



QUCEH WORKING PAPER SERIES
<http://www.quceh.org.uk/working-papers>

THE PATENT SYSTEM OF THE NETHERLANDS
IN A BELGIAN MIRROR, 1817-1869

Homer Wagenaar (Belgian Competition Authority)

Working Paper 25-03

QUEEN'S UNIVERSITY CENTRE FOR ECONOMIC HISTORY
Queen's Business School
Queen's University Belfast
185 Stranmillis Road
Belfast BT9 5EE

April 2025

The Patent System of the Netherlands in a Belgian Mirror, 1817-1869*

Homer Wagenaar[†]

April 2025

Abstract

This paper is an institutional study of the patent systems of the United Kingdom of the Netherlands and its successor states Belgium and the Netherlands in the nineteenth century. The patent law of 1817 gave the state wide discretion to accept or refuse patents and to customise their duration, fees, and terms on a case-by-case basis. Through an in-depth reconstruction of the patent system's administrative process, I demonstrate (1) how this system developed informal rules of procedure in its initial years, and (2) how the law after Belgium's independence from 1830 fared differently in each successor state. While in Belgium the patent system became widely used and increasingly codified, culminating in an 1850s reform, in the Netherlands the neglect of the patent system led in 1869 to its abolition.

Keywords: institutions, patents, economic history, nineteenth century, industrial revolution, the Netherlands, Belgium.

JEL Classification: K22, L43, N43, O31, O34.

* I thank Stephen Billington, Graham Brownlow, Chris Colvin, Christopher Coyle, Norma Dawson, Alexander Donges, Philip Fliers, Oscar Gelderblom, Joost Jonker, Apolline Malevez, Alessandro Nuvolari and John Turner for their help and comments. I acknowledge the financial support by the Northern Ireland Department of the Economy and the European Union under the Marie Skłodowska Curie COFUND SPaRK project (H2020-EU.1.3.4. 754507), as well as the Utrecht Network Young Researchers' Grant (2019). The views expressed are those of the author and do not necessarily reflect those of his employer.

[†] Homer Wagenaar (h.s.w.wagenaar@outlook.com) is Senior Case Handler (Economist) at the Belgian Competition Authority, Brussels. He completed his PhD at the Centre for Economic History, Queen's University Belfast, in 2022, where he wrote a dissertation on the Dutch patent law of 1817-1869.

1 Introduction

This paper investigates the patent system of the Low Countries in the context of the First Industrial Revolution. It focuses on the 1817 patent law introduced by the United Kingdom of the Netherlands (henceforth UKNL), a state that spanned present-day Belgium, the Netherlands and Luxemburg, and its fate in the successor states of Belgium and the Netherlands.

The relationship between the institution of patents and innovation/industrialisation is a prominent subfield of economic history and economics more generally.¹ Patents are known to have conflicting welfare and social effects. On the one hand, they grant temporary exclusive rights that enable a patentee to protect, sell or license their patented invention, thereby enabling or promoting its commercialisation and thus enhancing incentives to innovate. Patents also codify graphically and textually the invention in the patent ‘specification’, which permits enforcement while at the same time enhancing the dissemination of the invention if made public. However, an exclusive right necessarily limits the use of and improvement in that innovation during the patent’s duration.²

How much discretion should be given to the state in granting patent rights is important: are patents most effective in promoting innovation when they rigidly provide a ‘credible commitment’ to guarantee the same rights whatever the consequences,³ or does a lack of discretion in patent systems lead to undesirable or inefficient outcomes?

¹ Christine MacLeod and Alessandro Nuvolari, ‘Inventive Activities, Patents and Early Industrialisation: A Synthesis of Research Issues’, *Rivista Di Storia Economica*, no. 1 (April 2016): 77–107; Jochen Streb, ‘The Cliometric Study of Innovations’, in *Handbook of Cliometrics*, ed. Claude Diebolt and Michael Hauptert (Heidelberg: Springer Reference, 2016), 447–68.

² Suzanne Scotchmer, *Innovation and Incentives* (Cambridge, Mass.: MIT Press, 2006); Tom Nicholas, ‘Are Patents Creative or Destructive?’, *Antitrust Law Journal* 79, no. 2 (2014): 405–21.

³ Finn E. Kydland and Edward C. Prescott, ‘Rules Rather Than Discretion: The Inconsistency of Optimal Plans’, *Journal of Political Economy* 85, no. 3 (June 1977): 473–91; Douglass C. North and Barry R. Weingast, ‘Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England’, *The Journal of Economic History* 49, no. 4 (1989): 803–32.

After all, guaranteeing the same rights to all applicants grants the same period of exclusivity and fees to a minor or a major invention, to an invention in a fast-moving industry where innovations are quickly obsolete, or to a medicine that will still be taken three decades later, and to a foreigner as much as to a national.⁴

Patent systems in the nineteenth century had not fully crystallised and were more varied and often more flexible than patent institutions today.⁵ Some scholars argue that the developing patent institutions of late-eighteenth and early-nineteenth century Britain, France, and the United States played a major role in promoting their early industrialisation and economic growth.⁶ Others argue that patents co-evolved with industrial development and were a consequence of economic growth, that patent rights are in fact only incidental to industrialisation, or even that they impeded the Industrial Revolution.⁷

The Dutch-Belgian patent system is relatively unknown and has not been discussed in these debates. While Belgium was the second European country to

⁴ Scotchmer, *Innovation and Incentives*; Angus C. Chu, 'The Welfare Cost of One-Size-Fits-All Patent Protection', *Journal of Economic Dynamics and Control* 35, no. 6 (June 2011): 876–90; Daron Acemoglu and Ufuk Akcigit, 'Intellectual Property Rights Policy, Competition and Innovation', *Journal of the European Economic Association* 10, no. 1 (February 2012): 1–42.

⁵ Nowadays, patent rights tend to converge in a standard model of pre-grant examination, a fixed maximum length, yearly patent renewal fees, and immediate accessibility of the patent specifications. Brad Sherman and Lionel Bently, *The Making of Modern Intellectual Property Law: The British Experience, 1760-1911*, Cambridge Studies in Intellectual Property Rights (Cambridge: Cambridge University Press, 2008); Alexander Donges and Felix Selgert, 'Do Legal Differences Matter? A Comparison of German Patent Law Regimes before 1877', *Jahrbuch für Wirtschaftsgeschichte / Economic History Yearbook* 60, no. 1 (1 May 2019): 57–92, <https://doi.org/10.1515/jbwg-2019-0004>.

⁶ Kenneth L. Sokoloff and B. Zorina Khan, 'The Democratization of Invention During Early Industrialization: Evidence from the United States, 1790-1846', *The Journal of Economic History* 50, no. 2 (1990): 363–78; Sean Bottomley, *The British Patent System during the Industrial Revolution, 1700-1852: From Privilege to Property* (Cambridge: Cambridge University Press, 2014); B. Zorina Khan, *Inventing Ideas: Patents and Innovation Prizes, and the Knowledge Economy* (New York, NY: Oxford University Press, 2020).

⁷ Christine MacLeod, *Inventing the Industrial Revolution: The English Patent System 1660 - 1800* (Cambridge: Cambridge University Press, 1988); David Greasley and Les Oxley, 'Patenting, Intellectual Property Rights and Sectoral Outputs in Industrial Revolution Britain, 1780–1851', *Journal of Econometrics*, The Econometrics of Intellectual Property, 139, no. 2 (1 August 2007): 340–54, <https://doi.org/10.1016/j.jeconom.2006.10.018>; Joel Mokyr, 'Intellectual Property Rights, the Industrial Revolution, and the Beginnings of Modern Economic Growth', *The American Economic Review* 99, no. 2, (2009): 349–55; Liliane Hilaire-Pérez, Christine MacLeod, and Alessandro Nuvolari, 'Innovation Without Patents', *Revue Économique* 64, no. 1 (8 January 2013): 5–8; MacLeod and Nuvolari, 'Inventive Activities'; Petra Moser, 'Patents and Innovation in Economic History', *Annual Review of Economics* 8, no. 1 (2016): 241–58, <https://doi.org/10.1146/annurev-economics-080315-015136>.

industrialise after Britain, its patent system has been studied in only two unpublished PhD theses, by De Favereau and by Péters, that start only after Belgium's independence in 1830.⁸ By contrast, the Netherlands did not begin industrialising until the 1860s,⁹ and the only in-depth investigation of its nineteenth-century patent system is Doorman's work of 1947.¹⁰ The unprecedented Dutch abolition of its patent system has interested more scholars, although their articles rely more on juxtaposing summaries of contemporary publications and parliamentary debates than on investigating the system before its repeal.¹¹ A comparison of two countries with entirely different economic experiences sharing the same patent law may then provide more evidence on the link between patent institutions and industrialisation.

In this paper, I contribute to these debates with an institutional analysis reconstructing the Dutch-Belgian patent system and its development, tracing it from its introduction in 1817 to its 1854 reform (Belgium) and 1869 abolition (the Netherlands). I study its actual implementation beyond merely relying on the legal stipulations, in order to observe the shape the institutions took in practice and their possible economic effects. I follow a tradition in political science that emphasises policy implementation to understand institutional performance and institutional change.¹² This paper is the

⁸ C. De Favereau, 'Faire germer le progrès. Déterminants techniques, sociologiques et culturels de l'inventivité brevetée agricole en Belgique (1830-1913)' (Thèse de doctorat en Histoire, Louvain-la-Neuve, Université Catholique de Louvain, 2011); Arnaud Péters, 'Course à l'innovation et mécanique des brevets. L'évolution technologique dans l'industrie belge du zinc (1806-1873)' (Université de Liège, Liège, Belgique, 2014).

⁹ J. L. van Zanden and Arthur van Riel, *Nederland 1780-1914: staat, instituties en economische ontwikkeling* (Amsterdam: Balans, 2000); Arthur van Riel, 'Trials of Convergence: Prices, Markets and Industrialization in the Netherlands, 1800-1913' (PhD Thesis, Utrecht, Utrecht University, 2018).

¹⁰ G. Doorman, *Het Nederlandsch octrooiwezen en de techniek der 19e eeuw* ('s-Gravenhage: Nijhoff, 1947).

¹¹ Fritz Machlup and Edith Penrose, 'The Patent Controversy in the Nineteenth Century', *The Journal of Economic History* 10, no. 1 (1950): 1–29; D. den Hertog, 'De anti-octrooibeweging in Nederland (1850-1886)', *Bijblad bij De Industriële Eigendom* 44, no. 2 (16 February 1976): 27–35; Stef van Gompel, 'Patent Abolition: A Real-Life Historical Case Study', *American University International Law Review* 34, no. 4 (March 2019): 877–922.

¹² Peter L. Hupe and Michael J. Hill, "'And the Rest Is Implementation": Comparing Approaches to What Happens in Policy Processes beyond Great Expectations', *Public Policy and Administration* 31, no. 2 (1 April 2016): 103–21.

necessary first step, laying the foundation for follow-up work on any future (econometric) analysis of the impact that the UKNL patent system could have had on the Dutch or Belgian economy or society. The crucial and novel contribution of this paper is its understanding of the institution.

Its detailed reconstruction is particularly welcome because the Dutch-Belgian law was extremely discretionary: the government could decide whether to grant the patent for each application, its duration, patent fees, and other conditions. This might have become arbitrary, but, as I show, the UKNL augmented the formal statutory rules of operation by informal rules that made its application more predictable and consistent. However, I also show how this flexibility ultimately affected the institutions' stability. After the UKNL's partition, each successor state kept the patent law of 1817, but in 1854 Belgium radically reformed its system, curtailing most of the state's room for discretion, and in 1869 the Netherlands abolished its patenting altogether.

Methodologically, the present study relies on the well-preserved patent dossiers at the Dutch National Archives, in addition to contemporary published sources, and, for the Belgian developments from 1830, on the work of Péters.¹³ I first sampled patent dossiers from the archives every five years, using these patterns to further investigate those periods where changes occurred. I also relied on the *Indices op de verbalen*, which summarised all the documents entering and leaving the ministry, allowing quick reconstruction of the patent process.¹⁴ Thus I naturally concentrated on what emerged as the most discretionary early years, 1817-1830, where I read every dossier. The focus of this close reading was the procedure followed, the characteristics (origin, class, etc.) of

¹³ Unfortunately, Belgium's archives have preserved little documentation on the process of patenting. Péters thus had to rely mostly on published source material. See Péters, 'Course à l'innovation'.

¹⁴ See Nationaal Archief, Den Haag (hereafter NL-HaNA), Archief Binnenlandse Zaken, 1813-1848 (hereafter BiZa 1813-1848), entry no. 2.04.01, inventory nos. 4049-4051, 4190-4196, 4925-4954. Using the *Klappers op de Indices* to search for subject, see inventory nos. 4052-4053, 4197-4203, and 4955-4979.

the patentee and the invention, and the reasoning behind the decisions taken (to accept or reject a patent, to augment or reduce its duration, to reduce fees or grant loans, etc.) At the same time, I formed a patent database from the registries, to derive descriptive statistics on the use of the system.¹⁵ By juxtaposing these results with the secondary literature and historiography on the Dutch and Belgian patent systems and economies, I gained a new perspective on their institutional development.

This paper is divided into four sections. First, I elaborate on why patents should be studied by economic historians of the Industrial Revolution. Then, using primary data, I reconstruct the patent law of the UKNL. I discuss how civil servants attempted to create consistent practices in granting patents in the period up to Belgium's independence (1830). Next, I analyse how partition radically influenced the development path of the patent institutions of both Belgium and the Netherlands. Finally, I demonstrate how the historical development of the Dutch patent system is crucial knowledge for understanding why it was abolished. In the conclusion, I link the history to the previous discussion of theory.

2 Patents in theory and history

The triangular relationship between patents, innovation and industrialisation is complex. Already in his 1838 historical study of Belgian innovation and industrialisation, the economist Natalis Briavoinne observed that patents were an unreliable source, because many important inventions were not patented or even patentable, and many patents do

¹⁵ The registries, including the replacement of a lost registry made by Doorman on the basis of other sources, can be found in NL-HaNA, Ministerie van Binnenlandse Zaken: Afdeling Nijverheid en voorgangers (hereafter BiZa / Nijverheid), 1817-1877, 2.04.23.01, 1236-1240 (Registers van verleende octrooien). The digitisation also made use of Doorman, *Het Nederlandsch octrooiwezen*. Doorman's book reproduces most details in the Dutch patent registers, while adding an introduction with several thematic articles and technical commentaries on the most important patents.

not cover a successful invention.¹⁶ Empirical studies of patents commonly find that only a minority of patents have a positive commercial value.¹⁷ Furthermore, once a country is a follower, innovation is less important than dissemination, meaning that it could actually be beneficial not to protect intellectual property.¹⁸

Worse, the direction of causality between patenting and industrialisation can run in two directions.¹⁹ The existence of patents could have created the incentives to innovate, as well as a means for making technical knowledge widely available,²⁰ both stimulating inventions that could have influenced the industrial transformation. Equally, the increased scale of production, the size of markets and transportation speeds associated with industrialisation may have increased the need to protect invention against competitors – as well as creating a need for abstract symbols of reputation and quality that patents could help provide. Consequently, industrialisation and patenting can create mutually reinforcing dynamics.

Patenting activity also has several self-reinforcing mechanisms, without requiring widespread economic growth or industrialisation in itself. Macleod shows evidence of patents following one another from the same community, implying a learning effect, as well as evidence of defensive patents lest inventions be stolen.²¹ The more the use of patents by economic actors, the greater the threat of intellectual theft, inducing further

¹⁶ See Natalis Marie Briavoine, ‘Sur les inventions et Perfectionnements dans l’industrie, depuis la fin du XVIIIe siècle jusqu’à nos jours: mémoire couronné le 8 Mai 1837’, in *Mémoires couronnés par l’Académie Royale des Sciences et Belles-Lettres de Bruxelles*, vol. XIII (Bruxelles: M. Hayez, imprimeur de l’académie royale, 1838), 4.

¹⁷ Zvi Griliches, ‘Patent Statistics as Economic Indicators: A Survey’, *Journal of Economic Literature* 28, no. 4 (December 1990): 1661–1707; Streb, ‘The Cliometric Study of Innovations’.

¹⁸ Indeed, Eric Schiff’s argument has been to link the origin and rise of several important Dutch multinationals (Unilever, Philips...) which could build on the inventions of other owing to the lack of patent protection. See Eric Schiff, *Industrialization without National Patents: The Netherlands, 1869-1912, Switzerland, 1850-1907*, Princeton Legacy Library (Princeton, New Jersey: Princeton University Press, 1971).

¹⁹ Greasley and Oxley, ‘Patenting, Intellectual Property Rights and Sectoral Outputs’; MacLeod and Nuvolari, ‘Inventive Activities’, 81.

²⁰ Gary W Cox, ‘Patent Disclosure and England’s Early Industrial Revolution’, *European Review of Economic History* 24, no. 3 (1 August 2020): 447–67, <https://doi.org/10.1093/ereh/hez012>.

²¹ MacLeod, *Inventing the Industrial Revolution*.

patenting. The formation of a technology market also stimulates further patenting by making patenting more attractive, while its formation and development depend on patent agents and other specialists having enough work to make a living.²²

In her review of the economic history literature on patents and innovation, Moser argues that the big unresolved questions about the efficacy of patents can be addressed only by turning to the past.²³ The historical lens gives us the necessary distance to re-evaluate modern policy designs. It provides us with the evidence for testing economic theories. Empirically speaking, economic history provides us with interesting institutional configurations that are very alien to our modern sensibilities. This does not necessarily devalue them for economic inquiry. Indeed, we should use the past to make “reciprocal comparison”²⁴, finding its alien nature reveals things about the present, previously hidden to us behind the convergence of our present institutional arrangements. It is in this spirit that the present work should be read.

3 The patent system in the United Kingdom of the Netherlands, 1817-1830

The patent law of 1817 was part of a nationalist project in a context of state-building. King Willem I's government sought legitimacy for his new state by replacing French law with reinterpreted national traditions, while yet aiming for economic development in the context of a huge state debt.²⁵ The ministry drafting the patent law looked to England and

²² Naomi R. Lamoreaux and Kenneth L. Sokoloff, ‘Market Trade in Patents and the Rise of a Class of Specialized Inventors in the 19th-Century United States’, *American Economic Review* 91, no. 2 (May 2001): 39–44.

²³ Petra Moser, ‘Patents and Innovation in Economic History’, *Annual Review of Economics* 8, no. 1 (2016): 241–58, <https://doi.org/10.1146/annurev-economics-080315-015136>.

²⁴ Christopher L. Colvin and Homer Wagenaar. ‘Economics versus history’. In: Matthias Blum and Christopher L. Colvin (eds.), *An Economist's Guide to Economic History* (Cham: Palgrave Macmillan, 2018).

²⁵ NL-HaNA, Archief Binnenlandse Zaken, 1813-1848 (hereafter BiZa 1813-1848), 2.04.01, 4042, Dossier Sebille, 30-11-1815, no. 234. See also Peter A.J. van den Berg, ‘De integratieve functie van het recht in het Verenigd Koninkrijk van Koning Willem I (1815-1830)’, *De Negentiende Eeuw* 36, no. 4 (2012): 244–62. For a more prolonged discussion on the economic and financial situation in the early 19th century kingdom, including the state debt and the economic and financial policies of Willem I, see van Zanden and van Riel, *Nederland 1780-1914*.

France for examples, because it believed their supposed industrial prosperity owed much to their patent laws.²⁶

However, the patent system that emerged in the UKNL infused into these inspirations a distinct set of Dutch traditions. First, the French and English patent systems had no formal examination of an application's utility or novelty, thus allowing anyone to patent an invention as long as minimal administrative requirements were met.²⁷ By contrast, the pre-revolutionary Dutch Republic through informal standard practices had developed procedures for examining novelty and utility.²⁸ The drafting ministry infused these features into the template of the French patent law, introducing government discretion on whether or not to grant a patent, deemed necessary to prevent patents for insignificant inventions.²⁹ A logical consequence of this government discretion was to reintroduce a preliminary examination.³⁰ Since the law of 1817 had very little in the nature of an explanatory memorandum or parliamentary discussions to rely on, the philosophy behind the patent law, its interpretation in particular, was clarified only from internal discussions in patent dossiers. In fact, the government's philosophy combined economic policy with economic justice: rewarding inventors for their efforts, while aiming to optimise case-by-case the size of the incentive for the innovative activity needed to balance private and social gain.³¹

²⁶ NL-HaNA, BiZa 1813-1848, 2.04.01, 4039, Dossier Wet en Algemeen, 1 July 1816, 640.

²⁷ However, Bottomley argues that the British system (partly) compensated for a lack of examination in other ways (such as patent agents), and Baudry describes how France introduced an informal examination by the *Comité Consultatif des Arts et Manufactures*. See Bottomley, *The British Patent System during the Industrial Revolution, 1700-1852*; Jérôme Baudry, 'Examining Inventions, Shaping Property: The Savants and the French Patent System', *History of Science* 57, no. 1 (1 March 2019): 62–80, <https://doi.org/10.1177/0073275318767233>.

²⁸ Karel Davids, 'Patents and Patentees in the Dutch Republic between c.1580 and 1720', *History and Technology* 16, no. 3 (2000): 263–83.

²⁹ Letter of the Minister of the Interior to the Commissioner General for Education, Arts and Sciences, 15 November 1816, 5, in NL-HaNA, BiZa 1813-1848, 2.04.01, 4039.

³⁰ See *Pasinomie*, vol. 6 (1er janvier 1817-31 décembre 1818) (Bruxelles: Administration Centrale de la Pasicrisie, 1860), 84.

³¹ The most explicit example is NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier Hartsink & Blanckenay, 17-6-1817, 1172. A similar philosophy resurfaced during the reintroduction of patents in 1910.

The patent legislation of 1817 consisted of the law of 25 January 1817, and a regulation of 26 March 1817.³² Below, I discuss six aspects of the way that the law worked in practice: (1) eligibility and the administrative procedure, (2) the examination process, (3) the patent's duration and fees, (4) rewards as an alternative to patents, (5) the conditions attached to patents, and (6) the publication and enforcement of patents.

3.1 *Eligibility and administrative procedure*

Like the French legislation, applicants in the UKNL had to choose between three types of patent: invention, improvement and importation. The first concerned patents for new inventions by domestic inhabitants; 'improvement' applied to improvements on inventions covered by earlier patents; and 'importation' referred to the first introduction of a technology to UKNL territory, no matter who invented it.³³ If someone could demonstrate that they had used an invention before a patent was requested, the law stipulated that they could continue to use it without harm from the new patent. Patents of improvement did not entail the right to use the original patent. Designs or ornamental changes were not considered patentable.

The application process imposed some constraints. Married women or minors could not apply without permission from their husband or guardian.³⁴ Indeed, the few women patent holders were all widows or unmarried, except for one woman whose

See Aloysius Bernardus Constantinus Triebels, 'Over den invloed der theorieën betreffende het rechtskarakter van het octrooi, op de ontwikkeling van het octrooirecht' (Amsterdam, Universiteit van Amsterdam, 1916), 125–26.

³² For a 19th century Dutch reprint of the law, as well as a collection of other related legislation, literature references and summaries of case law, see Gebroeders Belinfante, *Wetgeving en andere officiële stukken betreffende de octrooyen van uitvinding, invoer en verbetering in Nederland en zijne overzeesche bezittingen benevens regtspraak, aantekeningen en bibliographie nopens het onderwerp*, 2e druk [1e druk 1839] ('s-Gravenhage: Gebroeders Belinfante, 1867). For an English translation of the Dutch patent legislation see R.W. Urling, *The Laws of Patents in Foreign Countries, Translated, with Notes &c for the Information of Inventors and Patentees* (London: Simpkin, Marshall & co., 1845).

³³ NL-HaNA, BiZa 1813-1848, 2.04.01, 4082, 8-9-1819, 58/1391.

³⁴ Antoine Perpigna *Manuel des inventeurs et des brevetés*, 8th ed. (Paris: Imprimerie de Dugessois, 1847), 23. observed that the law made no exception to the general rule.

husband acted on her behalf. Foreigners had to nominate someone who could correspond about the patent from an address (*domicilie*) in the Netherlands. These persons were usually lawyers, although diplomats, factory owners and guesthouse keepers are also named.³⁵ Language was the third constraint. As part of a language policy to foster the creation of a nation-state, from 1823 onwards in Dutch-speaking provinces patent applications written in a language other than Dutch were returned for correction.³⁶

Insert Figure 1

The procedure for eligible applicants was officially simple (see also the shaded elements in Figure 1). Applicants would submit their requests to the provincial government, which would forward it to the national level within ten days. There, the responsible minister would write an advice to the King, who would decide whether or not to grant the patent, or to ask for a second opinion from the Academies of Science in Amsterdam or Brussels.

In practice, however, the patent files made clear that the ministry of the interior was the central node in the system, obtaining as much information as it needed (Figure 1's white elements). When applications were found incomplete, with insufficient descriptions or drawings, or formulated in the wrong language, they would be sent back for correction. The ministry at first hired patent advisors in particular cases, but by the late 1820s patent advisors were involved in all patent applications. They were initially proven inventors, but from 1828 onwards new appointees were engineers and university

³⁵ See the patent registries: NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 1236-1240.

³⁶ Rik Vosters and Guy Janssens, 'Willems taalpolitiek in het zuiden: een splijtzwam?', in *Het (on)verenigd koninkrijk, 1815-1830 > 2015: een politiek experiment in de Lage Landen*, ed. Remieg Aerts and Gita Deneckere (Rekkem: Ons Erfdeel vzw, 2015), 153–60. The ledgers on all ministerial communication (*index op de verbalen*) show it was a structural policy: NL-HaNA, BiZa 1813-1848, 2.04.01, 4190-4196; 4925-4954.

professors.³⁷ The ministry asked the provincial governors to send information about a patent applicant's local reputation and their ability to shoulder the patent fees.³⁸

Additionally, the ministry sometimes asked for information from the Chambers of Commerce, an advisory body representing the commercial and industrial interests of a city.³⁹ From 1827 onwards, the government started to consult these regularly for new patents of importation in the Southern Netherlands (present-day Belgium and Luxembourg), when some patents of importation had led to significant protests from local industry.⁴⁰ These requests had a standard formula: whether the invention was already in use or would soon be, whether the patent should be granted, and if so, under what additional conditions to bring them into line 'with the interests of our manufacturers'.⁴¹ These requests were not made in the Northern provinces (present-day Netherlands), hinting at the first visible divergence in the patent system between North and South. By 1828 the Northern and the Southern Netherlands also had different patent advisors.

During the application process, applications could be challenged, although this possibility was not stipulated by law. The archives show regular attempts by competitors to prevent a patent from being granted. They warned about imminent patent requests, or resisted patent requests still under review.⁴² While the state took these seriously, it did not facilitate these objections by announcing impending applications. Indeed, since the

³⁷ Initially, Bernard Koning and Gerhard Roentgen, who had patents themselves; but when Koning died in 1828 he was replaced with the engineer Antoine Lipkens on the Dutch side, and the academics Jules Kindt and Charles Étienne Guillery on the Belgian side.

³⁸ NL-HaNA, BiZa 1813-1848, 2.04.01, 4716, 24-11-1840, 98.

³⁹ J.L.J.M. van Gerwen, Jacobus J. Seegers, and Simon Wybren Verstegen, *Mercurius' erfenis: een geschiedenis en bronnenoverzicht van de Kamers van Koophandel en Fabrieken in Nederland*, NEHA-series V, ISSN 0922-5765 4 (Amsterdam: NEHA, 1990); Luc François and Chantal Vancoppenolle, *Les Chambres de Commerce en Belgique (XVIIe-XXe siècles): entre mission publique et intérêts privés*, trans. Raymond Doms (Bruxelles: Archives générales du Royaume, 1995).

⁴⁰ Péters, 'Course à l'innovation', 154–55.

⁴¹ Translated from NL-HaNA, BiZa 1813-1848, 2.04.01, 4536, 17-8-1830, 10F. See also NL-HaNA, BiZa 1813-1848, 2.04.01, 4350, 14-08-1827, 17F.

⁴² For example, NL-HaNA, BiZa 1813-1848, 2.04.01, 4059, 4-7-1818, 193/757.

existing objectors to applications generally came from the same town as the applicant, they most probably had obtained their information from their local networks.

3.2 Examination process

The UKNL patent system developed a relatively modern examination system, around the same time as two other best-known early examples of examination systems, in Prussia (1815) and the United States (1830s).⁴³ I define a modern examination system as the development of principles of rejection on grounds of novelty, non-obviousness and utility, and of associated principles such as the prohibition against patenting general principles of nature. I regularly found such reasoning in the patent dossiers.

The legislation had very broad definitions for patentable subject matter, namely ‘inventions or real improvements in any branch of art or industry, new within the realm’; but in practice the definition was narrower. Since the grant of patents was discretionary, the government could define what was patentable under the law. General principles of nature were excluded, such as ‘increasing the heat for melting iron’.⁴⁴ Any broad patents for newly invented technologies were rejected, allowing only patents for specific applications.⁴⁵ Similarly, patents for broad categories of objects were not allowed, only specific methods or machines for making them.⁴⁶

Besides the rejection of broad patents, certain subfields were excluded entirely: medicine, plants, and recipes for chemicals or food. Patent examiners thought they were too distinct from industry or machinery, yet also had specific reasons.⁴⁷ For medicine, the state believed patents would conflict with a law requiring medicines to be tested before

⁴³ Sean Bottomley, ‘Patents, Invention and Democracy in Britain and the United States to 1852’, *Jahrbuch Für Wirtschaftsgeschichte / Economic History Yearbook* 60, no. 1 (1 May 2019): 9–30, <https://doi.org/10.1515/jbwg-2019-0002>; Donges and Selgert, ‘Do Legal Differences Matter?’

⁴⁴ NL-HaNA, BiZa 1813-1848, 2.04.01, 4143, 27-11-1822, 1984.

⁴⁵ NL-HaNA, BiZa 1813-1848, 2.04.01, 4218, 1-11-1824, 133A.

⁴⁶ NL-HaNA, BiZa 1813-1848, 2.04.01, 4175, 31-3-1824, 109/310.

⁴⁷ For plants see NL-HaNA, BiZa 1813-1848, 2.04.01, 4145, 28-12-1822, 2194.

they were sold by pharmacists.⁴⁸ Food, recipes and compositions were deemed unenforceable: ‘Inventions that cannot be guaranteed by the law should not therefore be seen as falling under the spirit of the law.’⁴⁹

The state sometimes excluded patents for considerations of utility. Here, it was less consistent than with the other principles of rejection, revealing how the law’s application could waver between a French-style registration system and an examination system. Particularly early on, examiners regularly rejected patents for inventions they considered technically impossible, not useful, or not a genuine improvement, with the idea of protecting both the inventor and the public.

By the mid-1820s, examiners had moved towards the principles of a registration system, where the applicant bore all the risks. The state became more willing to grant patents for inventions which it suspected of being unfinished, impractical or unprofitable, as long as the applicant paid their high fees,⁵⁰ ‘because the imposition of the payment of these duties gives simple means of protection against the countless patent requests for worthless and chimerical inventions.’⁵¹

3.3 *Patent duration and fees*

An applicant could apply for a patent lasting five, ten, or fifteen years. Patents of importation were limited by the remaining length of the original foreign patent on which they were based. Patents of improvement could be adapted in length to the original patent, or go beyond, at the discretion of the examiner.

⁴⁸ NL-HaNA, BiZa 1813-1848, 2.04.01, 4039, dossier Lebrun, royal decree 17-8-1817 (KB no. 117); NL-HaNA, BiZa 1813-1848, 2.04.01, 4135, 12-6-1822, 1032.

⁴⁹ Translation from NL-HaNA, BiZa 1813-1848, 2.04.01, 4106, 21-1-1821, 39/112.

⁵⁰ NL-HaNA, BiZa 1813-1848, 2.04.01, 4206, 31-5-1824, 153A.

⁵¹ Translated from NL-HaNA, BiZa 1813-1848, 2.04.01, 4256, 29-10-1825, 137A.

The state regularly reduced the requested patent length, by estimating the time the inventor would need to recover the investment costs and obtain a reasonable reward.⁵² After the patent grant, it was possible to extend it up to a maximum of fifteen years, but this depended on being ‘justified with good reasons.’ Again, the same estimation principle was invoked to judge these reasons.

The life of a patent directly corresponded to the amount of the patent fees. A five-year patent cost 150 guilders, a ten-year patent 300, and a fifteen-year patent 600 guilders. Although the law gave the option to impose a higher tariff on a ten- or fifteen-year patent ‘based on its importance’, this legal option was never used. A patent was costly, for the average daily wage for unskilled agricultural and industrial workers in 1819/1820 was about one guilder per day in the Northern provinces in 1819/1820.⁵³ Moreover, the patent fees, wholly payable in advance, were hard for the less wealthy to afford.⁵⁴ Internationally, too, the patent fees were comparatively high, and especially so considering the UKNL’s examination of patents made discouragement by high fees unnecessary.⁵⁵ However – diverging from the patent law – in practice the state regularly reduced or waived patent fees when it deemed inventions useful or when the inventor had no means to pay – a privilege for domestic citizens and a few foreign patentees.⁵⁶ Patents of improvement were generally made free.

⁵² NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier Hartsink & Blanckenay, 17-6-1817, 1172.

⁵³ van Zanden and van Riel, *Nederland 1780-1914*, 84.

⁵⁴ A rare exception of payment in terms was granted to H. A. Delvaux. See NL-HaNA, BiZa 1813-1848, 2.04.01, 4536, 18-8-1830, 14F.

⁵⁵ In an 1850 comparison, a patent’s fees were almost equal to that of France or the Austrian empire in absolute terms, and two-thirds of an English patent, even though the UKNL territory, population size and market would have been significantly smaller. Moreover, European systems tended to have high fees deliberately to limit ‘useless’ applications – the United States and Prussia used an examination system to filter them, and had correspondingly lower fees to stimulate innovation – an important argument of Zorina Khan to show why the American system was more conducive to innovation. See W. Neilson Hancock, *On the Cost of Patents of Invention in Different Countries: A Paper Read before the Statistical Section of the British Association at Edinburgh, August 2nd, 1850* (Dublin: Dublin statistical society, 1850); B. Zorina Khan, *The Democratization of Invention: Patents and Copyrights in American Economic Development, 1790-1920* (Cambridge: Cambridge University Press, 2005).

⁵⁶ NL-HaNA, BiZa 1813-1848, 2.04.01, 4042, Dossier Asmore & Wathier te Luik, 3-9-1817, 1889.

The proceeds of the fees went into a ring-fenced fund for the promotion of industry. In fact, the fund served to finance the administrative costs of the patent system, to reduce or waive the costs of obtaining a patent,⁵⁷ and also to provide premiums and rewards for inventions that either replaced patents or were in addition to them.

3.4 *The alternative to a patent: subsidies, rewards and loans*

When inventors wished to receive a reward instead of or on top of a patent, their invention came under additional scrutiny. At first, the government invited Academies to investigate the invention. They would visit or invite the inventor to test the invention in a procedure much like the French Academy's during the *ancien regime*.⁵⁸ The consultation of the Royal Academy of Brussels was held only in the first two years of the patent law, while the Amsterdam equivalent was frequently consulted until the mid-1820s.

Consultation grew more infrequent as the ministry became increasingly sceptical of rewards. Initially, the state granted inventors subsidies to develop and test their ideas, but even by 1819, the minister was warning the King of exhausting the patent fund if this became standard policy.⁵⁹ Many of the 'inventions' for which support was requested were perpetual motion devices, so the ministry from 1822 onwards required applicants to show support from a scholarly society or renowned scientists before applying.⁶⁰ Rewards and subsidies were usually around the same level as the patent fees, between 200 and 500 guilders, while bigger loans (for example 1,000 or 2,000) were granted. After some mixed experiences, the ministry in 1825 recommended that the King redirect applicants to

⁵⁷ The law did not sanction fee reductions. The state circumvented this by rewarding the same amount as the patent fees. See 2.04.01, 4269, 27-12-1825, 4F.

⁵⁸ Liliane Hilaire-Pérez, *L'invention technique au siècle des Lumières, L'évolution de l'humanité* (Paris: Albin Michel, 2000).

⁵⁹ NL-HaNA, BiZa 1813-1848, 2.04.01, 4073, 13-4-1819, 598.

⁶⁰ NL-HaNA, BiZa 1813-1848, 2.04.01, 4128, 9-2-1822, 235.

patents (since these cost the state nothing),⁶¹ although subsidies and loans were still provided thereafter.

3.5 *Conditions attached to a patent*

Patents had legal conditions attached. First, a working clause required every patentee to produce the patented good or use the patented process on UKNL territory within two years; however, requests for extensions to the deadline were regularly granted.⁶² Sometimes the state reduced the working clause term when it considered the invention to be particularly valuable. In practice, these terms could be longer, for they were seldom enforced. The UKNL enforced the clause in 1823 and 1827 through asking each province to report on its patentees. The state then asked those patentees who had failed to use their patent to mention any extenuating circumstances before their patents were declared null and void.

Second, if patentees sought a patent for the same invention abroad, they would void their patent. This clause had been copied from the French law, but was never acted upon. The ministry admitted that patent holders could easily circumvent the clause by using another person's name abroad, while a foreign patent would not actually harm the UKNL's industry.⁶³ Exceptions to this clause were always granted when requested.⁶⁴ The clause was ridiculed in guides in the 1840s and 1850s as ineffective and counterproductive, yet the authors were unaware it was a dead letter.⁶⁵

Besides the working clause and the protectionist clause above, the state introduced open license clauses between 1825 and 1830, even though they were not mentioned in

⁶¹ NL-HaNA, BiZa 1813-1848, 2.04.01, 4246, 4-8-1825, 31A.

⁶² For example, NL-HaNA, BiZa 1813-1848, 2.04.01, 4101, 24-10-1820, 85/1536.

⁶³ NL-HaNA, BiZa 1813-1848, 2.04.01, 4293, 18-7-1826, 89A.

⁶⁴ The ledgers mention for instance Bles (14-2-1824), Dickson (28-4-1828), Embach (30-4-1829), and Bourguignon (23-12-1829).

⁶⁵ Urling, *The Laws of Patents*, xxii, 5; A. J. B. Stoffels, *De wetgeving op de octrooijen voor uitvinding, verbetering en eerste invoering* (Leiden en Amsterdam: J.H. Gebhard & Comp en Jacs. Hazenberg CsZoon, 1851), 138–39.

the law.⁶⁶ Open licenses allowed anybody to demand access to the invention in return for a ‘fair’ payment. The state used open license clauses when it estimated that the patent would be too disturbing to competition on the market.

3.6 *Grant, enforcement and publication*

Once the patent was granted and paid for, it would be announced in the *Staatscourant*, which listed the patentee, the patent title, the duration and any special conditions. Many patentees were mainly interested in this publication, because they regularly used their patent as a sign of quality (see also Figure 2).⁶⁷ The patent allowed holders to enforce their patent with a civil law procedure.⁶⁸

Insert Figure 2

If other parties suspected a violation of the patent law, they often did not sue in court to annul a patent but addressed the government. Although not known to the general public, already by 1818 the ministry and King had decided that whereas reasons for annulment listed in the law were the prerogative of the King’s government, a conflict over the first to invent something should be determined in court.⁶⁹

Unlike England or France, the UKNL did not make patent specifications consultable. The law stipulated secrecy for patent specifications until their expiry, when they should be published in full. Considering such a request to consult in 1837, the civil servants could not remember any earlier occasions.⁷⁰ The only earlier attempt in 1827

⁶⁶ See the patent registries faithfully copied in Doorman, *Het Nederlandsch octrooiwezen*.

⁶⁷ On patentees’ use of state insignia see NL-HaNA, BiZa 1813-1848, 2.04.01, 4133, 14-5-1822, 1e afdeling no. 853; and NL-HaNA, Algemene Staatssecretarie, 2.02.01, 1453, 6-7-1822, 123.

⁶⁸ Péters, ‘Course à l’innovation’, 148.

⁶⁹ NL-HaNA, BiZa 1813-1848, 2.04.01, 4040, Dossier de Heer & comp, 19-1-1818, 150.

⁷⁰ NL-HaNA, BiZa 1813-1848, 2.04.01, 4644, 3-3-1837, 139.

was told to obtain permission from the patent holder.⁷¹ This choice of secrecy was not unusual for the time. Contemporary German states also generally opted for secrecy to protect against international industrial espionage.⁷²

Between 1827 and 1831 *De Staatscourant* published lists of patents fallen into the public domain.⁷³ Between 1824 and 1830 the government also made extensive preparations to publish the patent specifications,⁷⁴ and started a process for reforming the patent system in 1829.⁷⁵ However, the war of independence with Belgium cut short these initiatives.

4 Revolution and recalibration: divergence after the Dutch-Belgian partition

The 1830 Belgian declaration of independence directly and indirectly led to changes in the political system in Belgium and the Netherlands, the successor states besides Luxemburg. The partition had a major influence on the patent systems emerging out of the breakup of the UKNL, even though both new polities started from the same law and more or less the same legal practice.

4.1 The Belgian revolution

The new constitutional monarchy of Belgium largely continued the same implementation of the law as before independence, but codified the implementation policies and further developed the system in the same direction as before. Péters gives an overview of the relevant decisions of the Belgian Government: the appointment of patent examiners (1830), the policies surrounding patents of importation (1833), the introduction of payments in terms (1837), and a reform of patent examination (1841) ending reliance on

⁷¹ NL-HaNA, BiZa 1813-1848, 2.04.01, 4319, 1-2-1827, 100A.

⁷² Donges and Selgert, 'Do Legal Differences Matter?', 83.

⁷³ Doorman, *Het Nederlandsch octrooiwezen*, 35.

⁷⁴ NL-HaNA, Staatssecretarie, 2.02.01, 2452, 18-03-1826, 150; NL-HaNA, 2.02.01, Staatssecretarie, 2770, 12-07-1827, 108; NL-HaNA, Staatssecretarie, 2.02.01, 3235, 31-07-1829, 11.

⁷⁵ NL-HaNA, BiZa 1813-1848, 2.04.01, 4474, 15-7-1829, no 119A.

Chambers of Commerce.⁷⁶ The latter attempted to fix the bottleneck that the Chambers had become, overwhelmed by the deluge of patent requests. Crucially, the Ministry of the Interior in 1838 also published a guide to patenting in Belgium, featuring an insider's commentary on the informal practices that had emerged.⁷⁷ Consequently, the system became more transparent to the general public, which would have stimulated patenting.

Nevertheless, by the late 1830s, and particularly during the 1840s, the law became increasingly controversial within Belgium. The patent costs were deemed too high, the lump sum unfair. Regardless of the strict rules against them, patents of importation remained highly controversial, and there were even debates on whether a patent should be extended indefinitely. The discretionary power used to exclude certain patents led to protests from foreign as well as domestic inventors. When in 1848 a liberal government came to power, it took the initiative to review all aspects of intellectual property, from trademarks to patents.⁷⁸ It culminated in the reform of 1854, which drastically altered the patent system in a French direction, abolishing state discretion almost entirely, making patents public within three months of the patent grant, and introducing yearly renewable patent fees.⁷⁹

Insert Figure 3

Belgium's state investment and interest in the patent system was in line with an increasing interest in patents in its society. Figure 3 shows that even before independence Belgium had markedly diverged from the Netherlands in its rate of patenting. While the

⁷⁶ Péters, 'Course à l'innovation', 154–55.

⁷⁷ M. Varlet, *Recueil des Loi et Règlements en vigueur en Belgique, sur les Brevets d'invention* (Bruxelles: H. Remy, 1838).

⁷⁸ Péters, 'Course à l'innovation'.

⁷⁹ '223. 24 mai 1854 : Loi sur les brevets d'invention (Monit. du 25 mai 1854)', in *Pasinomie*, vol. 35 (1854) (Bruxelles: Administration Centrale de la Pasicrisie, 1860), 174–79.

1830 partition reduced the number of patents in each successor state, Belgium's granted patents expanded strongly from the late 1830s onwards, coinciding with the introduction of a payment in terms and the guide on patenting in 1837 and 1838 respectively. The Netherlands, by contrast, had only a short boom which soon petered out in the late 1830s and first half of the 1840s.

The patterns of patenting roughly fit the industrialisation of both countries. Belgium's industrialisation process was already having macroeconomic effects by the late 1820s.⁸⁰ The boom of Dutch patents corresponded with an initial but artificial boom of industry that lasted until 1845. Van Zanden and van Riel found that the years 1845-1865 were a period of industrial stagnation once the artificial stimulants were removed and the country underwent a painful structural transformation of state finances and economic liberalisation.⁸¹ These patterns seem to confirm a virtuous/vicious cycle between patents and industrialisation, rather than a one-way process. While in Belgium patent systems and industrialisation developed hand-in-hand, in the Netherlands a lack of industrialisation and stagnation accompanied a declining and neglected patent system⁸²

4.2 *The Dutch minimalistic application*

In contrast to Belgium's overt legislative activity, the government of the Netherlands showed little interest in its patent system. Any changes were behind the scenes and reactive, and only discernible from careful archival analysis. Indeed, when Stoffels published the first guide to the Dutch patent law in the Dutch language, his 'guide' did not show any evidence of inside knowledge. It was merely a negative commentary on the law, discouraging potential patentees from applying.⁸³

⁸⁰ Erik Buyst, 'The Causes of Growth during Belgium's Industrial Revolution', *Journal of Interdisciplinary History* 49, no. 1 (2018): 72.

⁸¹ van Zanden and van Riel, *Nederland 1780-1914*.

⁸² MacLeod and Nuvolari, 'Inventive Activities', 81.

⁸³ Stoffels, *De wetgeving*.

Belgium's independence led to a change in the use of discretion north of the border. Before 1830, the discretion on patent grants was left to ministry officials, who sometimes requested the advisor to further investigate or write a report on a patent request. After independence, the Netherlands trusted the entire patent system to patent advisor Antoine Lipkens, a land registry engineer who later founded the first Engineering School of the Netherlands in Delft. Lipkens led the professionalization of advice in the Netherlands. In 1834 he took the initiative of creating a library for the patent advisor, which contained patent and technical literature from France, England, central Europe and the United States.⁸⁴ He also reduced his workload by changing the examination procedures. Using his new library, he focused only on examining the novelty of the invention, which he formalised in the 1840s through standard pro formas. Only on very rare occasions did the patent advisor reject patents on a basis other than novelty.⁸⁵ For example, to prevent cross-licensing for minor technological changes in a fast-developing field, Lipkens' successor recommended that patents should no longer be granted for the use of chemicals in sugar refinery.⁸⁶

Several conditions and clauses were no longer enforced. The first was the annulment of the language policy, since the breakaway of Belgium rendered nation-building unnecessary. Indeed, the patent files now started to include patent descriptions in French, English or German without translation. Second, the Netherlands stopped

⁸⁴ See NL-HaNA, Staatssecretarie, 2.02.01, 3877, Koninklijk Besluit 10-01-1834, 86; Staatssecretarie 2.02.01, 4026, Koninklijk Besluit 14-05-1835, 42; Staatssecretarie, 2.02.01, 4335, 6-2-1838, 85; Kabinet des Konings, Kabinet der Koningin 1841-1897 (hereafter KdK 1841-1897), 2.02.04, 112, Koninklijk Besluit 17-07-1842, 71. This library later became the library of the technical school of Delft. See Johan Christoffel Ramaer, 'Berg (Franciskus Johannes van den)', in *Nieuw Nederlandsch Biografisch Woordenboek*, ed. P.C. Molhuysen, P.J. Blok, and Fr. K.H. Kossman, 7 (Leiden: A.W. Sijthoff's Uitgevers-Maatschappij, 1927), 99–101..

⁸⁵ NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 983, 8-12-1866, 52.

⁸⁶ NL-HaNA, KdK 1841-1897, 2.02.04, 628, Koninklijk Besluit 15-8-1850 (59).

enforcing the working clause, except when requested by a competitor.⁸⁷ Lastly, open license clauses were no longer imposed.

In consequence, patenting in the Netherlands became very open to foreigners, as international guidebooks on patenting reported.⁸⁸ Figure 4 illustrates how the share of patents for the importing of technology within the total number of patent requests changed over time in each territory. When they were still the UKNL, the Netherlands and Belgium had comparable shares of importation, but Belgium's independence heralded a marked divergence. By the 1850s, more than 90 per cent of patents in the Netherlands were for foreign technology, while in Belgium this stayed somewhere between 30 and 50 per cent, comparable to the rate before independence.

Insert Figure 4

The publication of patents, similarly, was never implemented. When patent advisor Lipkens brought the topic up in 1837, the King of the Netherlands decided to postpone publication.⁸⁹ It became an indefinite postponement. As Murphy argues in an altogether different context, the absence of interest groups pressuring for publication was a crucial missing link for this institution to be established.⁹⁰ Once more the Netherlands contrasted with Belgium, which published patent specifications from the late 1830s onwards.

Lastly, the Netherlands also scaled down options for financial support, while enforcing less vigorously the payment of the patent fees. It abolished all special funds in

⁸⁷ Doorman, *Het Nederlandsch octrooiwezen*, 35.

⁸⁸ Varlet, *Recueil*; Urling, *The Laws of Patents*, xi–xxii; Perpigna, *Manuel*, 23.

⁸⁹ NL-HaNA, BiZa 1813-1848, 2.04.01, 4648, 7-6-1837 (54).

⁹⁰ Anne L. Murphy, 'Demanding "Credible Commitment": Public Reactions to the Failures of the Early Financial Revolution', *Economic History Review* 66, no. 1 (February 2013): 178–97.

an attempt to clarify the financial situation, including the patent fund left by Willem I following his abdication. As a result, free patents, loans and premiums disappeared, in turn making the patent system much less accessible to the less well-off. When the fund was abolished in 1844, it contained slightly less than 80.000 guilders, which reveals how few premiums and loans had been granted over the years.⁹¹ A small compensation: the Dutch state no longer demanded immediate payment after three months, allowing applicants to pay for up to two years, until the expiry of the working clause.⁹²

By the mid-1840s these changes had made the patent system much less attractive. A declining number of granted patents reported in Figure 3 were paid for, and therefore entered into force. As a result, the already stagnating figures were even an overstatement. Figure 5 shows that patents were generally paid for until the early 1830s, either by the patentee or by the patent fund. After the 1830s a decline started, which was particularly steep for patents of importation. By the 1850s, less than 30 per cent of the granted patents of importation had gained legal status.

Insert Figure 5

By contrast, Belgium kept a very generous fee policy for patent applicants, which helps explain the continuing increase in patenting rates noted above in Figure 3. Belgium continued liberally to provide free patents and premiums.⁹³ Moreover, the Belgian state introduced special terms which permitted applicants to renounce their granted patent before the end of its maximum term in return for reduced fees. Indeed, the total amount

⁹¹ 'Wet van den 10 Februarij 1844, houdende regeling van uitgaven ten laste van op te heffen bijzondere fondsen', *Staatsblad van het Koninkrijk der Nederlanden*, 1844, no. 8; Kamerstukken Tweede Kamer, 1843-1844, no. XIII, no. 6, voorloopig verslag, pag. 223.

⁹² Urling, *The Laws of Patents*, 25.

⁹³ Ministre de l'intérieur, *Statistique Générale de la Belgique, exposé de la situation du royaume (période décennale de 1841-1850)*, vol. IV (Bruxelles: Imprimerie de Th. Lesigne, 1852), 148.

of real payments of patents was so low that, even assuming everyone took the least expensive patent length, only 23 per cent of Belgian patentees between 1831 and 1854 had paid for their patent (!)⁹⁴

4.3 *The problem of enforcement in both countries*

Even before independence, patent administrators in the UKNL had known that enforcement was a weakness of the system. In the early 1820s a report revealed that Dutch lawyers discouraged patent infringement cases. Privacy and property law allowed competitors to bar entry into their factories, so patent holders would have found it hard to prove illegal use of their invention.⁹⁵ This enforcement problem led the state in 1829 to start investigating how to reform the law, a process cut short by Belgium's independence.⁹⁶ This reluctance of Dutch lawyers may also help explain why there were only three known court cases on the Dutch patent law between 1817 and 1869.⁹⁷ The Belgians seemed to have fewer problems in enforcing their patents: Péters found 105 cases between 1830 and 1874.⁹⁸

Indeed, when in 1845 a patent case was tried, the Dutch courts confirmed the fear of lawyers, and interpreted the law in a direction that made its enforcement even less attractive. In this case, Rupe en Zoon had built copies for its own use of a machine it had bought of Derosne & Cail, a renowned sugar machinery multinational.⁹⁹ A similar case was heard in Belgium around the same time, where A. Oudart had built knitting machinery patented by P. Claussen for use in his factory.¹⁰⁰

⁹⁴ Based on dividing the income reported by Péters by the number of patents granted in that time. Péters, 'Course à l'innovation', 199–200.

⁹⁵ NL-HaNA, BiZa 1813-1848, 2.04.01, 4108, 22-2-1821, 294.

⁹⁶ NL-HaNA, BiZa 1813-1848, 2.04.01, 4474, 15-7-1829, 119A.

⁹⁷ Doorman, *Het Nederlandsch octrooiwezen*, 40–42.

⁹⁸ Péters, 'Course à l'innovation', 226.

⁹⁹ Nadia Fernández-de-Pinedo, Rafael Castro, and David Pretel, 'Technology Transfer Networks in the First Industrial Age: The Case of Derosne & Cail and the Sugar Industry (1818–1871)', *Business History*, 18 January 2019, 1–64.

¹⁰⁰ *La Belgique Judiciaire* 4, no. 27 (5 March 1846), 436.

In the Netherlands, the judges, from the lowest to the highest court, accepted the reasoning that the law banned only the ‘production *and* selling’ of patented products, making production *or* selling permissible. It was permissible because the courts saw patents as a privilege and therefore to be interpreted narrowly against more fundamental rights such as the inviolability of the home.¹⁰¹ The reasoning fits the judgment of Machlup and Penrose that the Netherlands had a strong free trade liberal ideology.¹⁰² Stoffels’s 1851 commentary on the patent law argued as well that the anti-patent bias of the court had rendered the Dutch patent almost worthless.¹⁰³

While Oudart defended himself by citing the Dutch court’s reasoning, the Brussels court reached exactly the opposite conclusion, arguing that the legislator had not made nor intended any explicit exceptions to the law for own use, and that allowing this would seriously limit the patent’s usefulness.¹⁰⁴ Although in 1853 a Ghent court again countered the reasoning of the Brussels case by arguing more in line with the Dutch courts,¹⁰⁵ the matter was resolved in 1852-1854 during the parliamentary preparation of the new law. The emerging consensus there, and in the court jurisprudence afterwards, resulted in a nuanced compromise where the production or copying of an invention for industrial production or commercial use was prohibited, but in certain cases the private use of an invention was authorised.¹⁰⁶

The Dutch government could have used legislation to repair the damage inflicted on the system by the court decision. Indeed, it did so in its colonies in present-day

¹⁰¹ ‘Provinciaal Gerechtshof in Noord-Holland. Zittingen van 29 Mei en 26 Junij 1845’, *Weekblad van het Regt* 7, no. 662 (22 December 1845): 405–6. ‘Hooge Raad der Nederlanden, Burgelijke Kamer, Zittingen van 5 en 26 Februarij en 20 Maart 1846’, *Weekblad van het Regt* 8, no. 691 (2 April 1846): 1–3.

¹⁰² Machlup and Penrose, ‘The Patent Controversy’.

¹⁰³ Stoffels, *De wetgeving*, 135.

¹⁰⁴ *La Belgique Judiciaire* 4, no. 27 (5 March 1846), 436.

¹⁰⁵ *La Belgique Judiciaire* 11, no. 72 (8 September 1853), 1150.

¹⁰⁶ Edmond Picard and N. d’Hoffschmidt, ‘Contrefaçon de brevets d’invention’, in *Pandectes Belges: encyclopédie de législation, de doctrine et de jurisprudence Belges*, vol. 25 (Bruxelles: Ferdinand Larcier, 1888), paras 62–64; 92–104.

Indonesia: in 1850 a patent applicant wished to patent a process, and was able to persuade the government to change the colonial regulations to explicitly prohibit the use by others of a patented invention.¹⁰⁷ The government had thus neutralised the case of 1846, but only for a part of its colonies. When it came to patents and privileges, a clear distinction was made between colony and mainland.¹⁰⁸

5 The abolition of the Dutch patent system

In 1868, the Dutch parliament discussed a bill to repeal the patent system of 1817, the culmination of an intense national and wider European debate against patents.¹⁰⁹ Although the Belgian reform of 1854 is widely considered the debate's starting point, dissatisfaction had already been expressed.¹¹⁰ When the time came to debate the issue in parliament, all the major societies of industrialists in the Netherlands were in favour of abolition.¹¹¹ In the Lower House, forty-nine members versus eight voted to repeal the patent legislation, while in the Senate only one member opposed the bill.

¹⁰⁷ NL-HaNA, KdK 1841-1897, 2.02.04, 635, 26-09-1850 (39).

¹⁰⁸ The very same Derosne & Cail was granted a lucrative exclusive right to supply the sugar machinery for colonial Java for fifteen years, after its 1846 merger with Van Vlissingen, a Dutch machinery and shipbuilding company in Amsterdam. See Fernández-de-Pinedo, Castro, and Pretel, 'Technology Transfer Networks', 6.

¹⁰⁹ Machlup and Penrose, 'The Patent Controversy'; Doorman, *Het Nederlandsch octrooiwezen*, 43–54; den Hertog, 'De anti-octroobeweging'; van Gompel, 'Patent Abolition'.

¹¹⁰ The first article to propose patent abolition was already published in 1842. See B.W.A.E. Sloet tot Oldhuis, 'Eenige aanmerkingen op de wet van 25 januarij, 1817, omtrent het verleenen van uitsluitende regten op uitvindingen en verbeteringen van kunst- en volksvlijt', *Tijdschrift voor Staathuishoudkunde en Statistiek* 1, no. 3 (1842): 50–57. Minister of the Interior J. R. Thorbecke had asked the patent advisor in 1850 for advice whether to reform or abolish the patent law. See his letter to J.L. De Bruyn Kops, 16 December 1865, in Hooykaas et. al. *Briefwisseling van J.R. Thorbecke*, vol. VII: 1862-1872 (Den Haag: Instituut voor Nederlandse Geschiedenis, 2002), 132, <http://resources.huygens.knaw.nl/retroboeken/thorbecke>. From 1845 onwards, the Netherlands society for the promotion of industry discussed patent law reform, culminating in an 1854 report to abolish it entirely. See 'Handelingen der 70e algemeene vergadering van de Nederlandsche Maatschappij ter Bevordering van Nijverheid, gehouden te Haarlem op den 20sten Julij 1847 en volgende dagen', *Tijdschrift ter bevordering van Nijverheid* 12, no. 1 (1847): 76; 123–24; 'Handelingen der 27e algemeene vergadering van de Nederlandsche Maatschappij ter Bevordering van Nijverheid, gehouden te Haarlem op den 18den Julij 1854 en volgende dagen', *Tijdschrift ter bevordering van Nijverheid* 17, no. 5–6 (1854): 282–93.

¹¹¹ Handelingen Tweede Kamer der Staten-Generaal, 1868-1869, 106^e Zitting, 22 Juni 1869, pag. 1467, *Bijblad van de Nederlandsche Staats-courant*.

How should we explain this enthusiasm to abolish the patent system? Other articles have analysed in great detail the extensive debates in the Netherlands from the 1840s onwards, and I will not repeat them here.¹¹² What I wish to emphasise from these debates in this context is the unanimous consensus that the patent law was dysfunctional – even proponents of patents agreed that the current law urgently needed reform¹¹³ – and the theory and anecdotes that the debate in parliament was based on, rather than empirics.¹¹⁴

Some authors emphasised that the strong presence of a free trade ideology had made the Dutch believe a good patent law *could not* be designed, patents being antithetic to the freedom of industry.¹¹⁵ This free trade ideology was supposedly infused with wider societal beliefs of a Dutch decline that could only be reversed by liberating the economy.¹¹⁶ Van Gompel correctly questions whether the free trade ideology in the Netherlands was so much stronger than in other European countries.¹¹⁷ Indeed, he rather emphasises a confluence of circumstances: ‘It was a country in industrial development with a progressive liberal-economic government, an international accommodating environment, a malfunctioning patent law and a strong movement in favour of patent abolition that faced little-to-no opposition from the industries.’¹¹⁸

I would add to this that ideology could only reign free because the debate was largely theoretical: most legislators and public commentators lacked experience with a

¹¹² Doorman, *Het Nederlandsch octrooiwezen*; Machlup and Penrose, ‘The Patent Controversy’; den Hertog, ‘De anti-octrooibeweging’; van Gompel, ‘Patent Abolition’.

¹¹³ Jan Heemskerck Azn, lawyer, politician and (prime) minister, was one of the most prolific writers on the patent system, pleading for reform rather than abolition. See his speech in *Handelingen Tweede Kamer der Staten-Generaal, 1868-1869 II*, 105^e zitting, 21 juni 1869, pag. 1460, *Bijblad van de Nederlandsche Staatscourant*.

¹¹⁴ van Gompel, ‘Patent Abolition’, 914.

¹¹⁵ The most important is Machlup and Penrose, ‘The Patent Controversy’.

¹¹⁶ Schippers, JL Hans, ‘Worstelen met octrooien : de voorgeschiedenis van de octrooiwet van 1910’, in *Terugblik in vogelvlucht*, vol. 1 (SDU Uitgevers, 2010), 17, <http://repository.tue.nl/694752>.

¹¹⁷ van Gompel, ‘Patent Abolition’, 879.

¹¹⁸ van Gompel, 921.

functioning patent law in living memory.¹¹⁹ Indeed, it is no coincidence that none of the abolitionists owned patents, while three of the most important ‘reformists’, industrialist and senator Petrus Regout,¹²⁰ doctor and reformer Samuel Sarphati,¹²¹ and professor of technology Salomon Bleekrode,¹²² all owned patents themselves when they pleaded for reform rather than abolition,¹²³ and were either deceased or no longer active in national politics when the abolition was decided upon.

Thus, the debate’s participants revealed a profound ignorance of the Dutch patent system’s current and particularly historical functioning – predictable, considering that the Netherlands had never codified the patenting practice and had rarely used it. In the explanatory memorandum that accompanied the bill, the state complained of foreign patentees abusing the patent system to hinder Dutch domestic industry,¹²⁴ even though it

¹¹⁹ Indeed, the patent advisor complained furiously to his minister in 1866 about parliamentary ignorance when he was asked to help the minister respond to questions from parliament. See NL-HaNA, BiZa / Nijverheid, 2.04.23.01, 983, 8-12-1866 (52).

¹²⁰ Regout was the first in a long tradition to plead for patent reform in parliament during the discussion of the state budget in 1854, *Handelingen Eerste Kamer, 1854-1855 II*, 28 december 1854 page 81, *Staatsbegroting voor 1855*. (Hoofdstuk IV en V.) *Bijblad van de Nederlandsche Staatscourant, 1854-1855*.

¹²¹ Sarphati founded a society for the promotion of innovation and industry (Vereeniging voor Volksvlijt). In its first public meeting, the patent law was discussed, including whether it should need reform or abolition. During this meeting, where Bleekrode intervened strongly in favour of patents, it was agreed to ask the Dutch state formally for a reform of the patent law according to the Belgian law of 1854. See ‘Verslag van de Eerste Openbare Vergadering Der Vereeniging Voor Volksvlijt’, *De Volksvlijt: Tijdschrift Voor Nijverheid, Landbouw, Handel En Scheepvaart 1* (1854): XLVIII, p 528–45. See also M. S. C. Bakker, ‘Samuel Sarphati (1813-1866)’, in *Geschiedenis van de techniek in Nederland. De wording van een moderne samenleving 1800-1890*, ed. H. W. Lintsen et al., vol. VI Techniek en samenleving (Zutphen: Walburg Pers, 1995), 27–28, https://www.dbnl.org/tekst/lint011gesc06_01/lint011gesc06_01_0002.php.

¹²² Bleekrode has also written several articles with a positive attitude towards patents, such as Samuel Abraham Bleekrode, ‘Overzicht van de vorderingen der verschillende takken van Nijverheid, of Verslag van de Technologische Wetenschappen gedurende 1843 en 1844’, *Tijdschrift ter bevordering van Nijverheid* 9, no. 3 (1845): 339–95; Samuel Abraham Bleekrode, ‘Nalezing Op Het Iets over de Nederlandsche Octrooiwet Des Heeren Mr J. Heemskerk Az’, *De Volksvlijt: Tijdschrift Voor Nijverheid, Landbouw, Handel En Scheepvaart 2* (1855): III, p 43–51. For a biography of Bleekrode and his exploits, see also M. S. C. Bakker, ‘Salomon Abraham Bleekrode (1814-1862)’, in *Geschiedenis van de techniek in Nederland. De wording van een moderne samenleving 1800-1890*, ed. H. W. Lintsen et al., vol. VI Techniek en samenleving (Zutphen: Walburg Pers, 1995), 29–32, https://www.dbnl.org/tekst/lint011gesc06_01/lint011gesc06_01_0003.php.

¹²³ Regout obtained a patent in 1846 for glass pipes in stone for water and gas transport, and protected various imported technologies via patents in 1850 and 1852. He also had bought a patent for glass production from a Brussels company in 1857. Sarphati obtained a patent in 1847 for processes to obtain manure from human waste. Bleekrode obtained a patent in 1850 for the production of paint out of zinc. See for more detail the patent registers, or Doorman, *Het Nederlandsch octrooiwezen*.

¹²⁴ *Handelingen Tweede Kamer, 1868-1869*, 78, no. 3: Memorie van Toelichting.

was the Netherlands that had opened the law to foreigners and abolished the free patents that stimulated domestic patenting. That Belgium had managed to turn the same law into a thriving patent system was lost on the participants in the Dutch debate.

6 Conclusion

This paper is the first full side-by-side reconstruction of the patent systems of the Netherlands and Belgium from their shared beginnings in 1817 to the 1854 Belgian reform and 1869 Dutch abolition. Through an in-depth comparative study of the available archives and contemporary source material, I have shown how (1) the law in practice diverged sharply from the law on paper, creating a variety of semi-formal rules of operation, and (2) how these semi-formal rules radically diverged between the two countries following Belgium's independence.

In so doing, this paper works to correct the existing literature on the Dutch patent system. I have shown that the system was heavily discretionary yet not arbitrary, since it created and then followed relatively consistent rules of operation. Unlike what the Dutch thought at the time of abolition, it was not an inherently malfunctioning law; in Belgium, the law worked relatively well. Instead, it was the Dutch themselves that made the law dysfunction by means of a governmental neglect that was not corrected by the relatively few patentees that still made use of the system.

The relevance of this exercise is wider than a better understanding of the patent laws of the Netherlands and Belgium. It underlines the importance of an in-depth reconstruction of institutions, since they can differ significantly from the stipulations of the law and reveal gradual institutional change that can help explain sudden institutional transformations.

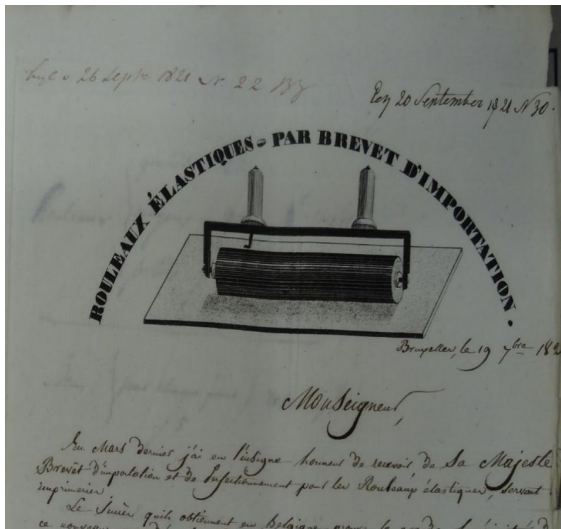
With regard to the literature on the role of patent institutions in economic history, this study provides some indications that patent systems have been as much a product of

the Industrial Revolution as a stimulant of it, developing in tandem in a vicious/virtuous circle. While initially in the United Kingdom of the Netherlands, the system developed and became increasingly used in the two territories, the Netherlands after the Belgian revolution could neglect its patent system because few inhabitants used it anyway in the context of a stalling industrialisation, and the number further declined as the system lost its attractiveness. At the same time, Belgium invested heavily in a patent system that, in combination with an ever-increasing industrialisation, was then used so much that the state itself became overwhelmed by its success, leading instead to an abolition of discretion.

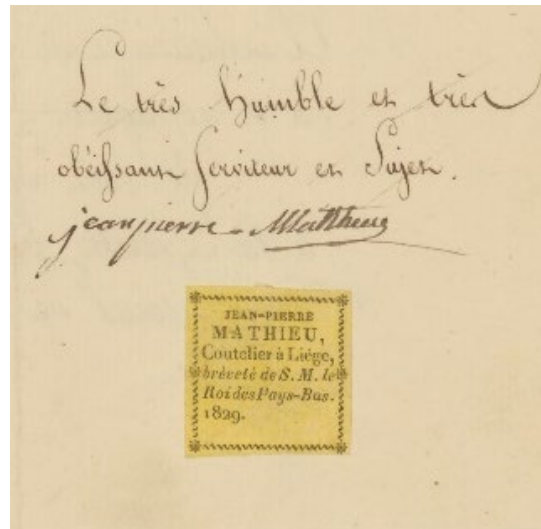
Figure 1. The patent application process (law shaded)



Figure 2 Examples of patents as signalling

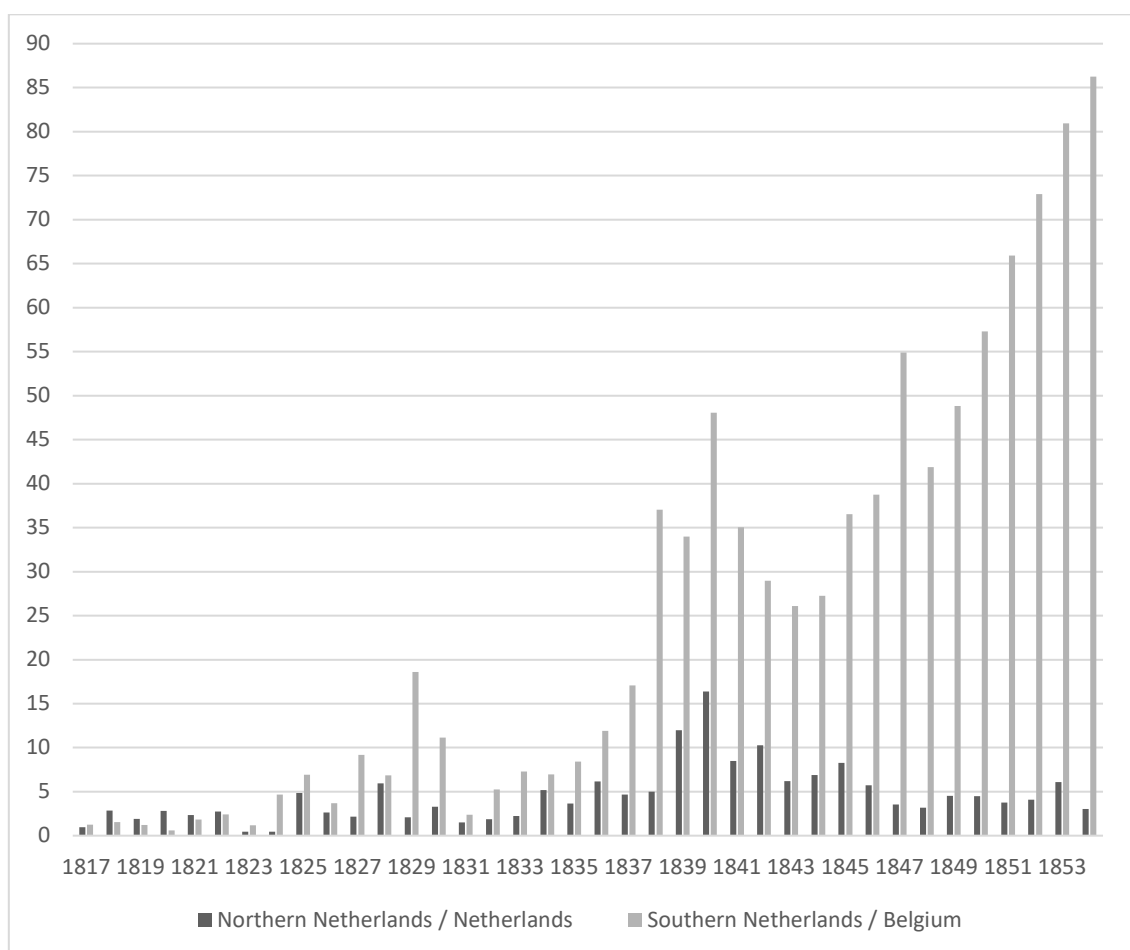


'By patent of importation' a stamp on a letter by Claude Valentin Moureau Deswez, a printer. NL-HaNA, BiZa 1813-1848, 2.04.01, 4120, 24-9-1821, 1592.



'Patented by the King of the Netherlands, 1829', a business card pasted on a letter by Jean-Pierre Mathieu, a cutler. NL-HaNA, BiZa 1813-1848, 2.04.01, 4498, 25-11-1829, 25F.

Figure 3. No. of granted patents of invention per million inhabitants, 1817-1854



Notes: This graph only includes patented domestic innovation, excluding patents of importation and improvement. Before 1830 I distributed the applications of the United Kingdom of the Netherlands by province of application into what would be later the Netherlands and Belgium. Belgium became de facto independent by late 1830, but was only de jure recognised by the Netherlands in 1839. Patent applications from the Belgian provinces immediately stopped coming in the Netherlands in the latter half of 1830, and Belgian applicants terminated their running applications, so from the perspective of the patent system, the countries were fully split up by 1831. Sources: Dutch (1817-1869) and Belgian data (1817-1830): my own dataset.¹ Belgian data after 1830: Péters.² Yearly population statistics calculated from census data in Vrielinck.³

¹ Homer Wagenaar, 'Rules, Discretion and Industrialisation: The Patent System of the Netherlands, 1817-1869' (PhD Thesis, Belfast, Queen's University Belfast, 2022), <https://pure.qub.ac.uk/en/studentTheses/rules-discretion-and-industrialisation>.

² Péters, 'Course à l'innovation', 963-64.

³ Sven Vrielinck, *De territoriale indeling van België (1795-1963): bestuursgeografisch en statistisch repertorium van de gemeenten en de supracommunale eenheden (administratief en gerechtelijk)* (Leuven: Universitaire Pers Leuven, 2000), 91-92.

Figure 4. Percentage of patents for imported innovations of the total number of patents

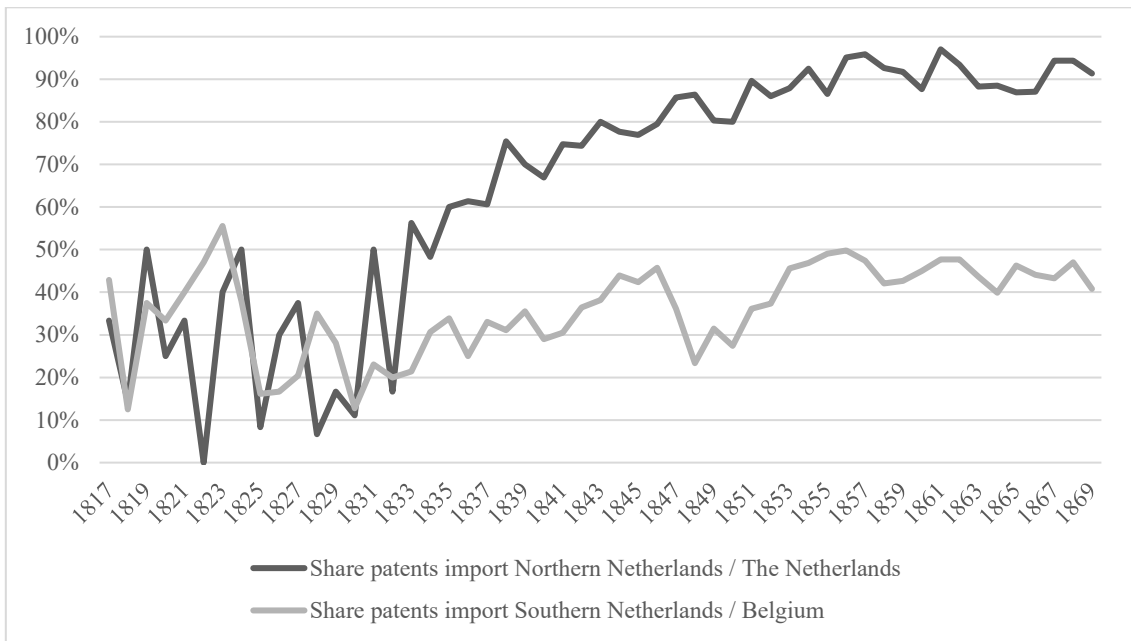
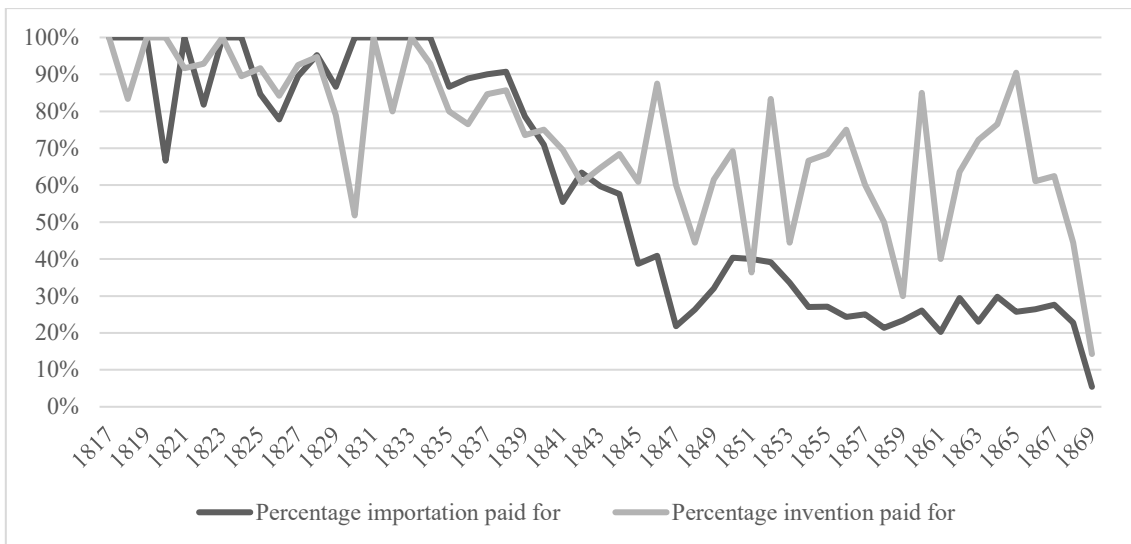


Figure 5. Percentage of patents paid for out of the total number of patents for imported and for domestic innovations in the UKNL and the Netherlands.



Notes: The patents of which the fees have been paid includes those that have been made free by the government. Before 1831 these figures are for the United Kingdom of the Netherlands, including the provinces in Belgium and Luxemburg. From 1831 onwards only the provinces of the Netherlands are included.