopus (Elsevier), Innovation Union Scoreboard 2010

Notes: Based on their average innovation performance across 24 indicators, Denmark, Finland, Germany and Sweden show a performance well above that of the EU27. These countries are the Innovation leaders³.

Stock of researchers

The table below presents the stock of researchers by Head Count (HC) and Full Time Equivalent (FTE) and in relation to the active labour force.

Table 1: Human resources – Stock of researchers

Indicator	Sweden	EU Average
Head Count per 1 000 active labour force (2008)	15.34	9.45
Head Count (2008)	75 121	-
FTE per 1 000 active labour force (2009)	9.53	6.63
Full time equivalent (FTE) (2009)	46 784	-

Source: Deloitte

Data: Eurostat

2. National strategies

The Swedish Government has put in place measures aimed at training enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions. The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough researchers to reach Sweden's R&D targets, to promote attractive working conditions, and to address gender and dual career issues.

Table 2: National strategies⁴

Measure	Description
Academia for this day and age (Govt. Bill 2009/10:149)	The Academia for this day and age Bill covered greater autonomy for higher education institutions and further opportunities to transform the organisations. Higher education institutions' status is still that of state agencies, but faculty boards are no longer mandatory and regulated by the State.
Budget Bill 2012	The budget bill for 2012 has the following implications for research: <ul style="list-style-type: none"> – quality evaluation system for higher education: those education programmes that received the best assessment in evaluations carried out by the Swedish National Agency for Higher Education receive a quality premium of approximately SEK 100 million (some EUR 11 million) in 2013, approximately SEK 200 million (some EUR 22 million) in 2014 and then approximately SEK 300 million (some EUR 33 million) per year from 2015 onwards; – EUR 56 million were allocated to investments in strategic research areas and EUR 34 million

³ European Commission (2011), "Innovation Union Scoreboard 2010"

⁴ Sweden Country Page. Erwatch, Available at:

http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

Measure	Description
	<p>were allocated to higher education institutions' appropriations for research and education at doctoral level;</p> <ul style="list-style-type: none"> – The National Agency for Higher Education, the Agency for Higher Education Services and the International Programme Office for Education and Training will merge into a larger agency responsible for development of higher education and provision of fundamental services, and at the same time formation of a new agency responsible for quality assurance and supervision. The new agency structure will be in place January 2013.

Source: Deloitte questionnaire and Erawatch portal

3. Women in the research profession

Measures supporting women researchers in top-level positions

In 2007, the percentage of women grade A academic staff was 18.1% in Sweden compared with 16.3% among the Innovation Union reference group and an EU average of 18.7%⁵.

Quotas to ensure a representative gender balance

In Sweden, quotas/national targets are not mandatory. However, the number of members in boards, committees, panels etc. should be as gender balanced as possible.

Maternity leave

In Sweden, there are no maternity leave provisions for PhD students receiving stipends/grants.

4. Open, transparent and merit-based recruitment

Recruitment system

The Employment Ordinance (1994)⁶ requires HEIs to announce all job vacancies (both permanent or for a fixed period) for academic staff (including teachers and researchers) and advertise all relevant information e.g. on the EURAXESS portal.

To ensure that the information on the EURAXESS Sweden portal is adequate, VINNOVA, the Swedish Governmental Agency for Innovation Systems⁷, in cooperation with the Swedish Research Council, the Swedish Research Council Formas and the Swedish Council for working life and social research has, been appointed to administer the portal⁸.

Open recruitment in institutions

The table below presents information on open recruitment in higher education and public research institutions.

Table 3: Open recruitment in higher education and public research institutions

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant national online platforms	Yes/ No	According to the Employment Ordinance, institutions should publish job vacancies on national online platforms.
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	Yes/ No	According to the Employment Ordinance, institutions should publish job vacancies on Europe-wide online platforms.
– publish job vacancies in English	Yes/ No	Many institutions have policies to publish job vacancies in English.

⁵ See Figure 1 “Key indicators – Sweden”.

⁶ Swedish Code of Statutes 1994:373, Employment Ordinance (1994:373), sections 6, 7 & 8.

⁷ VINNOVA has existed since 2001 and has as mandate to stimulate Swedish participation in European and international cooperation, disseminate R&D information to performers, users and the public of R&D research, also increase young researchers possibilities for better working conditions, promote gender equality in appraisal of funding and within the organisation, and gender mainstreaming within research.

⁸ Sweden Country Page. Erawatch, Available at:

http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

Do institutions in the country currently have policies to ...?	Yes/No	Description
– systematically establish selection panels	Yes	Institutions have policies to systematically establish selection panels.
– establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)	Yes	Institutions have policies to establish clear rules for the composition of selection panels.
– publish the composition of a selection panel (obliging the recruiting institution)	Yes/ No	The composition of a selection panel is not published online but the information may be given to applicants.
– publish the selection criteria together with job advert	Yes	The selection criteria (assessment grounds) are generally either directly stated in the advert or indirectly by referring to web accessible documents stating the criteria. Information about the general regulations of selection criteria, application process etc. is published online.
– regulate a minimum time period between vacancy publication and the deadline for applying	Yes	Typically at least three weeks, for senior positions the period is normally longer.
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	Yes	According to state regulation, all universities must have appointment procedures including general regulations of the recruitment procedure.
– offer applicants the right to receive adequate feedback	Yes/ No	Mixed practices. Feedback may be given upon request or written evaluation reports from external reviewers may be sent to applicants.
– offer applicants the right to appeal	Yes	Institutions have policies to offer applicants the right to appeal.

Source: Deloitte

EURAXESS Services Network

In 2011, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 16 in Sweden compared with 8 among the Innovation Union reference group and an EU average of 24⁹.

Information on entry conditions, transfer of social security and pension contributions, accommodation and administrative assistance is available on the EURAXESS portal. Information on social security can be also found on the Swedish Social Insurance Agency website, which is linked to the EURAXESS Sweden portal. In addition, the Nordic Social Insurance Portal¹⁰ deals with information on social security for mobility between the Nordic countries.

The 'Study in Sweden' portal¹¹ contains links to all Swedish universities and university colleges as well as other related information for foreign students about the Swedish higher education system.

5. Education and training

Doctoral graduates by gender

The table below shows doctoral graduates in Sweden by gender as a ratio of the total population cohort.

Table 4: Doctoral graduates by gender

Indicator	Sweden	EU average
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (total) (2009)	3.1	1.5
Female Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2009)	3.1	1.4
Male Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2009)	3.1	1.6

Source: Deloitte

Data: Eurostat

⁹ See Figure 1 "Key indicators –Sweden".

¹⁰ Nordic Social Insurance Portal. Available at: <http://nordsoc.is/>

¹¹ Study in Sweden portal. Available at: <http://www.studyinsweden.se/>

Funding of doctoral candidates

The table below presents different funding paths accessible to doctoral candidates. According to the provisions in the Higher education ordinance the state HEIs are only permitted to admit an applicant whose funding is considered to be guaranteed for the entire programme. The last two years before dissertation, the doctoral student is entitled to a doctoral position with an employment contract.

Table 5: Funding opportunities for doctoral candidates

Measure	Description
Stipend/Grant	Stipends for foreign students (9%), doctoral grants (10%).
Employment contract	Doctoral students (56%), industrial PhD students (4%), externally employed (6%).
Other	Internally employed (associate professors (5%), doctor of medicine (4%), etc (5)).

Source: Deloitte questionnaire, based on the Swedish national agency for higher education¹²

Since 1998, all applicants for doctoral studies must have guaranteed financing for the whole doctoral period.

Universities must allocate at least 75% of the funding for research students for employment and state funding may not be used for stipends. Some universities already provide employment for all doctoral students. A research student grant is supposed to be converted to an employment relationship for a doctoral student within two years.

Measures to increase the quality of doctoral training

Since 2001, the Swedish National Agency for Higher Education has had the responsibility of the quality of the higher education system. Its duties include evaluations of the study programmes and their subject areas¹³.

Skills agenda for researchers

Some Swedish universities offer research communication skills, IPR-awareness, career management and entrepreneurship training in their effort to improve researchers' employment skills and competencies.

6. Working conditions

Measures to improve researchers' funding opportunities

A Boost to Research and Innovation (Government Bill of 2008) covers the period 2009-2012 and allocates additional resources of approximately EUR 500 million.

Researchers' Statute

The Swedish Higher Education Act (1992: 1434) as well as the Higher Education Ordinance (1993: 100) specify the employment conditions for the academic staff, including researchers.

'European Charter for Researchers' & 'Code of Conduct for the Recruitment of Researchers'

The Association of Swedish Higher Education (SUHF)¹⁴, representing the Rector's conference, signed the 'Charter & Code' in 2007.

Autonomy of institutions

The Government Bill (2009) provides HEIs with greater autonomy in the appointment of academic staff and other related policies, such as publishing job vacancies online.

¹² Fall 2010, Report 2011:8 R, Swedish national agency for higher education.

¹³ Sweden Country Page. Erawatch, Available at:

http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

¹⁴ The Association of Swedish Higher Education was founded in 1995 as an organisation for institutional co-operation on a voluntary basis. Forty one universities and university colleges in Sweden are members (15 universities, 19 university colleges and 7 university colleges of art). The Association aims at safeguarding the external interests of the institutions and at strengthening their internal co-operation. The Association was set up by the universities and university colleges themselves, the initiative being taken by the rectors concerned. It was as a merger between two existing rectors' conferences. There are no official duties or responsibilities, since the Association is not regulated by law. The Association has no legal status, although in practice it is acknowledged as the representative of universities and university colleges as a sector.

Career development

Higher education institutions and national funders are responsible for taking measures on researchers' career development. Some institutions offer the possibility of a tenure track.

Shift from core to project-based funding

In 2010, 35% of the employees in the higher education sector were employed on short-term work contracts receiving short-term funding. The external funding of university research has been at approximately the same level since the mid-1980s.

Social security benefits (sickness, unemployment, old-age)

In Sweden, stipends and doctoral grants do not provide sickness benefits. Furthermore, unemployment benefits are only granted to employed researchers. Old-age benefits are regulated by collective agreement between employers and unions. Stipends give no pension benefits (and not under national law). Doctoral grants carry entitlement to the national retirement pension and all kinds of employment carry an entitlement to an occupational pension.

7. Collaboration between academia and industry

A Boost to Research and Innovation (Government Bill of 2008) establishes technology transfer offices at eight universities promoting innovation and the use and transfer of knowledge in order to facilitate commercialisation of research results¹⁵.

The governmental agency VINNOVA also promotes sustainable growth by financing RTD within areas as technology, transport, communication and working life, and developing effective innovation systems. VINNOVA was granted EUR 10 million by the government for doctoral candidates in order to increase the number of industry-based doctoral students.

The VINN Excellence Centres (2004-15) are developed by the Swedish Competence Centres Programme (Centres of Excellence in Research and Innovation) and aim to strengthen the crucial link in the Swedish National Innovation System between academic research groups and industrial R&D¹⁶.

8. Mobility and international attractiveness

In 2007, the percentage of doctoral candidates (ISCED 6) who were citizens of another EU-27 Member State was 6.9% in Sweden compared with 6% among the Innovation Union reference group and an EU average of 7.3%¹⁷. In the same year, the percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 14.7% in Sweden compared with 11% among the Innovation Union reference group and an EU average of 19.4%¹⁸.

Measures aimed at attracting and retaining 'leading' national, EU and third country researchers

Since 2006, EEA citizens have not needed a work permit to reside in Sweden. The Swedish government has endorsed the Scientific Visa Directive since 2008¹⁹. HEIs may decide to allocate funding or other resources to retain or recruit outstanding researchers.

¹⁵ Ministry of Enterprise, Energy and Communications (2007), "A national strategy for regional competitiveness, entrepreneurship and employment 2007-2013".

¹⁶ Sweden Country Page. Erawatch, Available at: http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

¹⁷ See Figure 1 "Key indicators – Sweden".

¹⁸ Sweden Country Page. Erawatch, Available at: http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

¹⁹ Sweden Country Page. Erawatch, Available at: http://erawatch.jrc.ec.europa.eu/erawatch/opencms/information/country_pages/se/country?section=ResearchPolicy&subsection=Highlights

Outbound mobility

No mobility or cooperation agreements have been concluded at governmental level. It is the national agencies, the public research foundations and the universities themselves that set up bilateral and multilateral agreements.

The Swedish Foundation for Strategic Research (SSF) has a number of specific mobility grants targeting both European and non-European countries. Mobility grants for exchange with Japan exist in a number of different forms and programmes organised by SSF and VINNOVA.

Portability of national grants

The Swedish Research Council has signed the EUROHORCS 'Money follows researchers' Letter of Intent allowing portability of individual grants. However, not all institutions subscribe to the 'Money follows researchers' principle²⁰.

Cross-border access to grants

Grants from the largest governmental research funding agency, The Swedish research council, covering all research areas, are open for non-residents if they have an agreement with a Swedish HEI to perform the research at the Swedish HEI. Researchers awarded a grant are free to use the money to fund non-resident researchers in their country of residence or as guest researchers in Sweden as long as this is in agreement with the grant proposal. Grants money will also follow a researcher that moves from Sweden.

Measures encouraging inter-sectoral mobility

The Swedish government has not put in place measures to encourage researchers to move from the public to the business sector and vice-versa due to the fact that the researcher flow in Sweden is almost in one direction, namely towards industry.

²⁰ Ibid.