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The research-based pharmaceutical industry

A Tale of Three Industries: The Rise, Decline and Rise Again of the Swedish Life Sciences Sector

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EXECUTIVE SUMMARY

In this report we show that the Swedish life sciences sector has changed remarkably in the past 30 years and that is yet again positioned for rapid growth. We identify three distinct phases of the development in the last three decades – rise, decline, and rise again. Compared to 30 years ago, the Swedish life sciences sector is now much more diversified and less dependent on large companies with blockbuster drugs. After a decade of sharp structural change, expenditures on research and development (R&D) have yet again started to grow. Life science patents have also started to expand again. Exports have grown remarkably fast, partly as a result of Brexit, including to a growing number of countries and regions. Swedish life sciences sales are now less dependent than they used to be on the European and American markets. Since 2016, the pharmaceutical industry has grown faster in Sweden than in almost any other EU country.

The new profile of the life sciences sector in Sweden also reinforces the need to improve EU policies that are crucial for the industry. With a more distributed and diversified sector, the actual terms of patents and market exclusivity are getting ever more important. Unlike big multinationals, smaller and research-intensive life sciences companies – which now make up a significant part of the Swedish sector – have fewer strategies to effectively protect their intellectual property. With more sales now going outside of the traditional markets, it is increasingly important that the EU signs trade agreements that improve patent protection and market access – especially for companies that cannot afford establishing subsidiaries in many national markets. This report therefore recommends policies to improve the effective duration of market exclusivity and to expand and modernise EU trade agreements.

1. INTRODUCTION

The Swedish life sciences sector has undergone profound change over the past 30 years. While the entry of Sweden into the European Union anchored the Swedish life sciences sector more firmly in an EU context, the sector has always been international. The main impulses to the sector have been scientific breakthroughs, innovation, and cycles of "creative destruction" – for products, companies, and the relative competitiveness of the sector itself. In 1995, the pharmaceutical sector remained dominated by large companies with blockbuster drugs. With greater innovation uncertainty and less favourable demands for reimbursement, the sector has witnessed different waves of structural change – leading sometimes to consolidation and other times to fragmentation. The opportunities of new therapeutic developments have continued to grow, but the cost of bringing new products to patients has grown much faster. The life sciences market remains global, but it is also increasingly sensitive to the policy conditions that apply to innovation.

The Swedish life sciences sector is a case in point. In this study, we find a "tale of three sectors" – or three distinctive phases of development in the last 30 years: *rise, decline, and rise again.* The first phase – *rise* – sustained the sector a bit into the new Millennium. It was driven by rapid export growth, partly to the growing EU market, partly driven by the old blockbuster super cycle. The second phase – *decline* – was characterised by profound structural change in the Swedish life sciences sector, leading to slower growth and, on some economic metrics, declining performance. In the third phase – *rise again* – a new life science sector has emerged that is growing fast, trades more intensively with the world, and is much more diversified than it used to be. In this decade, Sweden's has witnessed the growth of a broader ecology of researched-based life science sectors, often with a specialised niche. On this basis, there are good prospects for growth.

However, this new sector is confronted with growing uncertainties. Obviously, one of them is the unpredictable development of the US pharmaceutical market, with new tariffs and various threats of reduced market access or political demands to cut prices. A second area of uncertainty concerns policies in Europe. The economic value of patents, and the temporary market exclusivity they grant, have declined over a long period of time. While the EU has recently tried to mildly improve their value – at least for certain categories of medicines – the reality is that a shorter time of effective protection of patens means that development costs must be recouped faster than before. At the same time, most governments regulate prices and reimbursement rates more than they used to do, almost all in the spirit of holding back growth in healthcare expenditures. These two incentives collide and, all too often, undermine the growth potential of the sector.

Policies can improve and, as a result, the Swedish life sciences sector can expand on its positive development. In fact, the Swedish sector is well positioned for growth. It is striking that Sweden's exports of pharmaceutical products have grown remarkably fast in recent years, and that the diversification of exports has increased. Sweden now increasingly relies on exports to a bigger number of countries. This also forms the basis of the policy analysis in this paper, leading to recommendations of improved market exclusivity, better reimbursement rates, and EU trade agreements that can boost global exports even more.

Chapter 2 profiles the three phases of the Swedish life sciences sector. Chapter 3 identifies areas of policies where reform can drive further expansion of the research-based and high value-added life sciences sector – especially in the terms of market exclusivity and trade policy.

2. THE SWEDISH LIFE SCIENCES INDUSTRY SINCE 1995

Over the past three decades, Sweden's life sciences industry has not followed a linear path. Instead, since the country's EU accession in 1995, the sector has moved through a long upswing, a sharp contraction, and – more recently – a renewed period of growth driven by a broader set of firms. The first decade after EU membership was defined by exceptional expansion: the Astra–Zeneca merger lifted Sweden into the top tier of life science producers, boosting value added, exports and patenting at an impressive pace. That momentum faltered in the late 2000s, primarily as AstraZeneca scaled back its Swedish R&D footprint, triggering a prolonged period of stagnation.

Yet the story does not end there. Since around 2016, the sector has regained dynamism, helped by renewed investment from AstraZeneca but underpinned increasingly by a wider base of small and mid-sized pharmaceutical and biotech firms. The recovery has been gradual but broad-based, signalling a shift from dependence on a single multinational to a more resilient and diversified ecosystem. Section 2.1 details the rise and subsequent decline between 1995 and 2016, while Section 2.2 turns to the industry's resurgence from 2016 to today.

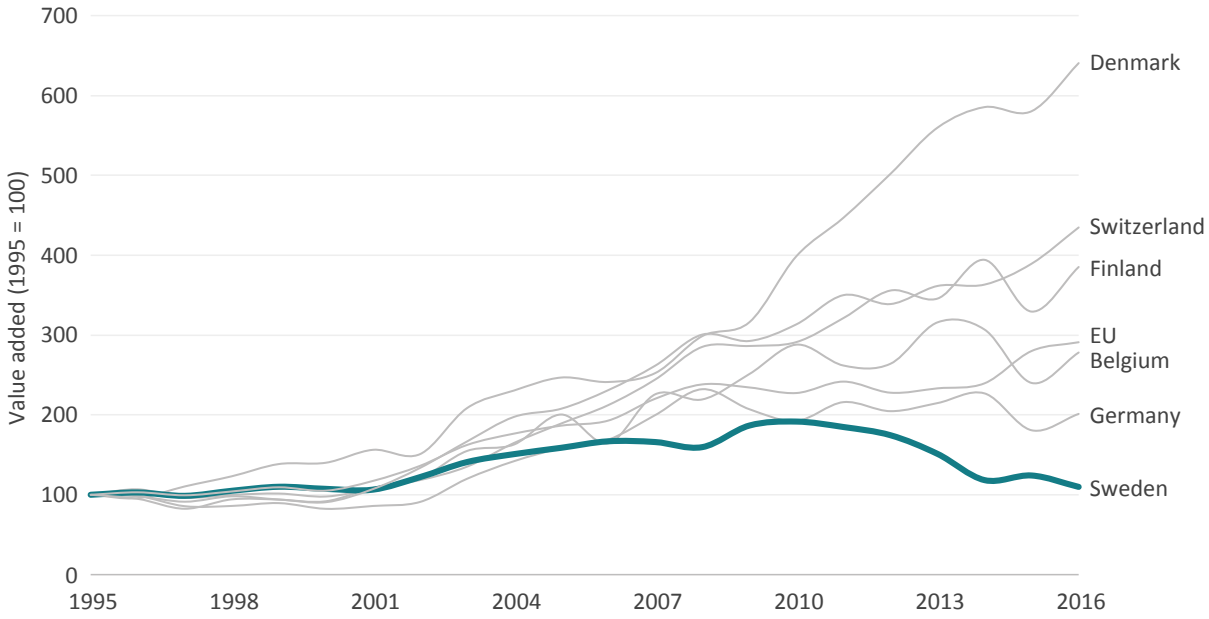
2.1 Rise and Decline (1995–2016)

From the mid-1990s to the late 2000s, Sweden's life sciences industry expanded rapidly, broadly in lockstep with the wider economy. The value added of pharmaceutical manufacturing was around USD 4.6 billion in 1995 and almost doubled to USD 8.8 billion by 2010. [1] As a share of GDP, it rose from 1.7 per cent in 1995 to 2 per cent in 2009, thus growing slightly faster than the Swedish economy as a whole. Throughout this period, Sweden's life sciences sector was among the largest in Europe in both absolute and relative terms, bigger than in comparable economies like Belgium, Denmark and Finland.

From the late 2000s to 2016, however, the industry first plateaued and then went into a period of decline. By 2016, its value added had fallen to around USD 5 billion – only about 10 per cent above 1995 levels and 43 per cent below its 2010 peak. Its share of GDP had halved to 1 per cent in less than a decade. As Figure 1 shows, while Sweden's pharmaceutical industry had previously grown in line with peer economies, its trajectory diverged markedly from the late 2000s onwards. Other countries, particularly Denmark and Switzerland, continued to accelerate, whereas Sweden's pharmaceutical value added stagnated and then contracted. By 2016, Sweden was back close to its 1995 baseline, in stark contrast to the multi-hundred-percent gains recorded in comparable countries and even in the EU as a whole.

[1] Monetary values for value added and gross exports from here onwards are expressed in nominal terms.

FIGURE 1: PHARMACEUTICAL VALUE ADDED IN SWEDEN AND PEER COUNTRIES, 1995–2016 (1995 = 100)



Source: ECIPE calculations based on TiVA.[2]

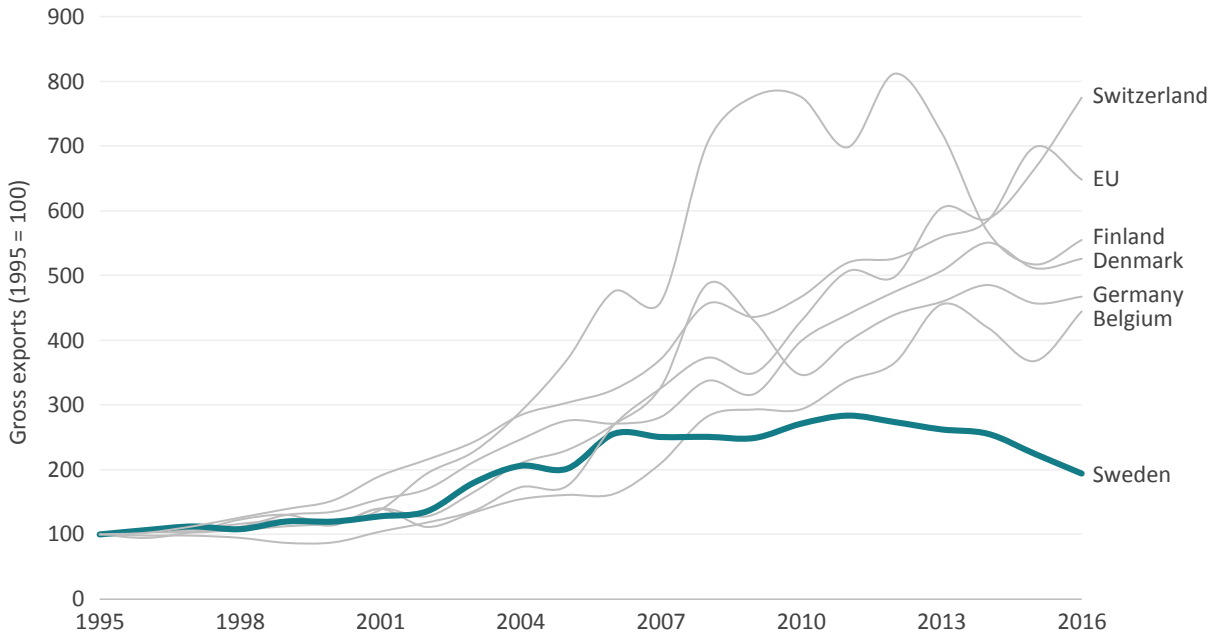
This boom-and-bust pattern was not exclusive to value added. Gross exports followed almost exactly the same trajectory.[3] In line with other comparable European economies, Swedish pharmaceutical exports nearly tripled from USD 2.5 billion in 1995 to USD 7.1 billion in 2011. Yet by the mid-2000s growth had already slowed sharply and, within a few years, exports began to fall, reaching USD 4.9 billion in 2016 – a 31 per cent decline from the 2011 peak.

Figure 2 compares this path with other European countries. For roughly a decade up to the mid-2000s, Swedish gross exports moved broadly in step with peers, but then plateaued and declined. By 2016, Swedish pharmaceutical exports were still less than twice their 1995 level, versus 4.5 times higher in Belgium and Germany, more than 5 times higher in Denmark and Finland, over 6 times higher in the EU as a whole, and almost 8 times higher in Switzerland.

[2] OECD. (2025). Trade in Value Added (TiVA): Value added by industry, manufacture of basic pharmaceutical products and pharmaceutical preparations (ISIC Rev. 4, C21). Available at: https://stats.oecd.org/

[3] Gross exports count the full value of all goods shipped abroad, including imported inputs, unlike exports (value-added terms) that count only the domestic contribution to those goods.

FIGURE 2: PHARMACEUTICAL GROSS EXPORTS IN SWEDEN AND PEER COUNTRIES, 1995–2016 (1995 = 100)

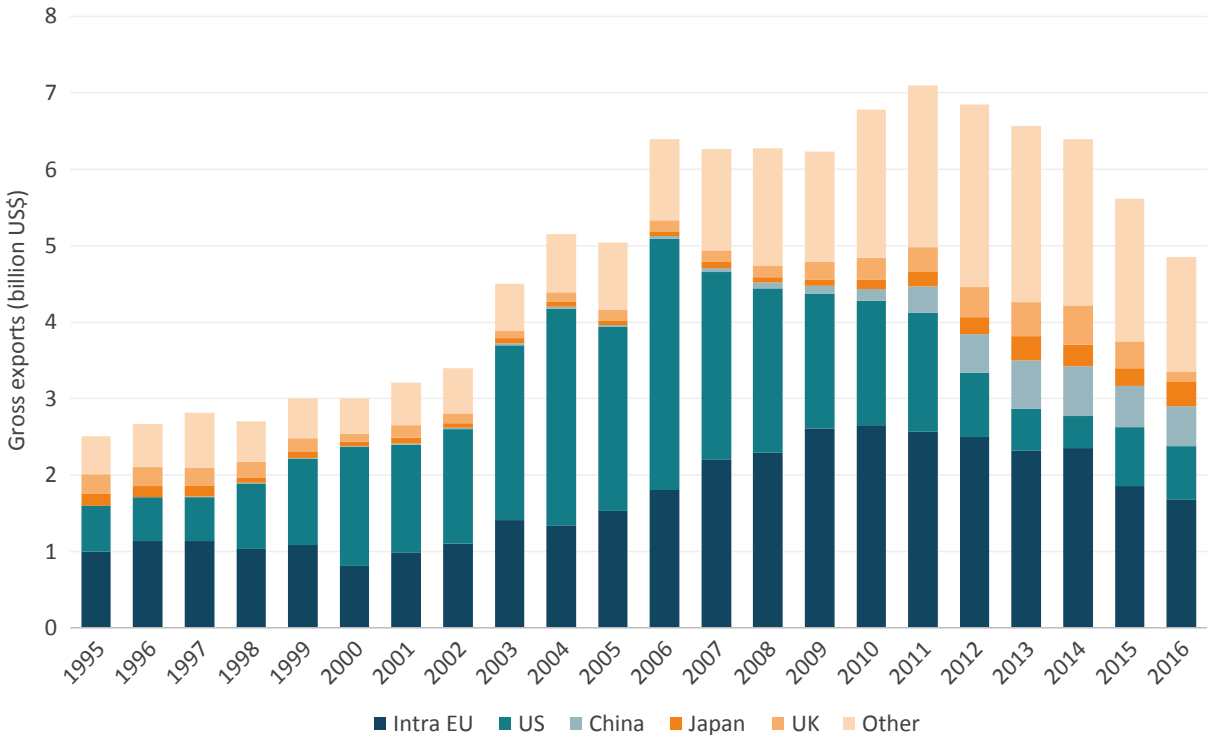


Source: ECIPE calculations based on TiVA.[4]

A closer inspection into Swedish pharmaceutical export profile helps to explain the shift between 1995 and 2016. As shown in Figure 3, which breaks down Swedish pharmaceutical exports by destination country, the expansion from 1995 to the late 2000s was driven first by rising exports to the US and later by growth in exports to other EU members. Over this period, shipments to the EU and the US collectively accounted on average for almost three quarters of total pharmaceutical exports, peaking at 82 per cent in 2003. The subsequent decline was largely the result of falling exports to the EU and, in particular, to the US, with other markets failing to step in enough to offset these losses. In other words, Sweden's pharmaceutical export profile became more diversified, but also weaker.

[4] OECD. (2025). Trade in Value Added (TiVA): Gross exports by industry, manufacture of basic pharmaceutical products and pharmaceutical preparations (ISIC Rev. 4, C21). Available at: https://stats.oecd.org/

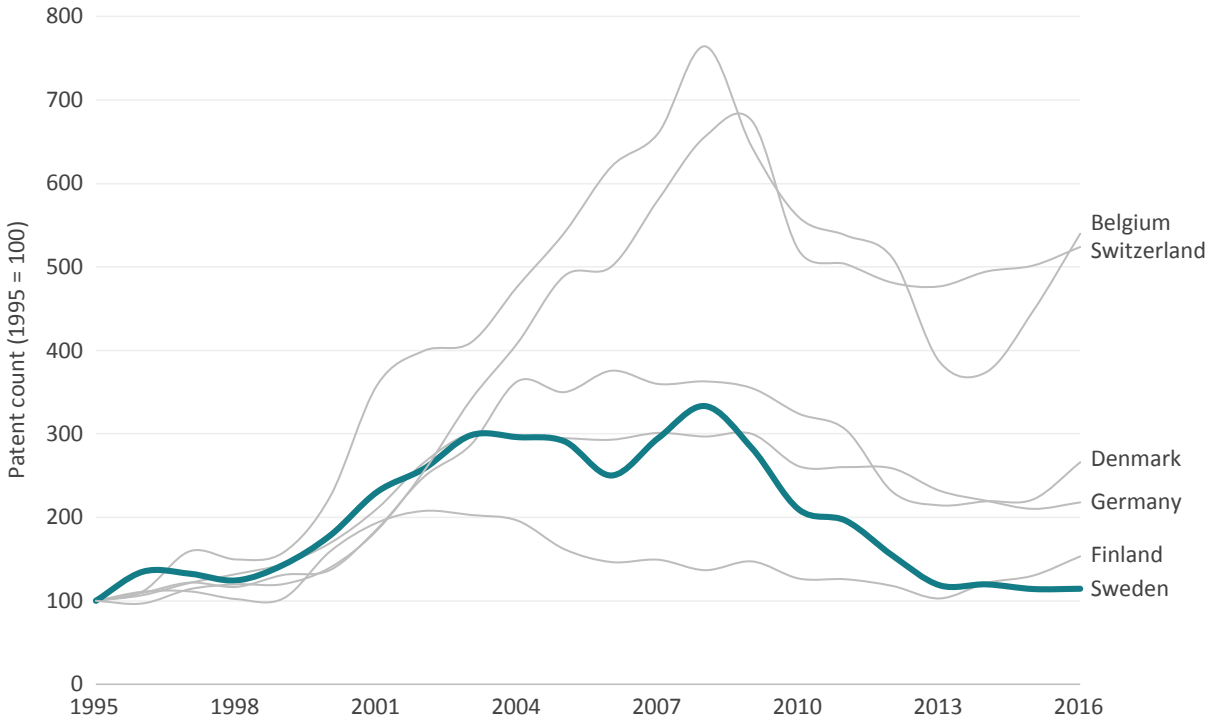
FIGURE 3: SWEDISH PHARMACEUTICAL EXPORTS BY COUNTRY OF DESTINATION, 1995–2016 (BILLION USD)



Source: ECIPE elaboration based on TiVA.

Besides macroeconomic indicators such as value added and gross exports, the same rise-and-fall pattern appears clearly in innovation metrics like patenting activity and R&D spending. Focusing on life sciences patents first, Sweden was a standout performer in the mid-1990s, with 1,226 patents in 1996, 32 per cent more than Switzerland's 925. As illustrated in Figure 4, patenting activity grew even more until the mid-2000s, but then plateaued before declining through to 2016. By 2016, Sweden's life sciences patent count was only 14 per cent above its 1995 levels and had fallen to roughly one third of its 2008 peak. Over the same period, life sciences patenting more than doubled in Germany and Denmark, and increased more than fivefold in Belgium and Switzerland.

FIGURE 4: LIFE SCIENCES PATENT COUNT IN SWEDEN AND PEER COUNTRIES, 1995–2016 (1995 = 100)



Source: ECIPE calculations based on The Lens.[5] Note: Life sciences patents were defined as granted patents falling under the International Patent Classification (IPC) codes identified in the European Commission's recent policy brief on patents in life sciences.[6]

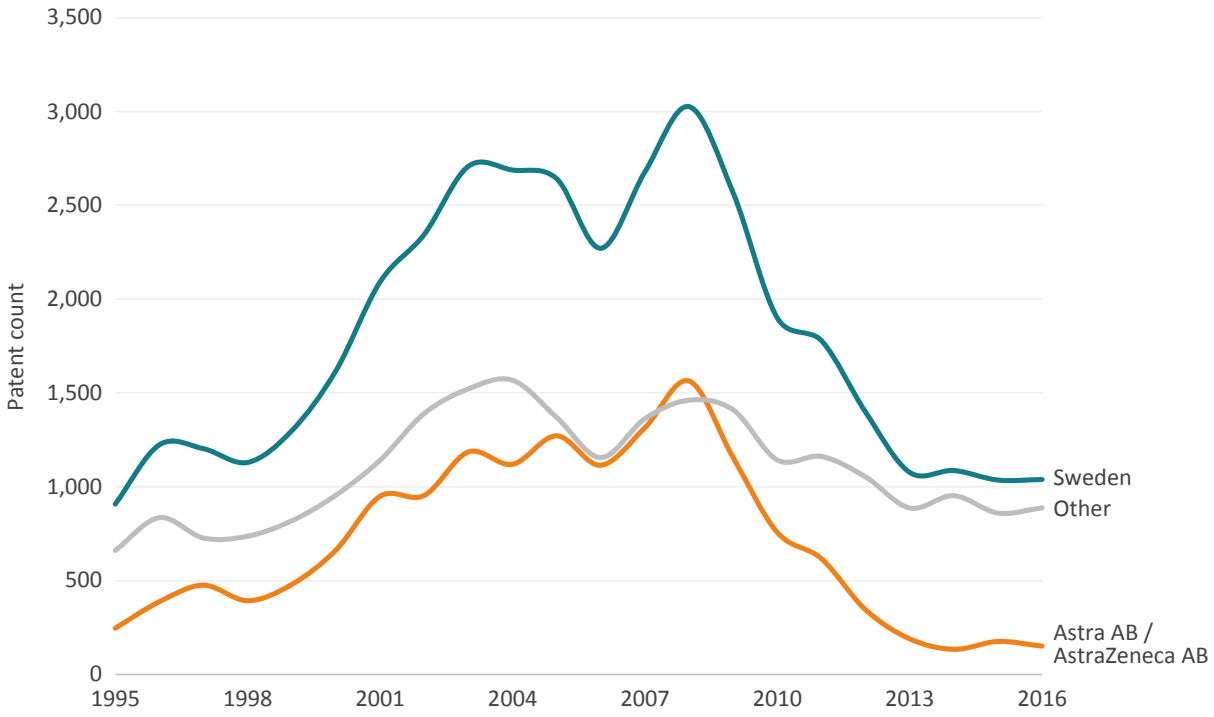
The rise and subsequent decline of Sweden's life sciences patenting activity was largely driven by the fortunes of one company, AstraZeneca. Created in 1999 through the merger of Sweden's Astra AB and the UK's Zeneca Group, the company saw rapid growth in patenting from the mid-1990s to the late 2000s. Figure 5 shows Sweden's life sciences patent count between 1995 and 2016, broken down into patents granted to AstraZeneca (Astra until 1999) and to other Swedish applicants.

Overall patenting surged in the first 13 years, with strong contributions from both AstraZeneca and other firms, but AstraZeneca was decisive in sustaining this growth. In 1995, Astra accounted for 27 per cent of Sweden's life sciences patents; by 2008 this share had risen to 52 per cent, meaning the company generated more than half of all life sciences patents in the country. From the late 2000s to 2016, however, AstraZeneca's life sciences patenting fell sharply, and faster than that of other Swedish applicants, pulling down Sweden's aggregate patent output. By 2016, AstraZeneca's patenting levels in Sweden were lower than in 1995.

[5] Cambia and Queensland University of Technology. The Lens: Patent and Scholarly Search and Analysis. Available at: https://www.lens.org/

[6] Grassano, N. and M'barek, R. (2025). Trends in patents in life sciences: Focus on pharmaceuticals and medical technologies (JRC142609). European Commission, Joint Research Centre. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC142609

FIGURE 5: LIFE SCIENCES PATENT COUNT IN SWEDEN BY APPLICANT, 1995–2016



Source: ECIPE calculations based on The Lens. Note: Life sciences patents were defined as those falling under the International Patent Classification (IPC) codes identified in the European Commission's recent policy brief on patents in life sciences.

This is about more than patents. New products – and the capacity to manufacture and trade more of them – are the result of innovation. In a sector as innovation-driven as life sciences – pharmaceuticals and biotechnology have the highest R&D intensity of any industry[7] – investment in R&D is essential. It underpins patenting activity and, in turn, affects overall competitiveness as reflected in value added and exports.

Between the late 1990s and early 2000s, Astra/AstraZeneca reached the zenith of its R&D presence in Sweden. In 1983, Astra's Swedish R&D workforce numbered 1,067 people; by 1998 it had more than tripled to 3,691. By 2001 it had grown further, to around 4,400 employees spread across three R&D centres in the country.[8] Across Swedish private industry as a whole, AstraZeneca ranked among the top R&D spenders. Yet by the mid-2000s, even as Sweden was larger and more central than ever within AstraZeneca's global R&D system, the company had entered a period of growing innovation costs and fewer breakthrough innovations that could deliver blockbuster

[7] OECD (2023). Health at a Glance 2023: OECD Indicators. OECD Publishing, Paris. Available at: https://doi.org/10.1787/7a7afb35-en

[8] Pettersson, J.-E. (2002). Intraprenörer, innovationer och tillväxt i svenska storföretag (Intrapreneurs, Innovations and Growth in Swedish Large Firms). Institutet för tillväxtpolitiska studier (ITPS). Available at: https://www.tillvaxtanalys.se/download/18.62dd45451715a00666f1d022/1586366174166/Intrapren%C3%B6rer%20innovationer%20och%20till-v%C3%A4xt%20i%20svenska-storf%C3%B6retag-02.pdf

products.[9] The same pattern is visible in many other large European manufacturers: the innovation ecosystem for new medicines changed as it was confronted with new impulses from the buyers that reduced the ability to pay for new and big breakthroughs.

From 2007 onwards, AstraZeneca embarked on a major restructuring programme aimed at cutting costs and restoring productivity. The plan reduced headcount across all parts of the company, including R&D, both globally and in Sweden. In a broader context of large-scale restructuring across the global pharmaceutical industry, AstraZeneca initially planned to eliminate 7,400 positions by 2013. By 2010, however, the cumulative total had risen to 23,550,[10] with further restructuring announced in 2012.[11] This inevitably weighed on the company's R&D spending, worldwide and in Sweden.

Against this backdrop, Figure 6 shows the evolution of business-funded pharmaceutical R&D in Sweden and selected comparator economies, alongside AstraZeneca's global R&D expenditure. Between 2007 and 2016, privately financed pharmaceutical R&D in Sweden declined steadily, closely tracking AstraZeneca's own R&D trajectory. While Belgium and Germany recorded growth, and Switzerland remained broadly stable, Sweden's pharmaceutical R&D spending fell by over 20 per cent, largely driven by the dynamics of its national champion. This pattern largely accounts for the observed changes in value added and gross exports in Sweden's life sciences sector up to the mid-2010s.

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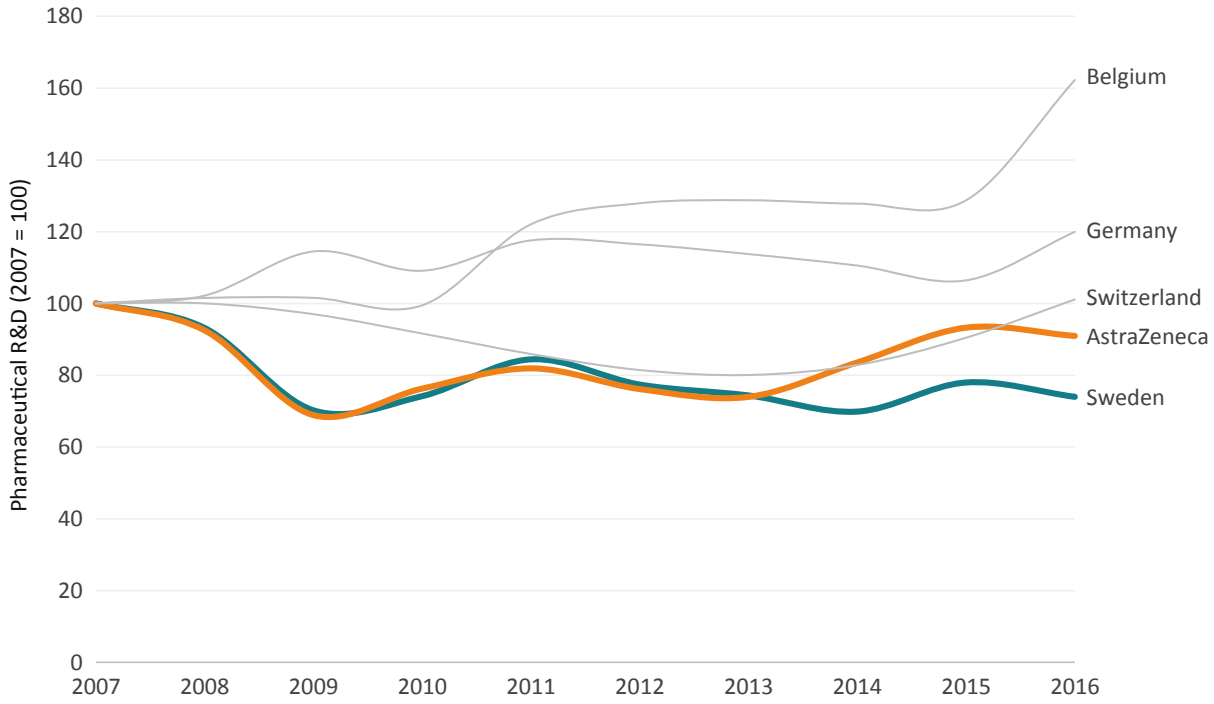
[9] Heegaard, L., Tomassino, O. and Wikstrand, S. (2007). Kunskapsarbetarnas situation i ett stort globalt kunskapsföretag: En fallstudie av AstraZeneca (The working situation for scientists in a large global knowledge-intensive company: A case study of AstraZeneca). Lund University. Available at: https://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=1346421&fileOId=2434729

[10] FiercePharma. (2010, December 7). Special report: The Top 10 Layoffs of 2010. Available at: https://www.fiercepharma.com/special-report/top-10-layoffs-of-2010

[11] AstraZeneca. (2012, February 2). AstraZeneca's new restructuring initiatives to drive productivity and support innovation. Available at: https://www.astrazeneca.com/media-centre/press-releases/2012/AstraZenecas-new-restructuring-initiatives-to-drive-productivity-and-support-innovation-02022012.html#

FIGURE 6: BUSINESS-FUNDED PHARMACEUTICAL R&D EXPENDITURE IN SWEDEN, PEER COUNTRIES AND ASTRAZENECA, 2007–2016 (2007 = 100)



Source: ECIPE calculations based on OECD[12] and EU Industrial R&D Scoreboard.[13] Note: R&D expenditure was expressed in constant 2015 US-PPP dollars before being indexed.

2.2 Rise Again (2016–now)

By 2016, Sweden's life sciences industry had fallen to unprecedented lows in value added, exports, patenting, and R&D spending – both relative to international competitors and to its own past performance. The decade that followed, however, marked a sharp reversal, propelling the sector back into vigorous growth.

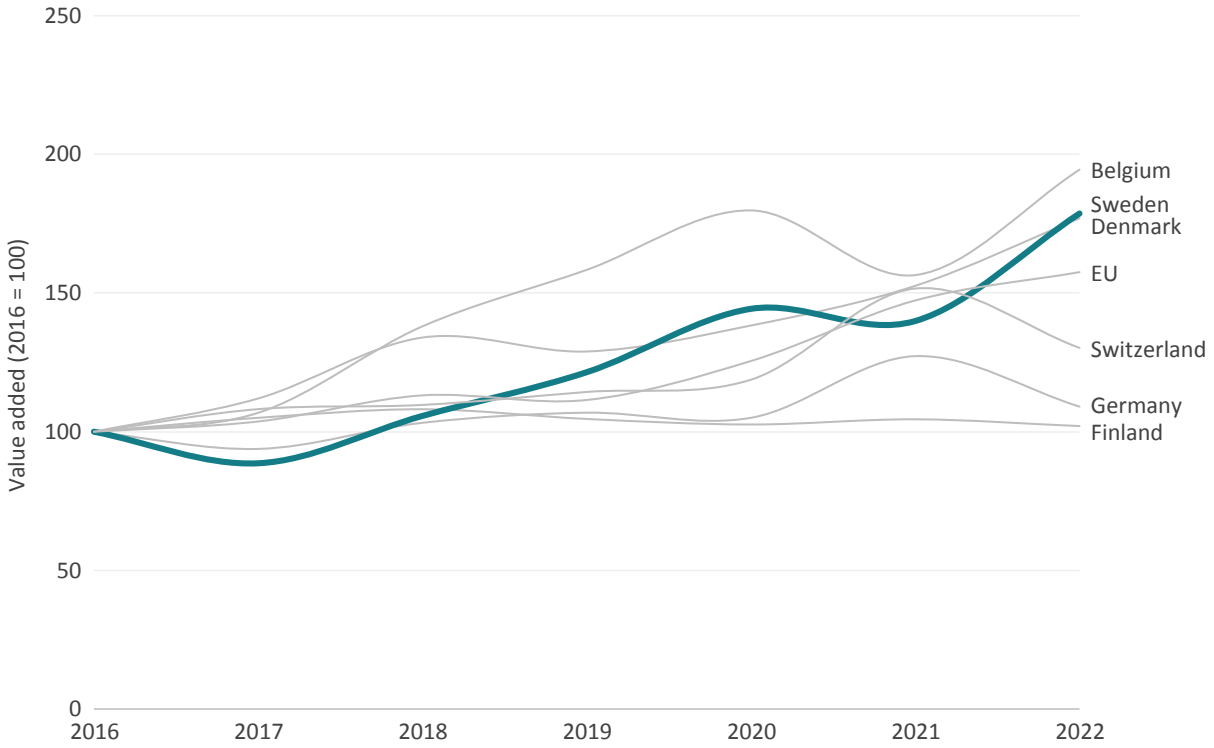
By 2016–17, the pharmaceutical industry accounted for a shrinking share of the Swedish economy, with value added slipping to just under USD 4.5 billion, the lowest level since 1995. From that point, the industry rebounded at an exceptional pace. By 2022, value added had doubled to around USD 9 billion, surpassing the earlier 2010 high and reaching its strongest level since 1995 – a dramatic turnaround in just six years.

Figure 7 charts this rebound against comparable economies. After a sluggish 2007–2016 decade in which Sweden lagged its peers, post-2016 growth once again outpaced the EU average and aligned with leading performers such as Belgium and Denmark.

[12] OECD (2021). Analytical Business Enterprise R&D by ISIC Rev.4 industry (ANBERD database) – Manufacture of basic pharmaceutical products and pharmaceutical preparations. Available at: https://stats.oecd.org/

[13] European Commission, Joint Research Centre, Nindl, E., Napolitano, L., Confraria, H., Rentocchini, F., Fako, P., Gavigan, J. and Tübke, A. (2024, December 18). The 2024 EU Industrial R&D Investment Scoreboard – Scoreboard panel 2003–2023. Available at: https://iri.jrc.ec.europa.eu/sites/default/files/contentype/scoreboard/2025-03/Scoreboard_panel_2024.xlsx

FIGURE 7: PHARMACEUTICAL VALUE ADDED IN SWEDEN AND PEER COUNTRIES, 2016–2022 (2016 = 100)

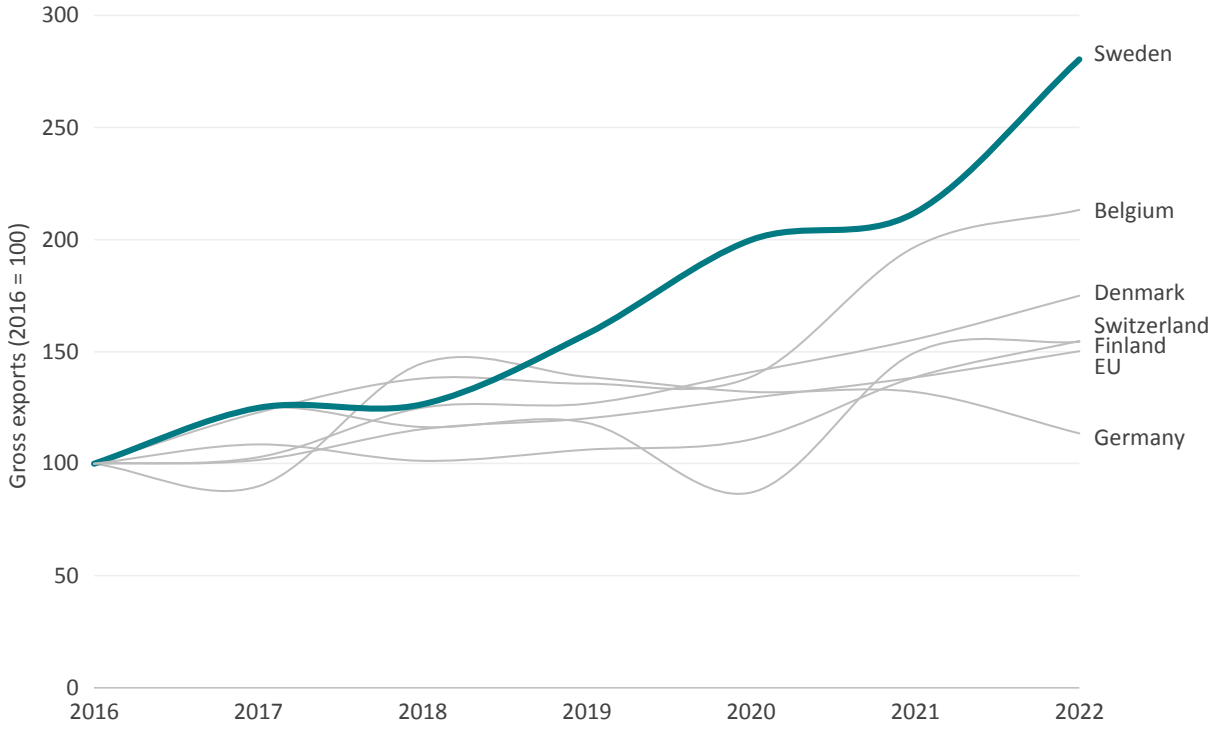


Source: ECIPE calculations based on TiVA.

This expansion was fuelled above all by a powerful rebound in exports. After bottoming out at USD 4.9 billion in 2016 – the lowest level since 2003 – Sweden's gross pharmaceutical exports surged to nearly USD 14 billion by 2022. This represents close to a 300 per cent increase, almost doubling the earlier peak reached in 2011. Part of this increase is linked to Brexit-related restructuring within multinational supply chains, crucially AstraZeneca's shift of substantial export volumes from its UK operations to AstraZeneca AB in Sweden following the UK's exit from the EU.

Figure 8 plots this exceptional performance against peer economies. Between 2016 and 2022, Sweden's pharmaceutical exports grew at nearly twice the pace of the EU average and well ahead of other major pharmaceutical exporters, including Belgium, Denmark, and Switzerland.

FIGURE 8: PHARMACEUTICAL GROSS EXPORTS IN SWEDEN AND PEER COUNTRIES, 2016–2022 (2016 = 100)

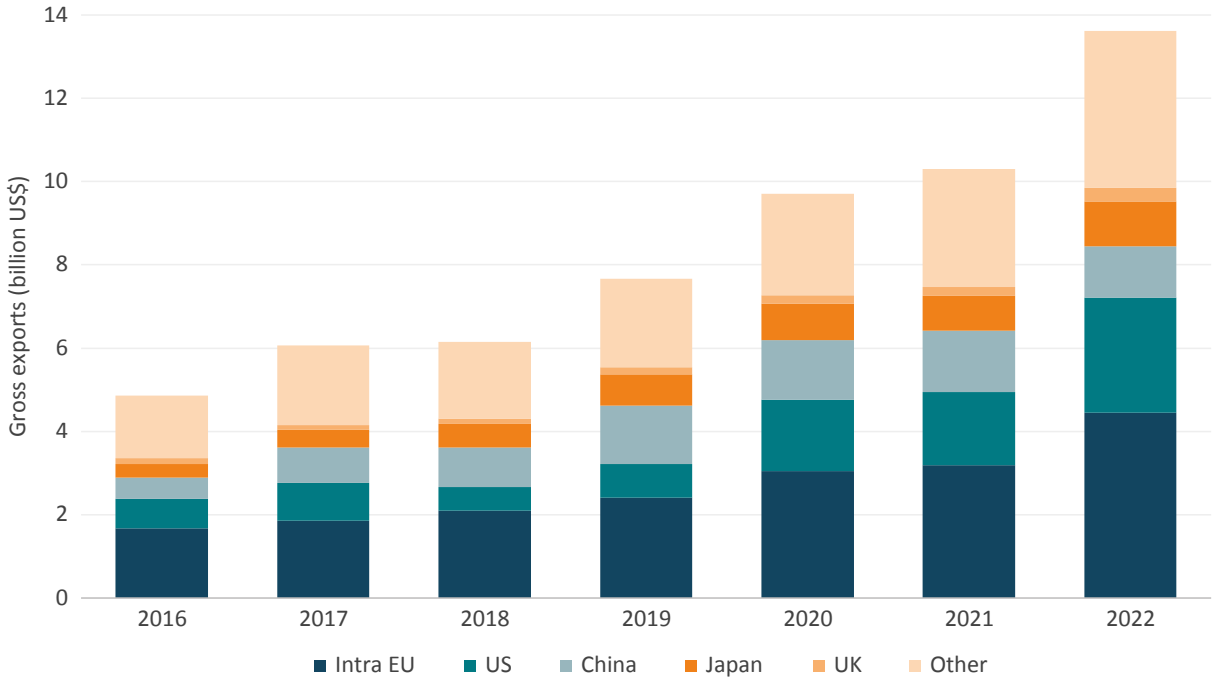


Source: ECIPE calculations based on TiVA.

When examining the destination profile of Swedish pharmaceutical exports, a clear break with past trends emerges. Between 1995 and 2016, Sweden's life-sciences exports rose when they were concentrated in the EU and the US, and declined as these markets became relatively less important. Put simply, export volumes fell as the export base diversified.

Figure 9 shows that this pattern shifted sharply after 2016. Exports to other EU Member States and the US resumed their growth, but this time within a broader surge towards a wider set of markets. Between 2016 and 2022, shipments to the EU and the US together represented on average 47 per cent of total exports – meaning that throughout this period, about half of Swedish pharmaceutical exports consistently went to other destinations. The era in which more than three-quarters of export growth depended on EU and US demand now seems gone. Today, Sweden's pharmaceutical export profile remains as diverse as it was in 2016, while total export volumes have expanded significantly. This shows that a successful export strategy is not only possible but increasingly desirable through diversification and engagement with multiple global markets.

FIGURE 9: SWEDISH PHARMACEUTICAL EXPORTS BY COUNTRY OF DESTINATION, 2016–2022 (BILLION USD)



Source: ECIPE elaboration based on TiVA.

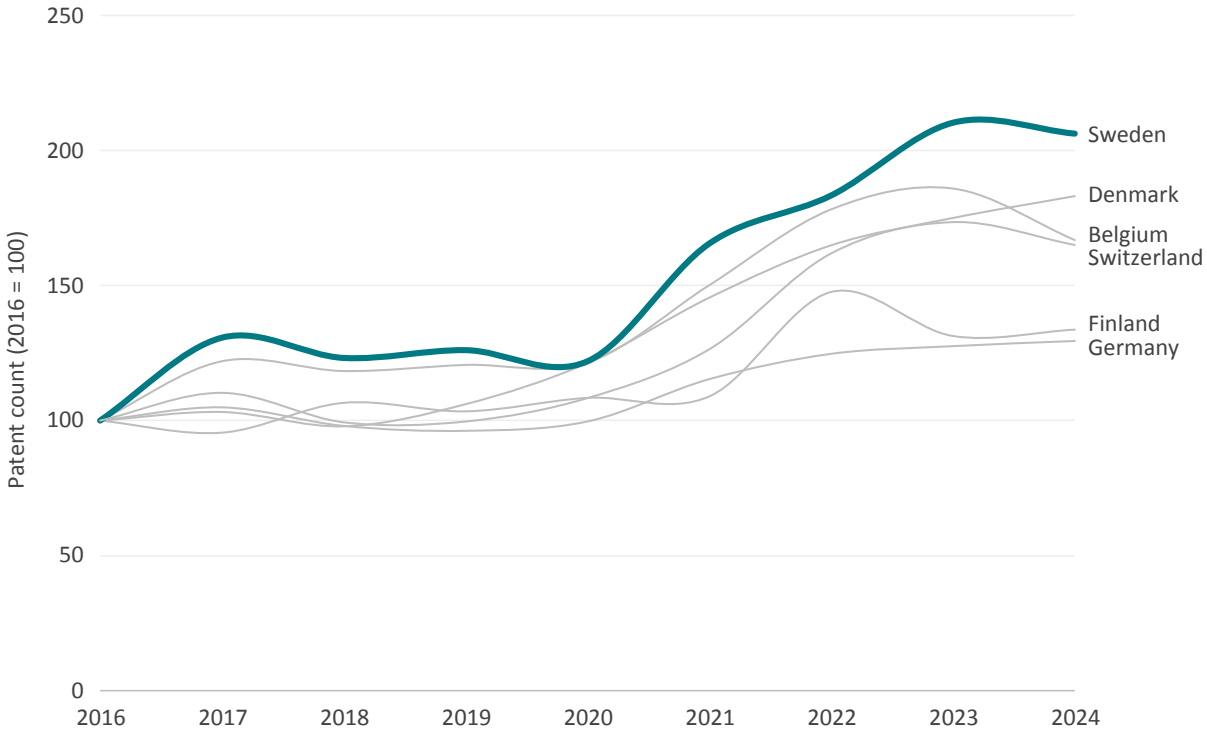
Much like in the 1995–2016 period, these macroeconomic trends reflect a deeper reality tied to the sector's innovation dynamics. Patenting activity is again a revealing indicator. After two decades of expansion culminating in an all-time high in the late 2000s, Sweden's life-sciences patenting declined sharply by 2016, falling back to levels only marginally above those of 1995. The post-2016 period, however, marks a clear turnaround. Although Sweden has not yet reached its previous peak of more than 3,000 annual patents in 2008, the rebound has been striking. Patents rose from 1,039 in 2016 – barely a third of the 2008 peak – to 2,143 in 2024, over 70 per cent of that record. As Figure 10 illustrates, between 2016 and 2024 Sweden's life-sciences patenting more than doubled, expanding at a consistently faster pace than comparable economies, including established patenting leaders such as Denmark, Belgium, and Switzerland.

Patenting dynamics mirror the diversification story similarly observed in Sweden's export profile. As mentioned previously, between 1995 and 2016, Sweden's life-sciences patenting was heavily dependent on a single actor: AstraZeneca. As the company's filings rose, total patenting rose; as they declined, so did the national figures. By 2016, AstraZeneca accounted for only 15 per cent of Sweden's annual life-sciences patents, but total output had also fallen back to levels last seen two decades earlier. During this period, diversification coincided with weakness.

Post-2016, the picture has changed. Although AstraZeneca's patenting has resumed growth, it remains a comparatively small share of national output – around 17 per cent on average between 2016 and 2024, far below the 52 per cent recorded in 2008. The true driver of the patenting resurgence lies in the broader ecosystem. Other players now consistently generate more than 80

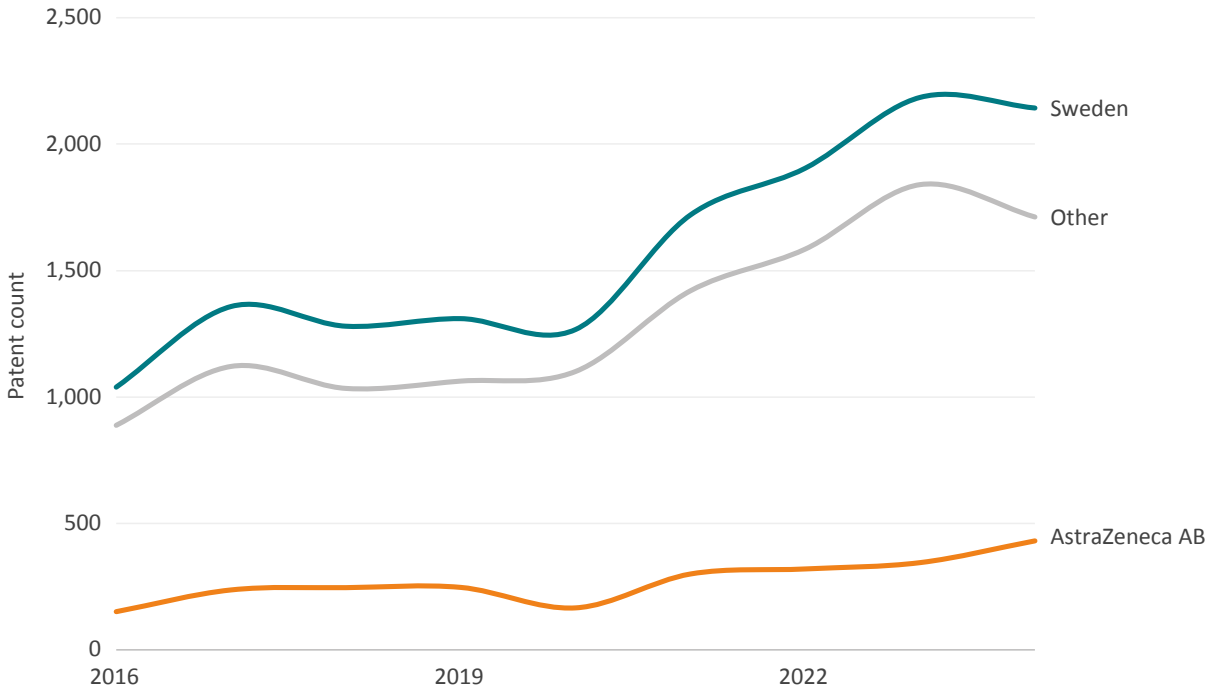
per cent of Sweden's life-sciences patents. This demonstrates that diversification has become a source of strength – externally, as new export destinations grow in importance, and internally, as a wider range of innovators increasingly shape Sweden's patenting performance.

FIGURE 10: LIFE SCIENCES PATENT COUNT IN SWEDEN AND PEER COUNTRIES, 2016–2024 (2016 = 100)



Source: ECIPE calculations based on The Lens. Note: Life sciences patents were defined as granted patents falling under the International Patent Classification (IPC) codes identified in the European Commission's recent policy brief on patents in life sciences.

FIGURE 11: LIFE SCIENCES PATENT COUNT IN SWEDEN BY APPLICANT, 2016–2024

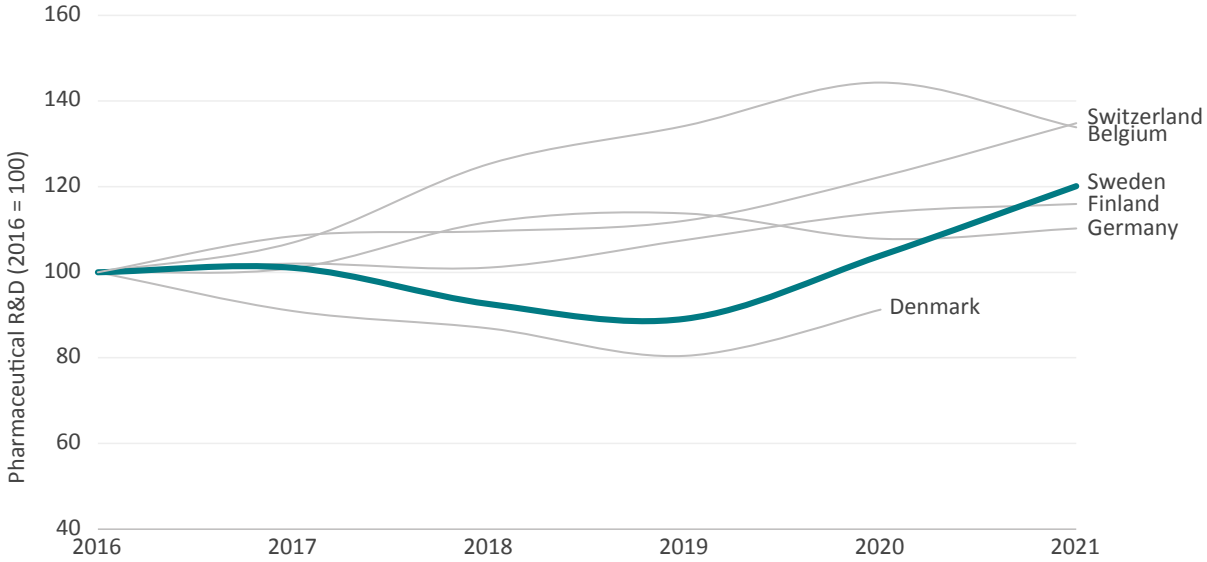


Source: ECIPE calculations based on The Lens. Note: Life sciences patents were defined as granted patents falling under the International Patent Classification (IPC) codes identified in the European Commission's recent policy brief on patents in life sciences.

Once again, innovation is more than just patents. As seen in the pre-2016 period, remaining at the innovation frontier depends critically on sustained R&D investment. By 2016, Sweden had recorded the weakest growth – indeed, an outright decline – in pharmaceutical R&D spending among its peer economies. The post-2016 period, however, presents a more positive picture. By 2021, the latest year for which OECD data is available, Sweden's pharmaceutical R&D spending had returned to roughly USD 1 billion, a level last reached in the late 2000s, though still below Denmark, Belgium, and Switzerland in absolute terms.

Even so, the trajectory is clearly improving. Figure 12 shows that from 2019 onwards Sweden's pharmaceutical R&D spending has resumed a steady rise, increasing by about 20 per cent between 2016 and 2021 – outperforming Denmark, Finland, and Germany, although still trailing Switzerland and Belgium.

FIGURE 12: BUSINESS-FUNDED PHARMACEUTICAL R&D EXPENDITURE IN SWEDEN AND PEER COUNTRIES, 2016–2021 (2016 = 100)



Source: ECIPE calculations based on OECD. Note: R&D expenditure was expressed in constant 2015 US-PPP dollars before being indexed.

More revealing than the aggregate trend in pharmaceutical R&D spending is what happens beneath the surface at the company level. Here, more so than for patenting, the post-2019 rise in Sweden's pharmaceutical R&D spending is driven primarily by AstraZeneca. The R&D expenditure of its Swedish subsidiary, AstraZeneca AB, remained broadly unmoved between 2014 and 2019, before increasing sharply from 2019 onwards. By 2023, AstraZeneca AB's R&D spending was almost double its 2019 level.[14]

Yet the story does not end with AstraZeneca. In recent decades, Sweden's innovation landscape has increasingly featured small and mid-sized firms rather than large pharmaceutical giants. From the mid-2000s onwards, pharmaceutical and biotech SMEs began to proliferate, stimulated in part by the space created after Pfizer's acquisition of Pharmacia and the relocation of some of AstraZeneca's R&D activities abroad. In 2006, Sweden counted around 600 registered life-science companies; by 2022 that figure had expanded to 3,838 companies.[15]

This restructuring did not hollow out the national ecosystem but instead catalysed the emergence of new firms occupying niches previously dominated by large multinationals.[16] Swedish Orphan

[14] AstraZeneca AB (2015–2024). Annual Report, various years (2015–2024). Available at: https://www.hitta.se/f%C3%B6retag-sinformation/astrazeneca+ab/5560117482

[15] Sandström, A., Bergqvist, H. and Dolk, T. (2007). National and regional cluster profiles: Companies in biotechnology, pharmaceuticals and medical technology in Sweden 2007 (VINNOVA Analysis VA 2007:16). VINNOVA – Swedish Governmental Agency for Innovation Systems. Available at: https://www.vinnova.se/contentassets/78880c02d-449433ba181159abac9cd7e/va-07-16.pdf?cb=20171013144731 and Falk, E., Legrand, G., Persson, J., Tägtström, J. and Tranell, J. (2024). Statistik över svenska life science-företag, deeptech-företag inom life science, fördjupad rapportering (Statistics on Swedish life-science companies, deeptech firms in life science, in-depth report) (VINNOVA Rapport 2024:12). VINNOVA – Swedish Governmental Agency for Innovation Systems. Available at: https://www.vinnova.se/globalassets/publikationer/2024/life-science/vinnova_rapport_life_science_2024_bilaga1.pdf

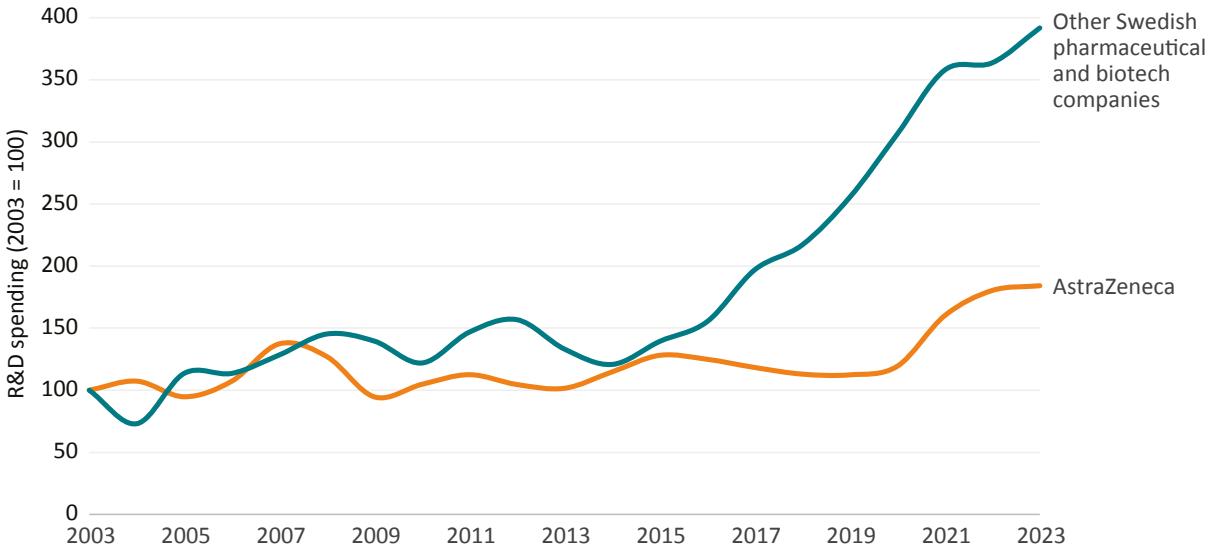
[16] Fridh, A.-C. (2003). The Exit of Pharmacia and Regional Growth (Ratio Working Paper No. 22). The Ratio Institute. Available at: https://ratio.se/publikationer/working-paper-22-exit-pharmacia-regional-growth

Biovitrum (Sobi), now an industry leader, is a case in point: it is the product of a merger between Biovitrum and Swedish Orphan, both of which have deep historical ties to Pharmacia and AstraZeneca, much like many other successful Swedish life-science SMEs.[17]

The movement of leading scientists and "breakaway" executives from large firms into smaller ventures laid the foundations for a new industry model, one that matured by the mid-2010s. Figure 13, which compares AstraZeneca's global R&D trajectory with that of Sweden's most innovative pharma and biotech companies[18] between 2003 and 2023, captures this evolution. Up until the mid-2010s, the two moved in parallel, with little change in R&D spending levels. After 2015, however, R&D expenditures by other firms began to diverge sharply from AstraZeneca's, rising steadily through 2023. AstraZeneca's own uptick came later, around 2019.

Although in absolute terms these companies cannot yet match the R&D capacity of a global pharmaceutical giant, the growth in their relative weight is striking. In 2015, they spent only about 15 per cent of the amount invested by AstraZeneca's Swedish subsidiary. By 2019–2023, despite AstraZeneca's own strong R&D expansion, their share had doubled to around 30 per cent. In other words, as with export destinations and patent applicants, Sweden's R&D landscape is becoming increasingly diversified – driven by a broader and more dynamic set of players that collectively strengthen the national life-sciences ecosystem.

FIGURE 13: R&D SPENDING BY ASTRAZENECA AND OTHER SWEDISH PHARMACEUTICAL AND BIOTECH COMPANIES, 2003–2023 (2003 = 100)



Source: ECIPE calculations based on EU Industrial R&D Scoreboard. Note: R&D expenditure was expressed in constant 2015 US-PPP dollars before being indexed.

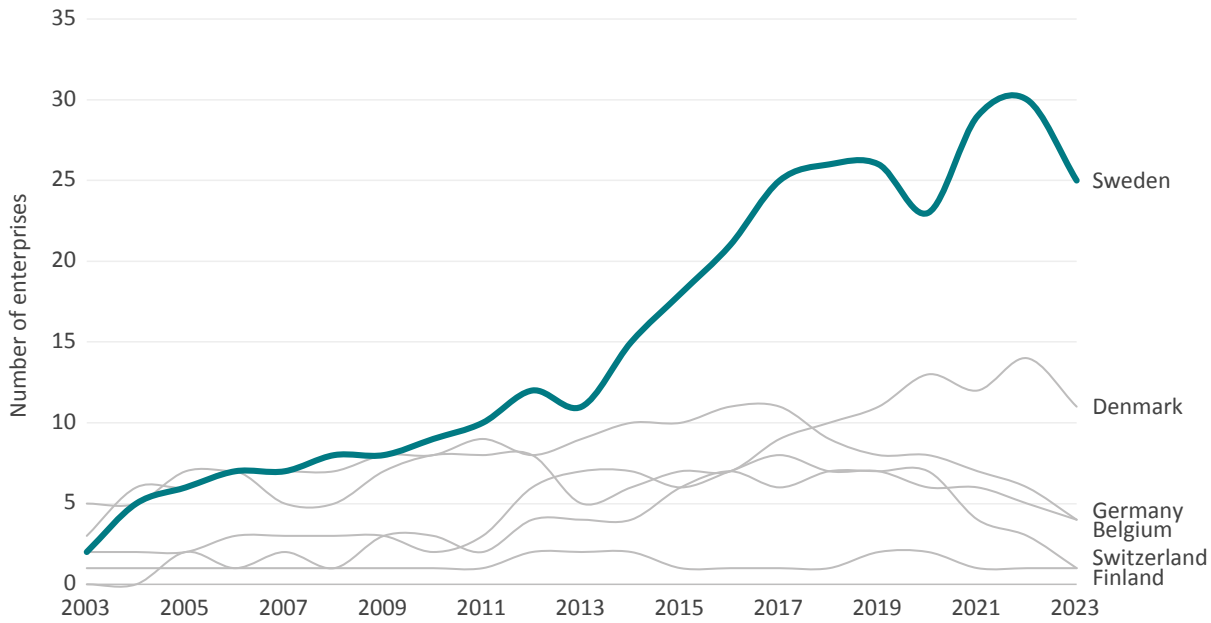
[17] While Biovitrum was a spin-off from Pharmacia (as was Active Biotech), its chairman was a former Astra executive. The same pattern appears at Cinclus, founded by leading former Astra/AstraZeneca scientists who had previously driven the development of Losec and Nexium.

[18] By "Sweden's most innovative pharma and biotech companies," we refer to Sweden-headquartered firms classified under the "Pharmaceuticals & Biotechnology" sector that appear in the EU Industrial R&D Investment Scoreboard, which lists the world's top 2,500 companies by R&D spending.

What appears to be taking shape in Sweden is a new model for the life sciences industry – one that still depends on established and large companies such as AstraZeneca, yet increasingly complements them with a broader base of small and mid-sized innovative firms. Figure 14 below illustrates why this is a distinctly Swedish pattern. Comparing Sweden with its usual peers, we track the number of innovative pharma and biotech SMEs – defined here as firms with 250 employees or fewer – that appear in the EU Industrial R&D Investment Scoreboard, which lists the world's top 2,500 companies by R&D spending. As the chart shows, no other country comes close to matching Sweden's breadth of innovative SMEs. While Sweden began the mid-2000s at roughly the same level as comparable economies, its number of innovative life-science SMEs rose steadily and, from the mid-2010s, accelerated sharply. By 2023, Sweden counted 25 pharma and biotech SMEs among the world's 2,500 most R&D-intensive firms – more than double Denmark's 11, the second-highest figure, and far above all other peers.

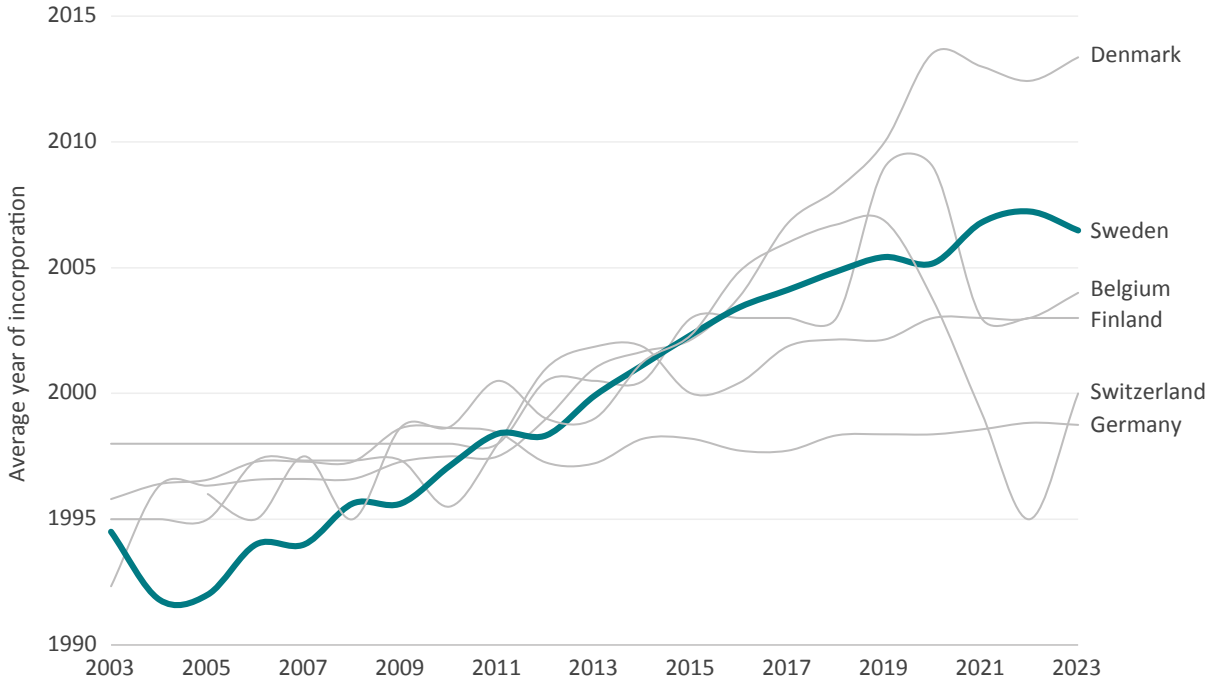
Equally notable is the age profile of these companies. Figure 15 further below traces the average incorporation year of these firms over the same period. In the mid-2000s, Swedish SMEs were similar in age to those in other countries. Over time, however, while the average age of SMEs elsewhere stagnated, Sweden's continued to fall. By 2023, Sweden had the second-youngest cohort of pharma and biotech SMEs – surpassed only by Denmark – despite operating a significantly larger pool of firms. Put differently, Sweden has been uniquely successful in pairing its established national champions with a dynamic and expanding set of young, innovative SMEs. Whereas many countries still rely heavily on a handful of incumbents to sustain their life-sciences sector, Sweden is increasingly adopting a model built on diversification and grassroots innovation.

FIGURE 14: NUMBER OF INNOVATIVE PHARMA AND BIOTECH SMES IN SWEDEN AND PEER COUNTRIES, 2003–2023



Source: ECIPE calculations based on EU Industrial R&D Scoreboard.

FIGURE 15: AVERAGE INCORPORATION YEAR OF INNOVATIVE PHARMA AND BIOTECH SMES IN SWEDEN AND PEER COUNTRIES, 2003–2023



Source: ECIPE calculations based on EU Industrial R&D Scoreboard.

The emergence of innovative SMEs in Sweden's life sciences sector – and in Swedish industry more broadly – reflects several reinforcing factors. One is the maturation of a decades-long process of academic–industry transfusion.[19] Given the sector's scientific and regulatory complexity, universities have long been indispensable sources of talent, ideas, and entrepreneurial capacity. Yet it was only from the 1990s onwards that this translated into genuine "academic entrepreneurship," with researchers founding and leading new firms. Of the 25 innovative Swedish life-science SMEs in 2023 identified above, ten were founded by academics.[20] Most are concentrated around the clusters of Lund, Karolinska, and Uppsala – three of several life-science hubs across the country. This is hardly surprising in a system where roughly one-third of all Swedish doctorates are in life-science fields.[21]

A second critical factor behind SME growth is the relative ease with which these firms can access finance and scale. The strong linkage between deep, well-functioning capital markets and the emergence of innovative SMEs has been emphasised elsewhere for Sweden's private sector as

[19] Pålsson, C. M. and Gregersen, B. (2011). Biotechnology in Denmark and Sweden. In B. Göransson and C. M. Pålsson (Eds.), Biotechnology and innovation systems (Chapter 10). Edward Elgar Publishing. Available at: https://doi.org/10.4337/9781781001424.00022

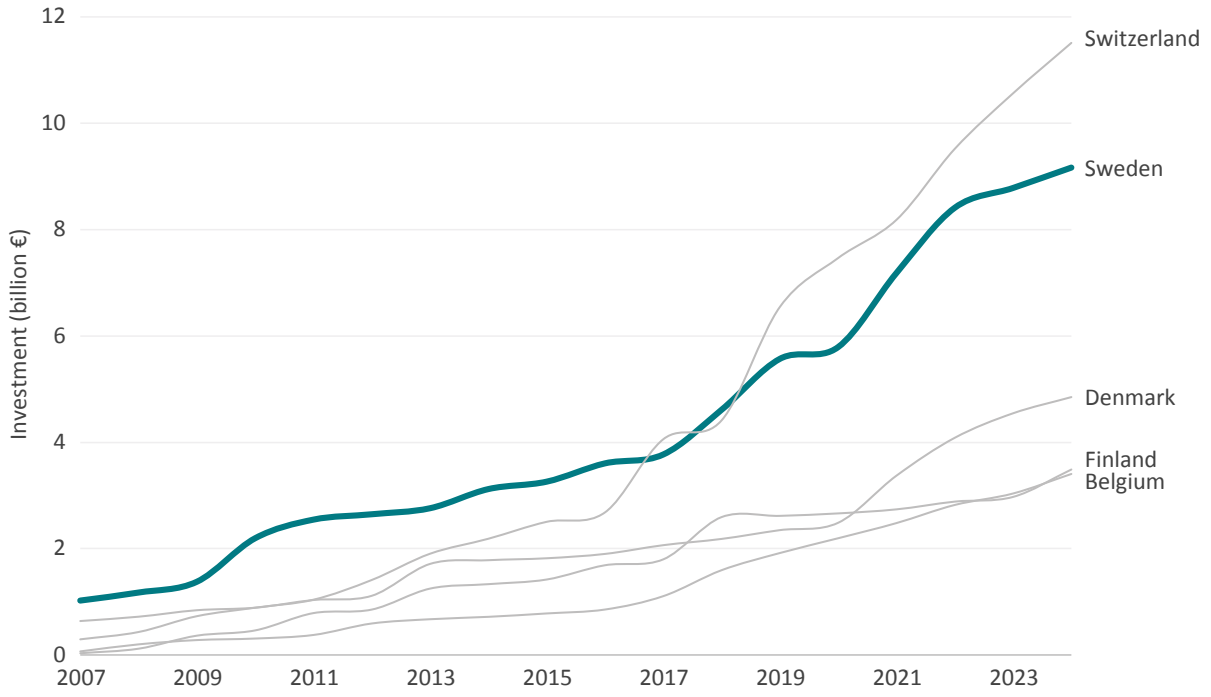
[20] ECIPE analysis based on the innovative firms listed in the EU Industrial R&D Scoreboard.

[21] Falk, E., Legrand, G., Persson, J., Tägtström, J. and Tranell, J. (2024). Statistik över svenska life science-företag, deep-tech-företag inom life science, fördjupad rapportering (Statistics on Swedish life-science companies, deeptech firms in life science, in-depth report) (VINNOVA Rapport 2024:12). VINNOVA – Swedish Governmental Agency for Innovation Systems. Available at: https://www.vinnova.se/globalassets/publikationer/2024/life-science/vinnova_rapport_life_science_2024_bilaga1.pdf

a whole[22], but the pattern holds equally in life sciences. Of the 25 Swedish pharma and biotech SMEs in 2023 identified above, 22 are publicly listed – 14 on the main market and eight on Nasdaq First North Growth Market.[23] Yet public markets are only part of the story. Early-stage scaling depends heavily on private equity and venture capital (VC). As shown in Figure 16, cumulative private-equity and VC investment in biotechnology and healthcare places Swedish firms second only to Switzerland's – and far ahead of all other EU countries.

Together, Sweden's dense academic base and its exceptionally strong capital-market ecosystem –both public and private – have become fundamental drivers of the country's new life-science SME model, enabling a broad pipeline of young and innovative firms to emerge alongside established industry leaders, more than anywhere else in Europe.

FIGURE 16: CUMULATIVE PRIVATE EQUITY AND VENTURE CAPITAL INVESTMENT IN BIOTECH AND HEALTHCARE IN SWEDEN AND PEER ECONOMIES, 2007–2024 (BILLION EUR)



Source: ECIPE calculations based on Invest Europe.[24] Note: Values are expressed in nominal terms.

[22] Asgari, N. (2024, April 18). How Sweden's stock market became the envy of Europe. Financial Times. Available at: https://www.ft.com/content/edc1bba0-25ca-4148-96f6-d67e30f11a2e

[23] ECIPE analysis based on the innovative firms listed in the EU Industrial R&D Scoreboard.

[24] Invest Europe. (2025). Annual activity statistics: Fundraising, investment and divestment data. Available at: https://www.investeurope.eu/research/activity-data/

3. RISE AND SHINE: IMPORTANT EU POLICY REFORMS FOR CONTINUED GROWTH IN THE SWEDISH LIFE SCIENCES SECTOR

A big sector like life sciences can be helped or hindered by a variety of policies. For research intensive firms, generally, it is increasingly important that the system of corporate income tax provides solid advantages for R&D expenditures. Moreover, such companies rely on good access to human capital and deep collaboration with universities capable of making large investments in both basic and frontier science. For pharmaceutical companies, specifically it is obviously important that the reimbursement system includes a premium for innovation and that it does not just seek to maximise reductions in the cost of medicines.

The life sciences sector is also sensitive to more specific policies, and the more the sector is dependent on diversified and smaller actors, the greater the importance of these policies. Unlike large multinational companies, smaller companies do not have subsidiaries across the world that run their market strategies and that can protect their intellectual assets through strategies such as branding, market positioning, and political lobbying. They lack the resources to acquire other firms with new and innovative patents and assets, leaving them more exposed to innovation competition. Smaller firms tend to be more time sensitive and require a regulatory environment that is more predictable and helpful, allowing them to reduce financial risks in the process of going from a patent to marketing an approved product.

Sweden has now transitioned into a life sciences structure that will increase the importance of some long-standing priorities and concerns for the sector. Three of them are: the effective duration of patents and market exclusivity (including Regulatory Data Protection (RDP)), efficient systems for regulatory approvals, and trade agreements that provide better market access and regulatory predictability. They can be condensed into two categories – time and sales – that correspond with one another. For instance, when the effective duration of market exclusivity has been shortened, companies have a shorter time to recoup the cost of developing the new product. Consequently, the more important it becomes that a product can be marketed in many countries and that market access or regulatory barriers are not delaying the entry of the new product. On both metrics – time and sales – EU policy can be improved.

3.1 Time – Market Exclusivity

In a new so-called pharmaceutical package that was proposed in 2023, the European Commission took yet another step to make patent and regulatory data exclusivity more complex in the EU. Over time, the value of a patent has been reduced because clinical trials usually take up a significant time of the 20-year duration of a patent. There is the possibility of patent term restoration through so-called Supplementary Patent Certificates (SPCs), but Europe's market complexity has made this burdensome. There have also been efforts to shorten the SPCs. The pharmaceutical package proposed some improvements in market exclusivity and conditioned others on certain actions, for instance meeting unmet medical needs or that companies had to market a new product across

the entire EU. It also included some changes that would weaken the effective protection – like obligations to market a new medicine in all EU countries regardless of pricing and reimbursement regulations.[25]

While some improvements are proposed by the EU, the reality is that the system of market protection have not kept up with the actual reality of life sciences innovation. The old model for providing an incentive to R&D and innovation was largely based on not just a short period for clinical trials but also a short period for pre-patent research. However, it now takes significantly longer time for a company to conduct research and access a patent, and the incentive structure has become somewhat skewed. For many drug developments, the post-market reward for a new and innovative drug decreases the more time and resources that a company spends on pre-market research and development.[26] It has been suggested in several estimates that the cost of capital now exceeds the internal rate of return for many drugs, prompting reductions in R&D expenditures in complex therapeutic areas, for instance cancer treatments.[27]

There are two categories of drug developments that are of increasing importance. One category is connected to age and demography, and is characterised by complex science and a growing number of patients. Developing drugs to treat Alzheimer is an example. The second category concerns what the EU calls unmet medical needs, and is connected to rare diseases and characterised by complex science but few patients. The metric of time and sales are of increasing importance to both categories because current incentives are weak in light of needed scientific research costs and, in the second category, few patients. In other words: there is a substantial gap between the required time for pre-patent R&D and clinical trials, on the one hand, and the terms for market exclusivity, on the other hand. At the same time, conditions for sales under current pricing and trade regimes are not strong enough.

Likewise, in such a highly regulated sector as life sciences, the competitive position of a region or a country is also dependent on effective government agencies that do what they can to reduce the time it takes to manage regulatory submissions. In the life sciences sector, Europe used to be in a strong position but have lately become a laggard, partly because of increasing scientific complexity. For example, it takes 426 days to get the approval of a new active substance from the European Medicines Agency (EMA). But it only takes 315 days in Australia, 313 in Japan, 306 in Canada, and 244 in the US. A very low percentage at the EMA is approved by expediated reviews – 9 per cent. In the US, the Food and Drug Administration approves 71 per cent through expediated reviews.[28] Obviously, this is hindering the development of new medicines in Europe. Coupled with longer times than in other comparable markets to get reimbursement decisions by procuring government agencies, it makes Europe a less attractive region for development. Compared with the United States, for instance, the effective duration of market exclusivity is shorter in Europe.

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[25] The European Council and Parliament, respectively, have suggested additions and changes to the original proposal.

[26] Lietzan, E. (2018). The drug innovation paradox. 83 Missouri Law Review. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2948604

[27] Budish, E., Roin, B.N., and Williams, H. (2015). Do firms underinvest in long-term research? Evidence from cancer clinical trials. American Economic Review, vol. 105:7.

[28] CIRS. (2021). New drug approvals in six major authorities 2011-2020. R&D Briefing, 81. Available at: https://cirsci.org/wp-content/uploads/dlm_uploads/2021/06/CIRS-RD-Briefing-81-6-agencies-v5.pdf

3.2 External Sales – Trade Policy

Likewise, EU trade policy plays a decisive role in shaping the global business environment for the life sciences sector. Its most powerful tool, Free Trade Agreements (FTAs), matter for companies not solely because they reduce tariffs, and thus make the products more price competitive, but because they lower regulatory costs and protect their intellectual property. Hence, trade agreements boost sales both by improving market access and the predictability of the regulatory system.

Differences in regulation and duplicative procedures are a major obstacle to trade in pharmaceuticals. Regulatory cooperation chapters in EU FTAs are designed to reduce these costs by aligning procedures and standards between trading partners. First, these chapters promote good regulatory practices, such as transparency, early consultation, and evidence-based policymaking, which increase predictability for businesses. Second, sector-specific regulatory dialogues allow regulators to exchange information on safety standards and approval processes, encouraging faster recognition of shared scientific guidelines and reducing overlapping inspection requirements. Third, FTAs encourage countries to base their regulations on international standards. In the pharmaceutical sector, this includes alignment on Good Clinical Practice (GCP) in trials and Good Manufacturing Practice (GMP) in production, reducing the need for duplicative testing and documentation.

Another area where trade policy contributes to the pharmaceutical sector is digital trade. FTAs' provisions on digital trade may not, at first glance, appear central to the pharmaceutical sector but they are increasingly important. Pharmaceutical research depends on large-scale data, international clinical trials, and close cross-border collaboration. Modern FTAs support this by including digital trade chapters that facilitate the free flow of data across borders. These provisions allow pharmaceutical companies to transfer clinical and regulatory data between affiliates or partners abroad, avoiding data localisation requirements. FTAs also streamline digital licensing of intellectual property by ensuring that electronic contracts and signatures are recognised and enforceable. This is particularly important for smaller innovators seeking to licence technologies to international partners. Finally, FTAs often include provisions that facilitate the movement of specialised personnel and the recognition of professional qualifications. This helps pharmaceutical firms deploy research teams and technical staff across borders more easily.

The most important contribution of FTAs, however, is their ability to guard one of pharmaceutical companies' most important asset: their IP. Even though most countries are signatories to the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) which sets minimum standards for IP protection, TRIPS does not guarantee the level of IPRs required for high-value, knowledge-intensive sectors. FTAs enable the EU to go beyond the TRIPS baseline of protection by establishing clearer rules (the so-called TRIPS+) and stronger enforcement mechanisms.

FTAs deliver this level of additional IP protection through specific provisions such as those dealing with the SPCs mentioned earlier, which extend the effective patent duration to compensate for the time lost during the marketing authorisation procedures. A similar function is performed by

provisions related to RDP, which prevents competing firms from relying on the confidential safety and efficacy data submitted by the companies when seeking marketing authorisation. These clauses extend the EU's IP legislative framework to its trade partners, strengthening IP protection for the sale of pharmaceutical and biotech products in third markets.

EU trade policy has real positive economic impacts. Empirical research[29] shows that stronger IP provisions in FTAs, when aligned with the level of protection that EU companies benefit from within the Single Market, lead to higher GDP, exports, investment, and wages. For the Swedish pharmaceutical industry, the study found that strengthening IP provisions in existing EU FTAs would increase pharmaceutical exports and sectoral output. In the case of SPCs and RDP, these provisions could increase overall investment in the EU pharmaceutical sector by around 2 per cent and 0.7 per cent, respectively.[30] These benefits do not accrue solely to the country with the highest level of IP protection. Several studies have demonstrated that raising IP protection in the country with the weakest provisions results in increased pharmaceutical activity and greater availability of innovative medicines.[31]

At the individual firm level, another reason why FTAs are critical is that pharmaceutical companies rely on the legal protections secured through these agreements to sustain their cost structure. Developing a new medicine entails very high fixed R&D costs, often running into billions, while the marginal cost of producing an additional pill is negligible. FTAs underpin this business model in two ways. First, FTAs protect against counterfeiting and unlawful replication, a significant risk given that medicines can be reproduced using publicly available patent information. Second, by providing the assurance that products can be exported without being unlawfully copied, pharmaceutical companies can achieve the economies of scale that lower the cost per unit of innovation.

FTAs are therefore a highly valuable instrument for the Swedish pharmaceutical industry. Yet the fact that 60 per cent of Swedish pharmaceutical exports outside the EU go to countries with whom the EU presently has no FTA – including some major producers of medicines with weaker IP systems than the EU such as Brazil, Argentina, Indonesia, Malaysia and, most importantly, India – attests to the scale of the unrealised potential.[32]

Since the adoption of the 'Global Europe' strategy in 2006, the EU has taken a more assertive approach to the inclusion of TRIPS+ intellectual property provisions in its FTAs. These provisions span various types of IP, including patents, copyrights, trademarks, geographical indications (GIs), undisclosed information, industrial designs, and traditional knowledge and genetic resources. The

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[29] Erixon, F., Guinea, O., Lamprecht, P., and van der Marel, E. (2022). The Benefits of Intellectual Property Rights in the EU Free Trade Agreements. ECIPE, Brussels, occ. paper 01/2022, p. 219.

[30] Francois, J. (2021). Investment effects of stronger pharmaceutical IP provisions in EU FTAs. Unpublished manuscript.

[31] After the U.S.-Jordan FTA was signed in 2000, 32 new innovative medicines were launched in Jordan, a sharp increase in the availability of cutting-edge drugs, and the Jordanian pharmaceutical industry began developing its own innovative medicines Source: Office of the United States Trade Representative. (2004, September). U.S.-Bahrain FTA fact sheet: Access to medicines. Available at: https://ustr.gov/about-us/policy-offices/press-office/fact-sheets/archives/2004/september/us-bahrain-fta-fact-sheet-access-medicines

[32] OECD data. The following countries are classified as those with which the EU does not have a Free Trade Agreement (FTA): Australia, the United States, Argentina, Belarus, Brazil, Brunei Darussalam, China, India, Indonesia, Kazakhstan, the Lao People's Democratic Republic, Malaysia, Myanmar, Nigeria, Pakistan, the Philippines, Russia, Saudi Arabia, Chinese Taipei, Thailand, and the United Arab Emirates.

analysis of these FTAs shows that the while the EU includes a wide array of IP rights, it places particular focus on the protection of GIs. This contrasts with the US, which adopts a more targeted approach, concentrating its TRIPS+ agenda on economically significant IP rights, notably patents, trademarks, and data protection.[33]

The EU's policy orientation has strong implications. GIs, while important for certain EU regions and sectors, represent a niche share of the EU economy. In contrast, patents hold far greater economic weight. Prioritising GIs over patents in FTA negotiations imposes an opportunity cost: the EU may be securing higher protection for agri-food products, but it misses the chance to protect its most innovation-driven sectors.

This is relevant both for countries with which the EU has not yet concluded an FTA, and for partner countries with which the EU has signed FTAs that do not contain the TRIPS+ provisions and therefore require modernisation. Of the 19 EU FTAs recorded in the DESTA database,[34] only nine[35] include a provision on patent term extension in cases of unreasonable delay due to patent examination or marketing approval, and none of the agreements contain provisions restricting the use of compulsory licensing.

For countries with which the EU does not yet have a FTA, each days that passes is a day in which the EU's and Sweden's pharmaceutical industries lose protection and export opportunities. For instance, the EU-Mercosur Association Agreement is estimated to generate EUR 2.6 billion in additional exports for the EU pharmaceutical industry. This increase is driven not only by enhanced regulatory cooperation and stronger IP, as described earlier, but also by a substantial reduction in tariffs: from 5.4 per cent in 2024 to 0.7 per cent by 2040. Moreover, the agreement also includes detailed provisions on civil and administrative enforcement to deter infringement and ensure effective remedies.[36]

Another way in which EU trade policy can support the Swedish pharmaceutical industry is through so-called 'mini-deals'. Mini-deals are trade agreements that go beyond the multilateral trade rounds or bilateral FTAs.[37] A particular 'mini-deal' that is relevant for the pharmaceutical sector are Mutual Recognition Agreements (MRAs). These are arrangements in which countries agree to accept each other's regulatory assessments. For example, recognising that a manufacturing facility or product approved by one authority meets the regulation of the other. For the pharmaceutical industry, this removes the need for duplicative inspections and testing, cutting costs, and accelerating the time it takes to bring medicines to market. The EU-US MRA on Good

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33 Erixon, F., Guinea, O., Lamprecht, P., and van der Marel, E. (2022). The Benefits of Intellectual Property Rights in the EU Free Trade Agreements. ECIPE, Brussels, occ. paper 01/2022, p. 219.

34 The T+PTA dataset (DESTA) includes TRIPS+ provisions for 137 different FTAs (November 2019) that were signed since 1991. These provisions are characterised according to a taxonomy that follows 13 different IP categories: copyrights, domain names, encrypted program-carrying satellite signals, enforcement, exhaustion, geographical indications (GIs), industrial design, new plant varieties, patents, semiconductors, trademarks, traditional knowledge and genetic resources, and undisclosed information. Source: The T+PTA (DESTA) dataset is available at: https://www.designoftradeagreements.org/downloads/

35 These are the EU FTAs with Korea, Colombia, Peru, Georgia, Moldova, Ukraine, Vietnam, Canada, Armenia and Singapore.

36 European Commission (2025). Economic analysis of the negotiated outcome of the EU-Mercosur partnership agreement (EMPA). European Commission. Available at: https://op.europa.eu/en/publication-detail/-/publication/6f1a741f-677e-11f0-bf4e-01aa75ed71a1/language-en

37 Cernat, L. (2023). The Art of the Mini-Deals: The Invisible Part of EU Trade Policy. ECIPE, Brussels, policy brief 11/2023, p. 11.

Manufacturing Practices (GMP), which since 2019 has allowed both sides to rely on each other's inspections of drug manufacturing sites, is a good example.

The need for the EU to conclude more FTAs and 'mini-deals' becomes even more pressing when considering the increasing diversification of export markets undertaken independently by the Swedish pharmaceutical industry, as demonstrated in Chapter 2. Moreover, the previous analysis also showed how the Swedish pharmaceutical industry is becoming more diverse as small and mid-sized pharmaceutical and biotech firms are becoming more important for the overall ecosystem. The value of FTAs to these companies is significant. FTAs provide IP protection and reduce trade costs for companies that are very good at certain tasks and leverage global pharmaceutical value chain to build a sustainable business model.

This is an underappreciated dimension of how trade policy supports the ongoing transformation of the Swedish pharmaceutical industry. For a country like Sweden with a limited domestic market and a strong reliance on global demand to sustain innovation, trade policy is essential. Strong IP protection and regulatory cooperation enables firms to specialise rather than relying on vertically integrated structures. FTAs and 'mini-deals' create the legal foundations that allow Swedish pharmaceutical innovators and manufacturers to divide labour efficiently across the globe, concentrate on their core competencies, and exchange intangible assets.

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