Patent Policy in Early Modern England: Jobs, Trade and Regulation

Chris Dent

Intellectual Property Research Institute of Australia

The University of Melbourne

Intellectual Property Research Institute of Australia

Working Paper No. 06.07

ISSN 1447-2317

July 2007

Intellectual Property Research Institute of Australia

The University of Melbourne

Law School Building

Victoria 3010 Australia

Telephone: 61 (0) 3 8344 1127

Fax: 61 (0) 3 9348 2353

Email: info@ipria.org

www.ipria.org

PATENT POLICY IN EARLY MODERN ENGLAND: JOBS, TRADE AND REGULATION

CHRIS DENT*

Patents in the present day are seen as a policy device that trades the granting of monopoly rights in return for the benefit society gains from the intelligence and ingenuity of the inventor. This article reinforces the understanding that patents granted in Elizabethan and Jacobean times fulfilled policy objectives. The objectives of the time included the maximisation of employment, the increase in the level of foreign trade and the improved regulation of particular industries. The article examines the patents themselves and considers the words of the reported judgments of the time to show that these policy concerns were used by the courts to justify particular decisions. The purpose of the article is not to discount the more personal motives of the monarchs but to demonstrate that the executive branch, such as it was, of the governments of the day used patents to further the interests of the English nation.

I. INTRODUCTION

Times are never so unlike that we may ignore the past in attempting to understand the present. The system of patents in the common law world is over four centuries old, but the good intentions and abuses that are evident today are also found in the early modern England of Elizabeth I and James I.[1] I say this despite the common understanding, in the legal discipline at least, of patents under these two monarchs as a tale of nepotism and abuse resulting in the triumph of Parliament in 1624 – the *Statute of Monopolies*. One prominent legal historian goes so far as to state 'of the magnitude of the evils caused by these inconsiderate grants to all classes of the community there can be no question'.[2] This article explores further the policies and contexts of patent granting practices in the late sixteenth and early seventeenth centuries and shows that while there may have been problems at the time, they were at

---

* LLB/BA(Hons), PhD; Research Fellow, Intellectual Property Research Institute of Australia, University of Melbourne. This article is based on a paper presented at the "Law's Empire" conference, Harrison, British Columbia, June 2005. This piece has benefited enormously from the comments of Kim Weatherall and Dr David Brennan and the anonymous referees who have commented on it. All remaining mistakes are naturally mine.

[1] Seaborne Davies argues that it was under Elizabeth I that the *system* of patents began in England in 1561: D. Seaborne Davies, 'Further Light on the Case of Monopolies' (1932) 49 *Law Quarterly Review* 394, 396.

[2] William Holdsworth, *A History of English Law* (3rd ed. 1945) vol 4, 347.

least balanced by the sound reasons for, and the beneficial outcomes to, the monopolies handed out by the Crown.

This article will argue that the grants of Elizabeth and James were primarily aimed at three significant policy objectives – an increase in employment levels, an increase in the level of foreign trade and the better regulation of industries. It is uncontroversial that monopolies were granted in broader circumstances than they are now. It is, however, less well understood how late sixteenth and early seventeenth century patents related directly to the policies, to the economy and to the changes in the English society of the time. This article will link the grants, the broad policy objectives of the executive and the assessment of the patents by the courts to demonstrate the importance of the maligned actions of these two monarchs.

This article builds on a range of literature from across the historical disciplines. Its purpose is not to discount the other narratives that have arisen over early modern monopoly practices, in particular, theories that ascribe particular motives, such as personal greed or general revenue-raising, to the actions of the monarchs,[3] their court and patentees.[4] The value of this article is the demonstration of the policy motives of the grants by way of a close examination of the case law of the time. The words of the judges and reporters illustrate that the concerns that the monopoly grants were instituted to redress were commonly held by the elites of the time. This research, therefore, indicates that the common law did not "triumph" over monopolies, but that the concerns of the executive and the judiciary were closely linked. The first step of the process is an examination, in broad terms, of the patents that were granted by the last Tudor and the first Stuart monarchs.

[3] For one commentator, the 'Tudor monarchs found that granting monopolies by letters patent was an effective way of raising revenue': N. Davenport, *The United Kingdom Patent System: A Brief History* (1979), 19. See, generally, M. Braddick, *The Nerves of State: Taxation and the Financing of the English State, 1558-1714* (1996). It has been argued, however, that with respect to patents generally, the 'financial returns to the Crown were at the most negligible, and, while it may be admitted that fiscal policy and the hope of raising revenue were contributing factors, they were not the main nor even an important motivating force': H. Fox, *Monopolies and Patents: A Study of the History and Future of the Patent Monopoly* (1947), 188.

[4] Much of the work here is taken from the excellent, though limited in scope, histories of patents such as W. Hyde Price, *The English Patents of Monopoly* (1913), 14-7 and the work of E. Wyndham Hulme.

II. PATENT SYSTEM

The term "patent" is a shortened form of "letters patent" or "open letters". The term, at least when applied to grants of limited monopolies, is used more restrictively now than it was in early modern England. Then, and now, it described executive grants of power; further, the grants were, and are, examples of executive policy-in-action. That is, patents, currently, reflect an innovation-focused policy; and patents, under Elizabeth and James, as will be shown in this article, reflected policies aimed at employment, trade and regulation.

The term "patent" is limited, now, to new inventions or innovations. Patents, previously, were applied more broadly. Other commentators have considered these early patents to fall into four categories:[5]

- where 'any man out of his own wit, industry or endeavour finds out anything beneficial for the commonwealth';
- licences that 'relaxed the rigidity of the law', the *non obstante* grants;
- the 'bestowal in an individual of powers of supervision over an industry or trade'; and
- where the control of a 'settled trade was handed over to one or more persons'.[6]

As was recognised by Lipson and acknowledged by Seaborne Davies, these categories are 'not mutually exclusive'.[7] In effect, there was little practical difference between the third and fourth categories, as both gave the patentee regulatory rights over a pre-existing industry. For the purposes of this article, these two categories will be considered together as grants of regulatory power.

The first category is closely related to the style of patent granted in the twenty first century – that is, patents for invention.[8] Examples under Elizabeth and James include

[5] At the time, however, patents were not understood in terms of separate categories.
[6] E. Lipson, *Economic History of England*, quoted in Seaborne Davies, above n 1, 397.
[7] Ibid 398.
[8] "Invention", or "to invent", in Elizabethan and Jacobean times carried additional meanings to the single sense of creation that it does now. For the purposes of this article, the important other interpretation was 'to originate, to bring into use formally or by authority, to found, establish, institute or appoint': E. Wyndham Hulme, 'On the History of Patent Law in the Seventeenth and Eighteenth Centuries' (1902) 18 *Law Quarterly Review* 280, 280. In others, the invention of a device could mean the importation of overseas technology into England.

patents in 1561 for the making of white soap and saltpetre.[9] In 1565, patents were granted for the manufacture of sulphur, oil, salt and machines for grinding.[10] Patents granted after 1570 included licences for land drainage and the making of diverse products including cutlery, earthen pots, mills for grinding corn, sail-cloths, drinking glasses, brimstone and salt.[11] Examples of Jacobean monopolies include grants for glass manufacture (one in 1615 another in 1621), one for metallurgical inventions in 1612, steel production in 1614 and pumps for draining mines (two in 1612 and one in 1618).[12]

There is currently no equivalent to the *non obstante* grants. These monopolies provided the recipients to operate particular industries or businesses notwithstanding the existing of a statute that banned the activity. The *non obstante* grants under Elizabeth included three for the sowing of woad.[13] A number of proclamations had been issued by Elizabeth restricting the farming of woad. It was a very profitable crop, so farmers were keen to plant it. This meant that, in some years, there was insufficient food grain planted, leading to hunger in the population. *Non obstante* patents were sometimes granted, however, to ensure there was some woad for the cloth industry.[14]

The regulatory grants of the time included patents that permitted the regulation of specific trades and patents to ensure other Acts were complied with. Examples of the first form included Sir Edward Dyer's control over the tanning industry, first granted in 1576, and Sir Walter Raleigh's regulation of taverns, instituted in 1588. Examples of the second group included a 1560 patent to John Martin 'as 'informer and

---

[9] The secondary literature, unfortunately, does not contain the same level of detail on the Jacobean patents. Hyde Price, for example, has a number of lists of the Elizabethan grants but the texts of only five patents from the seventeenth century.

[10] The details are taken from E. Wyndham Hulme, 'The History of the Patent System under the Prerogative and at Common Law' (1896) 12 *Law Quarterly Review* 141, 145-50. Hulme, in turn, sourced his information directly from the Patent Rolls and Calendars.

[11] E. Wyndham Hulme, The History of the Patent System under the Prerogative and at Common Law – A Sequel' (1900) 16 *Law Quarterly Review* 44, 45-51.

[12] For further details of these Jacobean patents, see A. Gomme, *Patents of Invention: Origin and Growth of the Patent System in Britain* (1946); T. Hill, 'Origin and Development of Letters Patent for Invention' (1923-4) 6 *Journal of the Patent Office Society* 405; R. Klitzke, 'Historical Background of the English Patent Law' (1959) 41 *Journal of the Patent Office Society* 615; C. MacLeod, *Inventing the Industrial Revolution: The English Patent System, 1660-1800* (1988) and J. Nef, *The Rise of the British Coal Industry*, vol. 1 (1932).

[13] These are included in the Appendices to Hyde Price, above n 4, 149-52, but no dates for their grant are provided.

[14] For a discussion of the proclamations and patents on woad, see F. Youngs, Jr, *The Proclamations of the Tudor Queens* (1976), 151-4.

prosecutor' for the Crown on all past and future penal laws'[15] and a 1594 patent to ensure that the statute against gig-mills (a labour-saving device used in cloth production) was enforced. Under this style of grant, patentees had the capacity to levy fines where the statute was being breached.[16]

The style and number of patents granted does not seem to be greatly different between the Jacobean and Elizabethan periods. Assessments of the practices of James, in particular, do, however, vary. One commentator's assessment, for example, is that it was 'not long … before the true character of the king was revealed, and it was seen how ready he was to yield to the importunities of suitors'.[17] The opposing view is that the 'great majority of monopolies were granted [by James] with the object of improving the conduct of manufacture and the condition of the people'.[18] Hume suggested, however, that the complaints against the patent system in Elizabeth's reign rose to 'an enormous height, much beyond what they ever reached during the reign of James'.[19] The halfway position is represented by a recognition of both 'James' extravagance' and his observation of 'his self-imposed limitation [of] instructing the crown's law officers to examine all proposals'.[20]

It is acknowledged that non-legal historians do not have such a bleak view of the operation of the early patent system.[21] One commentator argues that the complaints in 1601 were the result in a decline in prosperity in the last decade of the sixteenth century and the 'first impulse was to seek for real or imaginary abuses to be remedied by Parliament … [with] monopolies … the line of least resistance'.[22] After reviewing the detail of the monopolies complained of, Scott concludes that most:

---

[15] M. Davies, *The Enforcement of English Apprenticeship: A Study in Applied Mercantilism 1563-1642* (1956), 35. This grant gave him 'unrestricted powers of entry and search, of seizure, arrest and pleading; he was to take the informer's customary half of the forfeitures': ibid.

[16] It may be noted that it was these regulatory grants that were the subject of much of the controversy in the late sixteenth and early seventeenth centuries.

[17] Davies, above n 15, 26.

[18] Fox, above n 3, 181.

[19] D. Hume, *The History of Great Britain: The Reigns of James I and Charles I* (1754), D. Forbes (ed), (1970), 205n.

[20] R. Lockyer, *The Early Stuarts: A Political History of England 1603-1642* (2nd ed, 1999), 131.

[21] See, for example, Joan Thirsk, *Economic Policy and Projects: The Development of a Consumer Society in Early Modern England* (1978) and J. Martin, *Francis Bacon, the State and the Reform of Natural Philosophy* (1992).

[22] W. Scott, *The Constitution and Finance of English, Scottish and Irish Joint-Stock Companies to 1720* (1912) vol 1, 107. Ashton argues that in 1621, the 'hostility of the Commons … was greatly exacerbated by severe economic depression, and no concessionary interest was safe from attack. In general, the concessionary interest was in a state of disarray, its various elements lumped together for

> Could be defended as grants, either to encourage bona fide new inventions, for fiscal purposes or for national defence. The complaints of Parliament were to a large degree illogical, since, in several cases, the Crown was merely carrying out the same policy that had received legislative sanction from the House … Moreover, in so far as the leaders of the agitation were actuated by motives of personal dislike to a few of the patentees, or by the inconvenience some of them had sustained from the production of saltpetre, their attitude deserves little sympathy. The whole debate was marked by animus and by a profusion of reckless statements.[23]

Another commentator suggests that friction to changes produced by particular types of 'patents and licences … had been stimulated by family feuds, religious conflict and personal antipathies'.[24]

These comments emphasise the importance of the relationships between individual members of the elite to the controversy of the time.[25] No person, not even the monarch, had the freedom to act according to her or his whim. Ashton has detailed the many of the connections and, in particular, the financial networks that provided the background for a number of the patent grants and complaints against monopolies granted.[26] These relationships are central to this piece, despite not being often recognised as such by legal historians, as the purpose of this article is to demonstrate that, when it came to the granting of patents at least, the elites of Elizabethan and Jacobean England adopted similar policy arguments.

III. Patents As Policy Device

It has been acknowledged by Unwin, the economic historian, that the monopolies of Elizabeth were 'a set of devices … for the solution of fiscal and administrative

---

indiscriminate condemnation': R. Ashton, *The English Civil War: Conservatism and Revolution 1603-1649* (2nd ed. 1989), 87-88.

[23] Ibid 118.

[24] A. Smith, *County and Court: Government and Politics in Norfolk, 1558-1603* (1974) Smith, *County and Court*, 316.

[25] As will be shown below, the elites also include leaders of the merchant class, the men who wrote the mercantilist texts. The term, "policy", therefore, may be misleading. It may be more accurate to refer to the collective actions of the elite as a "regimen" or "conduct of governance", phrasings that are too awkward to use. The breadth of governance of the time is recognised in Foucault's reference to the 'administrative state' evident in the 15th and 16th centuries: M. Foucault, 'Governmentality' in G. Burchell, C. Gordon and P. Miller (eds), *The Foucault Effect: Studies in Governmentality* (1991), 103.

[26] See, for example, R. Ashton, *The City and the Court 1603-1643* (1979). See his *The Crown and the Money Market 1603-1640* (1960) for a discussion of the central importance of the Corporation of London, and hence the financial elites of London, to Crown finances in the late Tudor and the early Stuart periods.

problems'.[27] For another commentator, the 'Tudor and Stuart governments directed their regulatory efforts to the maintenance of social order, public peace, national security and the achievement of economic prosperity'.[28] The patents granted between 1558 and 1625 can be seen to contribute to the fulfilment of two beneficial policy goals. Those goals were the increase in the level of employment of the English and the improvement of the balance of trade between England and the nation's trading partners. There is a third policy aspect that may or may not be seen as beneficial – that is, delegated governance. It is not clear, however, if the regulatory effect of patents was a goal or is just a useful way of describing the impact of a number of the monopoly grants.

The balance of this article demonstrates that, while the patents were granted by the Crown, the other branches of government concurred in the policy positions adopted by the executive. The nature of politics at the time, was to an extent, different to that of today. The Parliament was not clearly divisible into political parties that proposed specific and separate policies to promote the election of their representatives into the House of Commons. If the congruence of the granting of the patents and the ruling on the grants by the courts are any indication, the broad policies of the time could be more likened to specific goals shared by the elites.[29] This section will discuss the patents that were granted in terms of these three aspects with reference to the decisions of the courts.

A. *Employment Policy*

Ensuring jobs for the masses is a significant policy goal of current governments. This was also the case in early modern England. The policy was particularly important for

[27] G. Unwin, *Studies in Economic History* (1927), 184. Macleod also recognised that the introduction of the patent system into England was policy-based, above n 12, 11-13.

[28] B. Supple, *Commercial Crisis and Change in England 1600-42: A Study in the Instability of a Mercantile Economy* (1959), 226. Stone put it more simply - 'Security, not prosperity, was the main object of Tudor economic policy': L. Stone, 'State Control in Sixteenth Century England' (1947) 17 *Economic History Review* 103, 111. This security would extend to self-sufficiency in key industries and a reduced reliance on overseas imports more generally.

[29] That the elites shared particular goals does not, however, mean that all of society agreed. The work of Andrew McRae, *God Speed the Plough: The Representation of Agrarian England, 1500-1660* (1996), and Laura Brace, *The Idea of Property in Seventeenth-Century England: Tithes and the Individual* (1998), has demonstrated that claims of the early modern elites were contested. Their research focused on agrarian reform and the discursive understandings of property, however, that the justifications for changes in land usage were the subject of debate indicates that the policy objectives discussed in this article would also have been contested.

Elizabeth as the population had been dramatically affected by an event earlier in the sixteenth century – the enclosing of land for the exclusive use of particular landowners. Much of the land that was enclosed had previously been commons, land that had been accessible by local residents. This policy had two direct effects relevant to this article. First, many tenant farmers were now unemployed, but formed a vast pool of labour for hire.[30] The second effect was that the enclosed land profited those that received title to it, these landowners became wealthy and joined the gentry. The increase in wealth was paralleled by an increase in the professional classes. In particular, there emerged, within this new 'middle class', an active merchant class.[31]

The emphasis on employment was evident in the economic writings of the day.[32] The writers of these texts were merchants as there was no academic discipline of economics of the time. It is acknowledged that the assessments of these mercantilists are likely to have been affected by their professional interests, nonetheless, it was these writers, and the corporations for whom they worked, that had the capacity to directly lobby Parliament and the Crown.

One mercantilist, argued that the economy would improve when

> all other artificers and workmen shall be set on work, to avoid idleness which is the root of all mischief: when through plenty of money and gains, merchants shall be encouraged to seek out new trades, whereby the Realm will more flourish through God's blessings.[33]

Another suggested improved trade was important because 'it would employ very many poor people'.[34] Further, a contemporary commentator has summarised the mercantilist writers as wanting the 'large labouring population which they desired should always be kept adequately and properly employed'.[35]

---

[30] Clay argues that the impact of practices of enclosure on the local population varied from region to region: C. Clay, *Economic Expansion and Social Change: England 1500-1700* (1984) vol 1, 67-77. He further notes that a significant, and perhaps the major, cause for the increase in the number of workers seeking employment was a general increase in population level: ibid, 214-222.
[31] L. Greenfeld, *Nationalism: Five Roads to Modernity* (1992), 48.
[32] A summary of the policy developments of the time, highlighting the importance of employing the poor, is provided by Thirsk, above n 21.
[33] G. de Malynes, 'A Treatise of the Canker of England's Common Wealth' in A. Murphy (ed), *Monetary Theory: 1601-1758*, vol. 1, (1997), 64.
[34] T. Mun, 'England's Treasure by Foreign Trade or the Balance of our Foreign Trade is the Rule of our Treasure', reprinted in A. Murphy (ed), *Monetary Theory: 1601-1758*, vol. 1, (1997), 121.
[35] D. Coleman, 'Labour in the English Economy of the Seventeenth Century' (1956) 8 *Economic History Review* 280, 280. The writer added that 'this attitude was usually paralleled by the firm belief that the poor should remain poor'.

Broadly, there were a couple of ways in which the grants of patents, industrial patents in particular, were used to improve the employment prospects of the itinerant English workers.[36] For one commentator, 'under the early grant of letters patent, a patentee was supposed to: (i) work the patent, i.e. bring a foreign industry in the realm, (ii) not be inconvenient to other subjects … and (iii) train apprentices, i.e. create a self-sufficient industry'.[37] That is, a number of the Elizabethan and Jacobean grants contained either requirements that the patentee established an industry in England or that the patentee employs apprentices to assist with the work.[38]

Many of the granted patents included conditions that required the employment of English workers. For example, the 1561 grant for the making of white soap stipulated that 'at least two of the servants of the patentees shall be of native birth'.[39] Another licence required that the patentees educate apprentices in the art of sailcloth making – a product previously imported from France.[40] Most of the patents that stipulated English workers were granted to foreigners who had been encouraged to come to England to establish a new industry.[41]

The petitions for patents included claims as to the benefits to employment that would occur if the monopoly was granted. For example, in a request for a claim to make paper in England, rather than importing it from Europe, it was stated:

> That from the gathering of the linen rags whereof paper is made to the perfect finishing of the same paper in all particular points, by reasonable conjecture, it will set in work of the natural subjects of this realm yearly to the number of seven or eight thousand … And we keep

[36] A further example of the importance of employment to Elizabeth and her advisers is the passing of the Statute of Apprentices in 1563. For a detailed discussion of the history of the statute, see S. Bindoff, 'The Making of the Statute of Artificers' in S. Bindoff, J. Hurstfield and C. Williams (eds), *Elizabethan Government and Society* (1961), 56 (the Statute of Artificers is also known as the Statute of Apprentices).

[37] A. Mossoff, 'Rethinking the Development of Patents: An Intellectual History, 1550 – 1800' (2001) 52 *Hastings Law Journal* 1255, 1261. It has been suggested that the period of grant for patents was linked to the length of apprenticeships, that the 14 year period stipulated in the Statute of Monopolies (s. 6) equated to the training of two apprentices, each for seven years: K. Boehm, *The British Patent System* (1967), 17. According to Hulme, however, the sixteenth century grants were for periods that ranged from 6 to 30 years, with the four most common periods being 21, 20, 7 and 10: 'History of the Patent System', above n 20, and 'The History of the Patent System – A Sequel', above n 11, generally.

[38] For example, apprentices were required for some mining and oil extraction patents. See generally, E. Wyndham Hulme, 'On the Consideration of the Patent Grant, Past and Present' (1897) 13 *Law Quarterly Review* 313.

[39] Hulme, 'History of the Patent System', above n 10, 145.

[40] Hulme, 'The History of the Patent System – A Sequel', above n 11, 46.

[41] For one commentator, there can be 'no doubt that the alien immigrants of fifteenth and sixteenth centuries supplied the main factor in an industrial renaissance which had … much importance for the economic development of England': G. Unwin, *The Gilds and Companies of London* (1938), 246.

so many of our own subjects here in the realm idle and unoccupied not only chargeable but hurtful to the State.[42]

Other grants would have contributed to employment levels in a more indirect manner. For example, some licences granted would only be worthwhile to the patentee if substantial employment followed. This would include patents for draining water and for mining particular areas of the land. These could only be financially beneficial if mines were drained and worked. Even the grants to dig for calamine, saltpetre or metals, or for the manufacture of goods such as salt, would only have been valuable if the products were mined and then sold. That they were may be surmised from an application to renew a licence to manufacture salt where the grantee claimed that he employed over 1,000 workers.[43]

The employment policy goal of Elizabethan and Jacobean patents may also be seen in the refusal to grant one of a stocking knitting machine, despite it being 'one of the most original and striking inventions of the age. The reason for the refusal was that many thousands occupied in making stocking by hand would be forced out of work'.[44] This sentiment is reinforced by Sir Edward Coke, in his commentary on the Statute of Monopolies, when he stated that an invention was 'inconvenient' and therefore contrary to the Act, if it turned 'many men to idleness'.[45] It may, therefore, be seen to have been more important to maximise the total amount of labour produced, rather than improving efficiencies of production or increasing the profit of manufacturers.

This emphasis on employment levels is evident elsewhere in the systems of governance.[46] The legal decisions of the period confirm that the maximisation of employment was a priority of the elites.[47] The monopoly cases in this area can be

---

[42] 'Arguments in Favour of Granting a Monopoly to an Incorporated Company to Make Paper' quoted in R. Tawney and E. Power (eds), *Tudor Economic Documents* (1953) vol 2, 251-2.

[43] Hulme, 'The History of the Patent System – A Sequel', above n 11, 48

[44] P. Federico, 'Origin and Early History of Patents' (1929) 11 *Journal of the Patent Office Society* 292, 298. A similar patent was again refused in the reign of James: a 'revolutionary patent for a stocking frame is not only denied in 1623, but the Privy Council orders the dangerous contraption abolished' (Robert Heilbroner, *The Worldly Philosophers: The Great Economic Thinkers* (1969), 28).

[45] *The Third Part of the Institutes of the Laws of England* (1979), 184.

[46] The practice had an additional effect on the nature of economic governance of the time. The granting of patents brought 'new arts from abroad into the realm so as to provide employment for those who were not members of the guilds': Hill, above n 12, 407. That is, the granting of patents had a direct effect on the economic power of the guilds.

[47] The impact of monopoly grants on employment was also a feature of the Parliamentary debates. For example, on Member of the House of Commons, when arguing on a 1601 Bill to counter monopolies said: 'For divers arts have been devised in London, that that shall be wrought with one man, which would not heretofore be done with forty: This is unprofitable, because it sets not the poor and many hands on work': Fettiplace, quoted in Sir S D'Ewes, *A Compleat Journal of the Votes, Speeches and*

considered in two groups. These groups are those relating to patents of invention and those relating to grants of industry regulation. As a result of the legal writings of the time, Letwin has argued that there was, at the time, a 'common law right to work … predicated on an economic system that would protect the established trades from competition, whether from foreign workmen, improperly qualified English workmen [or] overly aggressive guilds'.[48]

There were, however, only three decisions of the courts that related to patents of invention. None of them were reported directly and were referred to only in subsequent cases. One of them, that of *Bircot*, was decided in Exchequer in 1572. The case held that a 'patent should not be granted for an improvement in an existing manufacture'.[49] This followed on from another, *Mathey's Case*, where a 1571 patent for the manufacture of knife handles was successfully disputed by the Cutler's Company 'on the ground that people should not be restrained from using a slight improvement on an old industry'.[50] The third decision, again in Exchequer, was a challenge to part of a patent granted to William Humphrey in 1565. The patent covered a licence to mine calamine, tin and lead. The part that was successfully challenged related to the use of a sieve in the production process because 'others used the like instrument in Darbyshire'.[51] Each of these decisions may be seen to reinforce the policy of patent grants that focused on the encouragement of new industries in England, though as they were not fully reported, the reasoning of the judges is not in evidence.

There were, however, two reported decisions of the period that considered monopolies covering the regulation of particular industries in terms of their effect on

---

Debates, Both of the House of Lords and House of Commons Throughout the Whole Reign of Queen Elizabeth (1693), 678.

[48] W. Letwin, 'The English Common Law Concerning Monopolies' (1953) 21 *University of Chicago Law Review* 355, 364.

[49] E. Walterscheid, 'The Early Evolution of the United States Patent Law: Antecedents (Part 2)' (1994) 76 *Journal of the Patent and Trademark Society* 849, 859. This decision gave rise to Coke's use of the phrase 'to put but a new button to an old coat': *Third Part of the Institutes*, above n 45, 184.

[50] Federico discussing *Matheys Case*, above n 44, 297. This decision was also referred to in one of the reports of *Darcy* v. *Allen* (1602) Noy 173, 183; 74 ER 1131, 1139-40.

[51] (1602) Noy 173, 183; 74 ER 1131, 1139-40. The Humphrey decision was also discussed in Hulme, 'The History of the Patent System', above n 10, 148. The decision of *Crosse* v. *Westwood* (1611) 2 Brownl & Gold 108, 123 ER 842 also mentions three earlier manufacturing decisions. These are Hastings and *Mathey's Case*, mentioned in Noy's report of *Darcy* v. *Allen*. The third is referred to as involving Johnson, but as it discusses a patent covering new method for casting lead that was successfully, it may be the Humphrey patent.

employment. These are *Darcy* v. *Allen*[52] and the *Ipswich Tailors Case*.[53] The first of these, *Darcy* v. *Allen*, is the most well-known of the seventeenth century monopoly decisions. It should be noted that the reports are not of the judicial reasonings, there is only a record of judges' findings, but of the arguments of counsel alone.[54] The decision found that the patent was invalid. Coke's report focused on the patent being against the common law for four reasons, two of which related to matters of employment.[55] First:

> All trades, as well mechanical as others, which prevent idleness (the bane of the commonwealth) and exercise men and youth in labour, for the maintenance of themselves and their families, and for the increase of their substance, to serve the Queen when occasion shall require, are profitable for the commonwealth, and therefore the grant to the plaintiff to have the sole making of them is against the common law.[56]

Second, the 'sole trade of any mechanical artifice, or any other monopoly, is not only a damage and prejudice to those who exercise the same trade, but also to all other subjects, for the end of all these monopolies is for the private gain of the patentees'.[57] Coke provided three ways in which a monopoly is prejudicial to other subjects: the price of the commodity is raised, the quality of the commodity falls and it takes away the livelihood of others who practice the same art.[58]

Another report of the case, that of Noy, differed in content but not result.[59] A number of his inclusions are worth noting. First, he acknowledged that 'all patents made for the general good of the realm may restrain some subjects in their particular trade

[52] (1602) Noy 173, 74 ER 1131; Moore 671, 72 ER 830. It is also known as the *Case of Monopolies*, 11 Co Rep 84b, 77 ER 1260. For discussions of the decision more generally, see J. Corre, 'The Argument, Decision and Reports of *Darcy* v. *Allen*' (1996) 45 *Emory Law Journal* 1261.
[53] There was another decision, *Claygate* v. *Batchelor*, that stressed the importance of employment. This decision related to a restraint of trade in employment. The court found that a requirement that a journeyman not practice his trade within the Cities of Canterbury and Rochester for a period of four years was 'against the law, and … void, for it is against the liberty of a free-man, and against the … Magna Carta and is against the commonwealth': (1610) Owen 143, 143; 77 ER 961, 962.
[54] See Corre, above n 52, 1261.
[55] The other two reasons were that the 'Queen was deceived in her grant; for the Queen, as by the preamble appears, intended it to be for the weal public, and it will be employed -for the private gain of the patentee, and for the prejudice of the weal public' and that the grant was 'primm impressionis, for no such was ever seen to pass by letters patent under the Great Seal before these days, and therefore it is a dangerous innovation, as well without any precedent, or example, as without authority of law, or reason': ((1602) 11 Co Rep 84b, 87a; 77 ER 1260, 1264).
[56] (1602) 11 Co Rep 84b, 86a; 77 ER 1260, 1262.
[57] (1602) 11 Co Rep 84b, 86b; 77 ER 1260, 1263.
[58] (1602) 11 Co Rep 84b, 86b; 77 ER 1260, 1263.
[59] Corre suggests that one reason for any discrepancy is that, 'on at least one point … Coke quite clearly reported a question and an outcome that did not conform even with his own original understanding of the case': above n 52, 1325.

lawfully'.[60] This particular grant, however, was 'contrary to the laws of the realm, contrary to the laws of God, hurtful to the commonwealth and in no part good or allowable'.[61] The law of God he refers to is 'every man should live by labour, and that he that will not labour, let him not eat'.[62] According to the counsel for the defendant, this 'general ordinance of God, by the policy of the realm, and by the laws and customs of the same [means] it is as unlawful to prohibit a man not to live by the labour of his own trade … as to prohibit him not to live by labour'.[63]

One of the key differences between the two reports in English of this decision, and perhaps a surprising one, is Noy's inclusion of this passage:

> I will show you how the Judges have heretofore allowed of monopoly patents, which is, that where any man by his own charge and industry, or by his own wit or invention doth bring any new trade into the realm, or any engine tending to the furtherance of a trade that never was used before: and that for the good of the realm: that in such cases the King may grant to him a monopoly patent for some reasonable time, until the subjects may learn the same, in consideration of the good that he doth bring by his invention to the commonwealth; otherwise not.[64]

This is the archetypal justification for patents of manufacture – one that stresses their importance in terms of both trade and employment.

The second monopoly case that relates to matters of employment is the *Ipswich Tailors Case*.[65] The Ipswich Tailors was a corporation that regulated the trade in Ipswich. The defendant was a tailor who had set up shop there without presenting himself to the corporation. The report of Coke stated that four 'points were resolved' by the court,[66] two of which relate to workers. These were:

> (1) that at common law, no man could be prohibited from working in any lawful trade, for the law abhors idleness, the mother of all evil … and especially in young men, who ought in their youth to learn lawful sciences and trades which are profitable to the commonwealth … and therefore the common law abhors all monopolies, which prohibit any working in any lawful trade.[67]

[60] (1602) Noy 173, 178; 74 ER 1131, 1136.
[61] (1602) Noy 173, 174; 74 ER 1131, 1133.
[62] 2 Thessalonians 3: 8-10.
[63] (1602) Noy 173, 180; 74 ER 1131, 1137.
[64] (1602) Noy 173, 182; 74 ER 1131, 1139.
[65] (1614) 11 Co Rep 53a, 77 ER 1218. This decision, along with the *City of London Case* and the *Chamberlain of London's Case* were cited with approval in *Wood* v. *Searl* (1618) Bridgman J 139, 123 ER 1257.
[66] (1614) 11 Co Rep 53a, 53b; 77 ER 1218, 1219.
[67] (1614) 11 Co Rep 53a, 53b; 77 ER 1218, 1219.

(2) That the said restraint … was against law; and therefore forasmuch as the statute has no restrained him who has not served as an apprentice for seven years … the said ordinance cannot prohibit him from exercising his trade, till he had presented himself before them, or till they allow him to be a workman; for these are against the liberty and freedom of the subject … but ordinances for the good order and government of men of trades and mysteries are good, but not to restrain any one in his lawful mystery.[68]

The ordinances of the Ipswich Tailors corporation, therefore, could not prevent the tailor from carrying on his lawful business.

The language used by the courts (or reporters) to justify the findings include statements such as restraints of trade are 'against the law, and … void, for it is against the liberty of a free-man',[69] monopolies 'tend to the impoverishment of diverse artificers and others who, before, by the labour of their hands … had maintained themselves … who now will of necessity by constrained to live in idleness and beggary',[70] and the Crown 'cannot make a monopoly for that is to take away free trade, which is the birthright of every subject'.[71] These statements appear to reflect an understanding that work is fundamental to life in England. It is not clear, however, that there was in Letwin's words, a 'common law right to work'.[72]

It is not clear, either, that these cases provide support for Greenfeld's suggestion that England, as a nation, was a 'community of free and equal individuals'.[73] The language, while supporting, to an extent, both assessments, just as easily fits with the assertion that the protestant faith is built on a belief in the spiritual value of work.[74] In addition, the statements may be seen to agree with policy positions of maximising employment in keeping with the mercantilist thought of the day.

The fundamental nature of employment is also suggested by the inclusion in two of the reports of *Darcy* v. *Allen* of acknowledgements of religion. Coke's reference to God in his report of *Darcy* v. *Allen* was limited to a claim that the law of monopolies

---

[68] (1614) 11 Co Rep 53a, 54a; 77 ER 1218, 1220.
[69] *Claygate* v. *Batchelor* (1610) Owen 143, 143; 77 ER 961, 962.
[70] *Darcy* v. *Allen* (1602) 11 Co Rep 84b, 86b; 77 ER 1260, 1263.
[71] *Cloth-workers of Ipswich Case* (1614) Godbolt 252, 253; 78 ER 147, 148.
[72] Above n 48, 364.
[73] Above n 31, 30.
[74] For Sacks, at the time it was understood that 'every free man had a godly obligation (not just a right) to earn his bread, a duty which could not be bridged without his consent': D. Sacks, 'The Countervailing of Benefits: Monopoly, Liberty and Benevolence in Elizabethan England' in D. Hoak (ed), *Tudor Political Culture* (1995) 275. The references to the Bible in the reports of the decisions may also indicate that the Church, the senior ranks of which were a significant elite of the time, would agree with the policy goal of higher employment as highlighted here.

as he saw it 'agrees with the equity of the law of God, as appears in Deuteronomy cap 24, verse 6'.[75] That verse reads, "No man shall take the nether or the upper millstone to pledge: for he takes a man's life to pledge". To take the means of a man's work from him is to take his life.[76] Noy's report of the same case added that this particular grant was 'contrary to the laws of God'.[77] He quoted from Thessalonians: 'every man should live by labour, and that he that will not labour, let him not eat'.[78] Further, the claim that 'it is as unlawful to prohibit a man not to live by the labour of his own trade … as to prohibit him not to live by labour' was described as a 'general ordinance of God'.[79]

Coke, particularly, considered that the

> law of the realm in this point is grounded upon the law of God … a man's trade is accounted his life, because it maintains his life; and therefore the monopolist that takes away a man's trade, takes away his life, and therefore is so much the more odious.[80]

This was in addition to the comments already referred to that any invention would be both 'inconvenient' and contrary to the Act if it turned 'many men to idleness'.[81] It has also been suggested that his reasoning in the *Cloth-workers of Ipswich Case* was based on an objection to the 'possibility that a man qualified to work under the Act might be prevented from doing so by a gild'.[82]

Coke certainly was keen to maximise employment.[83] It is arguable that his commitment to employment may have affected his application of the law. For

---

[75] (1602) 11 Co Rep 84b, 86b; 77 ER 1260, 1263.
[76] Coke, above n 45, 181.
[77] (1602) Noy 173, 174; 74 ER 1131, 1133.
[78] 2 Thessalonians 3: 8-10.
[79] (1602) Noy 173, 180; 74 ER 1131, 1137.
[80] Above n 45, 181.
[81] Ibid 184.
[82] B. Malament, 'The "Economic Liberalism" of Sir Edward Coke' (1967) 76 *Yale Law Journal* 1321, 1325, 1336-7.
[83] His reasoning in the monopoly cases tend to reinforce a desire for greater employment. Further, his decision in *Rex and Allen* v. *Tooley* (1614) 2 Bulst. 186, 80 ER 1055 may be seen as pro-employment given his position that a wool-packer who had served an apprenticeship as an upholsterer did not contravene the Statute of Apprentices, and therefore not subject to penalty. Further, an aspect of Coke's life that does not seem to have been considered with respect to his attitude to monopolies – his personal finances. He did not invest in trading companies, but he did support the Cockayne Project: ibid, 1331. It is also known that he engaged in land speculation, 'when he died he left some 99 estates and … twice that number had passed through his hands': ibid, 1324. As a result, it is possible that his position was pro-employment, rather than anti-monopoly. The Poor Laws of Elizabeth (1597, 1601) provided for the taxation of land owners by parishes (an example of the multiple levels of English governance of the time) to fund the relief of the poor (T. Plucknett, *Taswell-Langmeid's English Constitutional History* (11th ed, 1960), 698), the higher the level of employment, therefore, the lower the level of taxation for poor relief.

example, one commentator has suggested that Coke's report of *Darcy* v. *Allen* may not reflect an objective account of the law. For Wagner,

> Coke's argument, based largely on the assumed abuses of monopolies, and supported by precedents which are, for the most part applicable only if the initial assumptions are correct, resembles economic and political propaganda more than it does an impartial appeal to law.[84]

Whether or not this is an accurate description, that Coke focused on employment in his report, rather than the regulation of the card industry by an individual, is indicative of the importance of this policy objective at the time.[85]

B. *Trade Policy*

The trade policy of early modern England is perhaps the policy most directly linked to mercantilist theory and therefore the simplest to demonstrate.[86] If the technology for making a particular product that previously had been imported was introduced into England this would have had the effect of reducing imports and increasing employment. The link between theory and policy is not surprising given that most of the writers in the field were merchants who traded overseas. This confluence of interest does not mean, however, that the purposes and justifications of the policies were necessarily wrong for the health of the new English nation.[87]

A number of the patents granted would have had a direct effect on the balance of trade between England and the continent. The licences for the making of saltpetre and white soap in 1561 were to establish industries in England for products which used to be imported. The saltpetre, for instance, had previously been imported through

---

[84] D. Wagner, 'Coke and the Rise of Economic Liberalism' (1935) 6 *Economic History Review* 30, 42.

[85] It is arguable that there are differences between a policy goal of the promotion of employment and court decisions that strike down restrictions on trade, decisions that have the effect of freeing up workers. It is also, however, arguable that the approach of government then is different to government now. That is, governments today may adopt policies aimed at promoting employment within the economy which is characterised as distinct from government. The institutions of governance then may not have perceived the separation between the governors and the economy – they did not seek to act *on* the economy, they were part of the economy. That is, employment maximisation was not a "tool" but a way of governance.

[86] Despite the mercantilist focus on overseas markets, 'foreign trade accounted for only a small fraction of the national output': F. Fisher, 'The Sixteenth and Seventeenth Centuries: The Dark Ages in English Economic History?' (1957) 24 *Economica* 2, 9.

[87] Overall, it can be seen that, at least with respect to Elizabethan policies, 'it was an indisputable part of the Crown's prerogative that it could regulate external trade in what it deemed to be the public interest': D. Keir, *The Constitutional History of Modern Britain since 1485*, (9th ed, 1969), 117.

Antwerp.[88] Another Elizabethan grant was for the manufacture of Spanish (yellow) leather. This was a *non obstante* grant, dispensing with the 'provisions of an Act forbidding the export of leather'.[89] For Hulme, 'Elizabethan policy aimed beyond question, as a perusal of the grants will amply testify, at the introduction of those industries the products of which had hitherto figured most prominently in the list of imports'.[90]

It is not clear whether patents granted by James had a similar potential impact on the balance of trade. The lack of detail in the secondary material on these grants makes it difficult to determine to what extent the technology behind particular monopoly grants was imported, invented in England or just taken from an already existing English practice. Fox did, however, consider that, under the Stuart Kings, the 'catalogue of patents issued for new inventions demonstrates the continuation of a fixed policy of encouraging and stimulating both new and old manufactures'.[91] It may be safe to assume that a number of the new manufactures were imported from overseas and therefore directly impacted on the balance of trade.

An important trade-related aspect of the public discourse of the time was the role of the monopoly trading corporations. Bodies such as the Society of Merchant Adventurers[92] were constituted through a prerogative grant and given monopoly rights of trade on particular routes. Their activities may have been central to the controversy near the end of Elizabeth's reign.

One of the significant external factors that contributed to the 1597 and 1601 Parliamentary debates[93] was the state of the economy.[94] It is arguable that the trade

---

[88] The grant over the manufacture of saltpetre also had important defence ramifications. Saltpetre was a necessary ingredient for gunpowder, therefore, a native manufacturing industry would improve the nation's self-sufficiency in times of war (in part due to the use of patents, English 'ordnance became the best in Europe by 1600': Klitzke, above n 12, 632). In particular, at the time Antwerp was controlled by the King of Spain, and in the second half of the sixteenth century there was ongoing tension between Spain and England (in part, for religious reasons). Removing potential Spanish control of saltpetre imports would have been an important strategic move.

[89] Hulme, 'The History of the Patent System', above n 10, 147.

[90] Ibid 152.

[91] Fox, above n 3, 179.

[92] The Merchant Adventurers, during Elizabethan times at least, 'supplied the only authorised channel for the largest and most lucrative part of the foreign commerce of England. It enjoyed a monopoly of the trade carried on by English subjects with the Low Countries and Germany': Unwin, above n 27, 133.

[93] There was also significant trade-related economic problems in the 1620s, a time of further Parliamentary debate on monopolies and the period in which the Statute of Monopolies was passed. See, for example, J. Gould, 'The Trade Crisis of the Early 1620s and English Economic Thought' (1955) *Journal of Economic History* 121 and J. Gould, 'The Trade Depression of the Early 1620s'

problems in the late 1590s were the result on some restrictions imposed by monopolistic practices of particular foreign trading corporations, such as the Hanseatic League.[95] The economic problems of that decade were at least blamed on the major trading companies, irrespective of their role in the depression.[96] The perceived threat to English trade with Germany posed by the expulsion of the Merchant Adventurers, the dominant English trading corporation,[97] from Germany in 1597[98] may have inspired the Parliamentary challenges in the same year.[99]

There was a tension between the trading companies and the Parliament, with the Crown tending to side with the recipients of the monopolist grants.[100] On the one hand, the corporations were the 'most powerful economic organisations of the time [with] much influence in Parliament'.[101] On the other,

> Parliament and the City's overseas traders tended to be natural opponents. This was because, from one point of view, Parliament was an amalgam of grower, manufacturing and outport interests, and because each of these interests had an understandable desire for freer

---

(1954) *Economic History Review* 81. An unrelated but, perhaps, not coincidental circumstance evident in the late 1590s and 1620s was the issue of succession. In both periods the monarch was known to be ailing (further, 1598 saw the death of Lord Burghley, one of the key figures in Elizabeth's inner circle). It is possible that one factor in the debates was the political machinations that accompany any prospective transfer of power (particularly at the end of Elizabeth's reign as she had not anointed a successor).

[94] That the trading companies were significant to the 1601 debate may be inferred from the publication in that year of a pamphlet by the Secretary of the Merchant Adventurers extolling the virtues and benefits of the company to the English economy.

[95] Unwin, above n 27, 201-2.

[96] G. Hotchkiss, 'Introduction' in J. Wheeler, *A Treatise of Commerce*, G. Hotchkiss (ed.), (1931), 47. England, however, between 1594 and 1597 was gripped by both 'trade depression and harvest failure': A. Appleby, 'Disease or Famine? Mortality in Cumberland and Westmorland 1580-1640' (1973) 26 *Economic History Review* 403, 430.

[97] The Merchant Adventurers were the dominant, but not the sole, trading corporation under the Tudor and Stuart monarchies. Others established at the time included the Muscovy Company, the Eastland Company, the Guinea Company, the East India Company, the Levant Company and the Virginia Company.

[98] The corporation was expelled on the grounds that they were monopolists: Unwin, above n 27, 217.

[99] The trading corporations were also known to act politically. In 1606, a merchant from the Levant Company refused to pay an imposition on imported currants. In this action, he 'received the active support of a number of the leading Levant Company traders': R. Brenner, *Merchants and Revolution: Commercial Change, Political Conflict and London's Overseas Traders, 1550-1653* (1993), 206. For the protest, Bate was sued, and the decision came to be known as *Bate's Case* (1606) Lane 22; 145 ER 267. The background of *Bates' Case* centred on Bates' importation of currants, upon which he refused to pay customs duties. The Court of Exchequer found for the Crown.

[100] Sacks has argued that, as early as the 1571 election, anti-monopolists in Bristol were actively campaigning to 'assure … favourable representation for their position. The gambit worked': D. Sacks, *The Widening Gate: Bristol and the Atlantic Economy, 1450-1700* (1991), 198.

[101] G. Clark, 'Early Capitalism and Invention' (1936) 6 *Economic History Review* 143, 152.

> trade and thus for the weakening of the London merchants' companies privileges.[102]

This tension resulted in a number of attacks on merchants in Parliament.[103] For example, in 1604, the 'Commons launched the first of a series of powerful assaults on chartered companies in general and the Merchant Adventurers in particular, when it voted for the Bill for free trade'.[104] But it was not until 1621 and 1624 that 'parliamentary pressure groups succeeded in throwing open large portions of the Merchant Adventurer's trade'.[105] Despite this setback to the Adventurers, the Statute of Monopolies left untouched the status of the trading companies.[106]

There was only one monopoly decision in the period covered by this article that can seen to have based its reasoning on the trade policy of the time. This decision was the *City of London Case*.[107] The action was for a writ of *habeas corpus* for the release of a man arrested for making candles contrary to the by laws of the City of London. Coke cited the result of *Darcy* v. *Allen* as 'to restrain trade and traffic was void, because trade and traffic is the life of the commonwealth and especially of an island'.[108] He then qualified this by saying

> It is true that trade and traffic cannot be maintained or increased without order and government; and therefore, the King may erect … a fraternity or society or corporation of merchants, to the end that good order and rule should be by them observed for the increase and

---

[102] Brenner, above n 99, 203.
[103] It has been suggested that the House of Commons was 'partial to outports and often appl[ying] the term monopolies to "companies"': E. Read Foster, 'Procedure of the House of Commons against Patents and Monopolies, 1621-1624' in W. Appleton Aiken and B. Duke Henning (eds.), *Conflict in Stuart England: Essays in Honour of Wallace Notestein* (1960), 79n 9. Others have argued that the Parliamentary attacks on the trading monopolies, in particular, 'look suspiciously like attempt[s] by those outside the ring, not to destroy the system, but to force an opening just sufficiently wide for themselves to enter into a share of the profits': Stone, above n 28, 118.
[104] Brenner, above n 99, 207.
[105] Supple, above n 28, 232. Prior to that, though, in 1614, the 'king levelled a devastating attack on the Merchant Adventurers when he suddenly agreed to suspend the Adventurers' privileges and prohibit their main trade'. Their charter was regranted, however, after the collapse of the ill-fated Cockayne Project: Brenner, above n 99, 210-1.
[106] Corporations and chartered cities were exempted by s. 9 of the statute. This 'exception had been made in the Act to preserve the rights of the monopoly trading companies and the interests of the City of London': G. Aylmer, *The Struggle for the Constitution 1603-1689* (3rd ed, 1968), 81. Exemptions were also included for existing monopolies such as glass-making. Russell argues that these were included to ensure passage of the Bill, as the patentees were Members of Parliament: C. Russell, *Parliament and English Politics 1621-1629* (1979), 191. The Bill presented to Parliament in 1601 was not to extend to patents granted to corporations, either: Tawney and Power, above n 42, 278, quoting Francis Bacon.
[107] (1610) 8 Co Rep 121b, 77 ER 658.
[108] (1610) 8 Co Rep 121b, 125a; 77 ER 658, 663.

> advancement of trade and merchandise, and not for the hindrance and diminution of it.[109]

Trade, therefore, can be seen to have underpinned a number of the actions of the Crown at the time.

The emphasis on promoting trade is unsurprising when considered in the context of the mercantilist writings of the time.[110] For example, writing his "Treatise of the Canker of England's Common Wealth" in 1601, Malynes characterised the 'unknowne disease of the politic body of our weale publicke' in terms of the balance of trade. The Prince, the head of the commonwealth 'ought to keep a certain equality in the trade or traffic between his realm and other countries, not suffering an overbalancing of foreign commodities with his home commodities, or in buying more than he selleth'.[111] Thomas Mun's 1622 text,[112] "England's Treasure by Foreign Trade or the Balance of our Foreign Trade is the Rule of our Treasure",[113] argues that the 'ordinary means' to increase the wealth of the nation is 'to sell more to strangers yearly than we consume of theirs in value'.[114] Mun sets out a dozen ways to improve this balance of trade, ending his list with the claim that 'we must endeavour to make the most we can of our own … for where the people are many, and the arts good, there the traffique must be great and the country rich'.[115] A third mercantilist, Misselden, early on his pamphlet states that 'when trade flourished, the King's revenue is augmented, lands and rents improved, navigation is increased, the poor employed. But if trade decay, all these decline with it'.[116]

This understanding of the importance of foreign trade to the national economy is accepted by a number of historians. It is argued, for example, that the Adventurers were 'instruments of English national policy in world commerce'.[117] One policy objective was the regulation of industry – the Crown provided grants that could be suspended, while the companies organised themselves and the trade they were

---

[109] (1610) 8 Co Rep 121b, 125a; 77 ER 658, 663.
[110] For a more complete discussion of mercantilism in the context of early patents see Thomas B. Nachbar, 'Monopoly, Mercantilism and Intellectual Property' (2005) 91 *Virginia Law Review* 1313.
[111] Malynes, above n 33, 59.
[112] Mun was, however, a director of the East India Company: P. Schaafsma, 'An Economic Overview of Patents' (1997) 79 *Journal of the Patent and Trademark Office Society* 241, 243.
[113] Mun, above n 34.
[114] Ibid 116.
[115] Ibid 117-22.
[116] *Free Trade or the Means to Make Trade Flourish* (1970), 4.
[117] Hotchkiss, 'Introduction' to Wheeler, above n 96, 110-1, citing academics such as Schanz, Ehrenberg, Hagedorn and Lingelbach.

responsible for. The impact of regulatory policies on the granting of patents is discussed next.

C. *Delegated Governance*

The final policy goal that may be drawn out of the patent system of the late sixteenth and early seventeenth centuries was that of delegated governance. There were three aspects of this delegation. One was the granting of powers of self-regulation to specific industries, in particular, this related to the monopolies given to trading corporations. The second was the granting of power of regulation to an individual, for example, the patent relating to the playing card industry that was at the heart of the case of *Darcy* v. *Allen*. The third may be dealt with briefly. It was the delegation of the grant power itself to an individual.[118] Prior to this change, patents were granted by the monarch directly, or through the Lord Chancellor.[119] The delegation of a discretionary power to grant patents is perhaps the forerunner of the modern Patent Offices.

A significant number of the patents relating to the second aspect of delegation focused on the enforcement of particular statutes. Examples of patents associated with such enforcement include the grant mentioned above for the statute against gig-mills and a grant to collect fines for breach of an Act requiring all owners of 60 or more acres to grow hemp.[120] Given the ‘insufficient public agencies … the developing economic and social policies of the Tudor period had … to rely, in the absence of paid public inspectors, on creating sufficient incentives for private interests to take part in enforcing the laws’.[121] This form or regulation continued into the seventeenth century with grants to collect forfeitures for breaches of statutes such as that of apprenticeships.[122]

---

[118] E. Churchill, ‘Monopolies’ (1925) 41 *Law Quarterly Review* 275, 281.
[119] The patent grant procedures, set in place by legislation in by 1535, were ‘extremely elaborate and involved several layers of checks and balances to ensure that no document acquired the Great Seal without the Crown’s knowledge and express sanction’: J. Pila, *Inherent Patentability in Australian, United Kingdom and EPC Law: A History*, (2003), PhD Thesis, University of Melbourne, 10.
[120] An account of monies received under that grant is included in Tawney and Power, above n 42, 267-9.
[121] Davies, above n 15, 25.
[122] For a more detailed discussion of the role of informers in the nation’s governance see M. Beresford, ‘The Common Informer, the Penal Statutes and Economic Regulation’ (1957) 10 *Economic History Review* 221.

The more common form of regulation through the use of patents was, however, the granting of licences to monitor particular industries. Examples of this include the oversight of ale-houses and card-manufacture. This form of governance had a positive public policy aspect.[123] The regulation of ale-houses, for example, was seen as a necessity because of 'constant complaints of drunkenness and the resort of undesirable characters to the ale-houses'.[124] In argument during *Darcy* v. *Allen*[125] the regulatory nature of the grant was emphasised.[126] That is, the monopoly on playing cards was, in part, aimed at limiting the playing of cards by workers.[127]

One other aspect of the policy of delegated governance is the consideration by Fox that one of the 'motivating forces behind the patent grants … was the desire for the maintenance of quality'.[128] He specifically argued that the 1617 patent for the 'manufacture of gold and silver thread show[s] an endeavour on their face to protect the purchaser from faulty workmanship'.[129] Thorne used the example of more rudimentary items:

> If poor soap or impure salt or bad glass was being put on the market, as they often were, the device of granting to an official by patent monopoly for the making of soap, salt or glass, with power to licence at a price, and supervise those engaged in the actual manufacture, seemed to solve at one stroke the question of his salary, the protection of the public and the control of irresponsible industry.[130]

The provision of industry regulation through the granting of licensing patents, whilst open to abuse, did provide for the monitoring of participants in a society where the State was not large enough to police all aspects of public life. It has been suggested that one of the results of Elizabethan practice was akin to the establishment of a "Civil Service". The 'patentees and monopolists undertook … to perform the functions now

---

[123] It also had a negative effect on the status quo. According to one account, the 'use of patents and licences in local administration was … sapping [justices'] prestige and undermining their control of local affairs, particularly their control of local taxation': Smith, above n 24, 246.
[124] Fox, above n 3, 175.
[125] (1602) 11 Co Rep 84b, 77 ER 1260; Noy 173, 74 ER 1131.
[126] Corre, above n 52, 1300-1.
[127] One justification for the disputed patent for playing cards in *Darcy v Allen* was 'to stem the tide of skilled subjects who were wasting their labour in the production of playing cards and to suppress a perceived excess of card playing that was diverting the labouring classes from useful work': ibid 1273.
[128] Fox, above n 3, 182.
[129] Ibid 180. Fox drew support for this proposition from the fact that there was a grant to the Company of Gold Wire Drawers of London after the impeachment of the original patentee. This, for Fox, 'indicates that protection of the public and not royal revenue was the motivating force behind the monopoly': ibid.
[130] Quoted in B. Yandle, 'Sir Edward Coke and the Struggle for a New Constitutional Order' (1993) 4 *Constitutional Political Economy* 263, 267.

entrusted to the Home Office, the Board of Trade, the departments of Customs and Inland Revenue'.[131] These functionaries continued their work after the death of Elizabeth. Further, James' institution of the Commissioner of Suits may be seen as an early form of the Patent Office still evident in the world today, as it was set up to check on the legality and convenience of proposed grants.[132]

Not all attempts at gaining a licensing patent were successful, however. One 1593 application, for example, for a patent to become a surveyor of sugar refineries, argued that such a position was necessary as, *inter alia*, the current refineries were 'very corrupt', the raw product was imported 'more by strangers and in strangers' vessels than by Englishmen' and the 'refiners used great quantities of eggs, which forced up the price of eggs in London'.[133] The petition was unsuccessful. The arguments presented against it to Lord Burghley, the Treasurer, were that granting the patent 'would bring more loss to the Queen in customs than it would yield in rent and would force the country to be served at the Hollanders' hands where now others are served by ours'.[134] The summation was 'it as a pity that private gain should be like before the common good'.[135] A later, and again unsuccessful, application for a sugar monopoly was rejected on the grounds that it would enrich a 'few covetous and evil-minded persons and [would be a] great hindrance of the common weal'.[136] No patent was granted over the sugar industry in England in Elizabethan times.[137]

The cases relating to the regulation of industries include the *Chamberlain of London's Case*,[138] the *Duke of Lenox Case*,[139] and the *Ipswich Tailors Case*.[140] To a lesser extent, the "traditional" patent decision of *Bircot's Case* and *Mathey's Case* may be seen to regulate those industries in that the trades were opened up by the cancellation of disputed grants. While *Darcy* v. *Allen* related to a grant of a monopoly right over the card industry, the language of the reporters focused on employment issues rather than the regulation of the industry. Further, it was stressed in the *City of London Case*,

---

[131] Unwin, above n 27, 326.
[132] Hyde Price, above n 4, 25.
[133] T. Willan, *Studies in Elizabethan Foreign Trade* (1959), 318.
[134] Ibid 319.
[135] Ibid 319-20.
[136] Ibid 321.
[137] Ibid 322-3.
[138] (1590) 5 Co Rep 62b; 77 ER 150.
[139] (1609) 2 Brownl. 301, 123 ER 955.
[140] (1614) 11 Co Rep 53a, 77 ER 1218. This decision, along with the *City of London Case* and the *Chamberlain of London's Case* were cited with approval in *Wood* v. *Searl* (1618) Bridgman J 139, 123 ER 1257.

that 'trade and traffic cannot be maintained or increased without order and government'.[141]

The *Chamberlain of London's Case* was a challenge to the requirement that all cloth to be sold within the City of London be weighed and taxed at Blackwell Hall. The plaintiff in this case was the representative of the City of London, a corporation.[142] While the reported case was procedural, the court stated that the 'King may grant by his charter that all manner of ships coming to such a haven laden with merchandise, shall be unladen at a certain place, and not elsewhere, to the intent that he may be better answered his customs and other duties'.[143] This case, therefore, may be seen as relevant as it relates to the imposition of restraints of trade, and indicative of any belief of the courts in freedom of association or trade.

The *Duke of Lenox Case* related to a patent issued for the alnage of clothes.[144] One owner refused to pay the demanded duty, the alnager seized certain pieces of clothing and an action was brought by the owner. There is no judgment recorded in that report and no discussion as to which party succeeded. However, Hyde Price states that the behaviour of the deputies of Lenox in enforcing the grant had grown worse by the time the petition of grievances was given to the King in 1610.[145] This suggests that his patent had been confirmed by the Common Bench.[146]

The *Ipswich Tailors Case* has already been discussed above in relation to employment policy. The following statements from the judgment also refer to the role of monopolies in the regulation of industries:

> (1) The [Statute of Apprentices] is intended of a public use and exercise of a trade to all who will come, and not of him who is a private cook, tailor, brewer, baker etc in the house of any for the use of a family; and therefore if the said ordinance had been good and consonant to law, such a private exercise and use had not been

[141] (1610) 8 Co Rep 121b, 125a; 77 ER 658, 663.
[142] A corporation that enjoyed many rights due to longstanding custom.
[143] (1590) 5 Co Rep 62b, 63b; 77 ER 150, 152. The procedural point was finalised by the granting of a procedendo. A similar case was referred to in *Darcy* v. *Allen*.
[144] Alnage involved the inspection and measurement of manufactured cloth, either for quality maintenance or taxation. That there were concerns over the quality of cloth production in England is evident in Misselden's claim that 'I noted the ill-making and false sealing of cloth': above n 116, 127.
[145] Above n 4, 27.
[146] The 1661 decision of *Vere* v. *Sampson* (1661) Hardres 205, 145 ER 454; confirmed a similar duty payable for alnage. The court stated that the finding was, in part, based on precedents from the reigns of Elizabeth, James and Charles I: (1661) Hardres 205, 215; 145 ER 454, 460. Counsel for the defendant referred explicitly to 'a decree for Duke of Lenox versus Peckner Trin. 6 Car Regis': (1661) Hardres 205, 213; 145 ER 454, 459.

> within it, for every one may work in such a private manner, although he has never been an apprentice in the trade.[147]
>
> (2) The [1504 Corporations Act[148]] does not corroborate any of the ordinances made by any corporation, which are so allowed and approved as the statute speaks, but leaves them as good, or disaffirmed as unlawful by the law.[149]

Another report of the same decision, the *Cloth-workers of Ipswich Case*,[150] contains different formulations of the reasons, though the finding was still the same. According to Godbolt,

> it was agreed by the Court that the King might make corporations and grant to them that they may make ordinances for the ordering and government of any trade; but thereby they cannot make a monopoly for that is to take away free trade, which is the birthright of every subject.[151]

The use of regulations to organise industries extended to those subject to self-regulation, such as the Merchant Adventurers. Wheeler, Secretary to the Adventurers, argued that the corporation was a collection of single traders who act in concert. One of the benefits he referred to in his pamphlet was the 'seemly and orderly government and rule of all the member, parts and brethren of the said Company'.[152] At another point he discussed the 'practice and manner of the Company of Merchant Adventurers'.[153] The corporate nature of the Adventurers, for Wheeler at least, provided beneficial regulation of the overseas trade that the corporation was involved in.

IV. CONCLUSION

This article has demonstrated the solid policy bases of the patent system of early modern England. These related to employment, trade and regulation. This material indicates that Elizabeth and James were motivated as much by the desire to improve their nation as by any personal greed. The policies that underpinned the grants are evident in the language used by the courts in decisions handed down at the time. That

---

[147] (1614) 11 Co Rep 53a, 54a; 77 ER 1218, 1220.
[148] 19 Hen. VII, cap 7.
[149] (1614) 11 Co Rep 53a, 54b; 77 ER 1218, 1220.
[150] (1614) Godbolt 252, 78 ER 147.
[151] (1614) Godbolt 252, 253; 78 ER 147, 148.
[152] Above n 96, 157.
[153] Ibid 270.

is, the justifications for the monopolies reflect concerns that were common through the elites of the time.

There is also evidence to suggest that the policies were effective. It has been said that there was 'rapid economic expansion under Queen Elizabeth'.[154] One commentator further suggested that, given the changing social structure of the time (rise of the middle class, increased foreign trade), the sixteenth and seventeenth centuries can considered to be a period of 'economic progress as distinct from mere expansion'.[155] Irrespective of the precise language used to describe it, Elizabethan and Jacobean England underwent significant change in the structure and scale of its economy.

One historian has argued that there was

> an enormous expansion, beginning about the middle of the sixteenth century, in the output of coal, salt, glass and ships and of a great increase in the production of many other industrial commodities, such as alum, soap, gunpowder, metal goods and accessories'.[156]

It may be noted that many of the commodities and products in both lists were the subject of patents granted by Elizabeth. This does not prove a link between the growth evident then and the monopolistic policies of the two monarchs, however, it is, at least, some evidence to suggest that the large scale effects of patents were positive.

The effects of early patents are far-reaching. It has been suggested that the 'patent system represents a stage in the growth of the modern state. The patents of monopoly enabled the government to exercise a closer surveillance of the economy'.[157] This claim highlights an understanding that the practices associated with the grants in late Tudor and early Stuart England provided specific approaches to the administration of the state that subsist in governance today. These approaches are indicative of a particular relationship between the governors, the economy and the governed; a

---

[154] Clark, above n 101, 149.
[155] Fisher, above n 86, 15.
[156] J. Nef, 'The Progress of Technology and the Growth of Large-scale Industry in Great Britain, 1540-1640' (1934) 5 *Economic History Review* 3, 4. Details of the industrial growth are included in Nef, *British Coal Industry*, above n 12. Nef supplied three developments that helped this growth. The 'first was the introduction of a series of capitalistic industries which had hardly gained a foothold in Great Britain before the Reformation. The second was the application to old industries of various technical processes known before, but hitherto very little used in Great Britain. The third was the discovery and application of new technical methods': Nef, "Progress of Technology," 5.
[157] R. Zaller, *The Parliament of 1621: A Study in Constitutional Conflict* (1971), 21.

relationship that deepened over time to the extent that the patent system today has been characterised as 'the ultimate regulatory regime'.[158]

In the times of Elizabeth and James patents may be seen as specific practices that furthered, quite deliberately, the policy goals of the elite. These goals, in turn, can be seen as the result of the circumstances of the day – the population growth, the need to be self-sufficient with respect to defence and the limitations imposed on the forms of governance by the available technologies of communication. The understanding of the early patent system shown here goes beyond the simplistic descriptions of patent history evident in most modern texts – that the 1624 Act was a triumph of the 'good' Parliament against the profligate monarchs. The understandings shown here demonstrate a complexity of governance, an interplay of discourses and institutions of government that would not seem out of place in a twentieth-century nation-state.

[158] J. Thomas, 'The Responsibility of the Rule-maker: Comparative Approaches to Patent Administration Reform' (2002) 17 *Berkeley Technology Law Journal* 727, 730.

IPRIA Working Papers

No.	Title	Author(s)
06/07	Patent Policy in Early Modern England: Jobs, Trade and Regulation	*Dent*
05/07	To See Patents As Devices of Uncertain (But Contingent) Quality: A Foucaultian Perspective	*Dent*
04/07	Duration of Patent Protection: Does One Size Fit All?	*Christie / Rotstein*
03/07	The Impact of Uncertain Intellectual Property Rights on the Market for Ideas: Evidence from Patent Grant Delays - Update	*Gans / Hsu / Stern*
02/07	Lawyers' Decisions In Australian Patent Dispute Settlements: An Empirical Perspective	*Dent / Weatherall*
01/07	Patent Opposition and the Constitution: Before or After?	*Dent*
18/06	Trade Mark and Counterfeit Litigation in Australia	*Bosland / Weatherall / Jensen*
17/06	Filing and Settlement of Patent Disputes in the Federal Court, 1995 - 2005	*Rotstein / Weatherall*
16/06	Innovation, Technological Conditions and New Firm Survival	*Jensen / Webster / Buddelmeyer*
15/06	Reconceptualizing Innovation as a Social and Knowledge-Based Phenomenon	*Casselman / Quintaine / Reiche*
14/06	Parallel Imports, Market Size and Investment Incentive	*Palangkaraya / Yong*
13/06	Canada's private copying levy – does it comply with Canada's international treaty obligations?	*Christie / Davidson / Rotstein*
12/06	Australian Innovation – Learning from 10 Cases	*Cebon*
11/06	Entry and Competitive Dynamics in the Mobile Telecommunications Market	*He, Lim, Wong*
10/06	Innovation and the Determinants of Firm Survival	*Budelmayer / Jensen / Webster*
09/06	A Comparative Analysis of The Australian Patent Office's Examination of Biotechnology Reach-Through Patent Claims	*Lim / Christie*
08/06	The Impact of Uncertain Intellectual Property Rights on the Market for Ideas:Evidence from Patent Grant Delays	*Gans / Hsu / Stern*
07/06	Research Use of Patented Knowledge: A Review	*Dent / Jensen /*

		Waller / Webster
06/06	Managing Knowledge Flows through Appropriation and Learning Strategies	*Jensen / Webster*
05/06	Market Power, Brand Characteristics and Demand for Retail Grocery Products	*Jensen / Webster*
04/06	Trade Marks and Market Value in UK Firms	*Greenhalgh / Rogers*
03/06	Intellectual Property Activity by Service Sector and Manufacturing Firms in the UK, 1996-2000	*Greenhalgh / Rogers*
02/06	Start-Up Commercialisation Strategy and Innovative Dynamics	*Gans*
01/06	Decision-Making and Quality in the Patent Examination Process: An Australian Exploration	*Dent*
19/05	A Quantitative Analysis of Australian Intellectual Property Law and Policy-Making Since Federation	*Caine / Christie*
18/05	Measuring Intangible Investment	*Hunter / Webster / Wyatt*
17/05	Perfect Price Discrimination with Costless Arbitrage	*Gans / King*
16/05	Has Investment in Start-Up Firms Driven Incumbent Innovative Strategy? Evidence from Semiconductor and Biotechnology Venture Capital Funded Firms	*Dewo / Gans / Hirschberg*
15/05	Communication in the Digital Environment: An empirical study into copyright law and digitisation practices in public museums, galleries and libraries	*Hudson / Kenyon*
14/05	A Comment on the Copyright Exceptions Review and Private Copying	*Weatherall*
13/05	The Culture of Trade Marks: An Alternative Cultural Theory Perspective	*Bosland*
12/05	Strength of Partnership as a Key Factor in Collaboration between Universities and Industry for Production of IP: A Study of Applications to the BHERT Awards	*Mann*
11/05	Repeated Interactions & Contract Structure: Evidence from Technology Development Contracts	*Ryall / Sampson*
10/05	Operationalizing Value-Based Business Strategy	*Gans / MacDonald /*

		Ryall
09/05	Determinants of International Patent Examination Outcomes	*Palangkaraya / Jensen / Webster*
08/05	Intellectual Property Strategy and Business Strategy: Connections Through Innovation Strategy	*Samson*
07/05	An Empirical Investigation into Patent Enforcement in Australian Courts	*Weatherall / Jensen*
06/05	Patent Application Outcomes Across the Trilateral Patent Offices	*Jensen / Palangkaraya / Webster*
05/05	The Effects on Firm Profits of the Stock of Intellectual Property Rights	*Griffiths / Jensen / Webster*
04/05	Capitalised Intangibles and Financial Analysis	*Matolcsy / Wyatt*
03/05	Reach-through Patent Claims in Biotechnology: An Analysis of the Examination Practices of the United States, European and Japanese Patent Offices	*Lim / Christie*
02/05	Venture Capital Taxation in Australia and New Zealand	*Stewart*
01/05	The New Right of Communication in Australia	*Christie / Dias*
18/04	Trends in the Value of Intellectual Property in Australia	*Griffiths / Webster*
17/04	On Technology Locks and the Proper Scope of Digital Copyright Laws – *Sony* in the High Court	*Weatherall*
16/04	Techniques for Measuring Intangible Capital: A Review of Current Practice	*Wyatt / Webster / Hunter*
15/04	Achieving the Optimal Power of Patent Rights	*Jensen / Webster*
14/04	On The Interaction Between Patent Policy and Trade Secret Policy	*Erkal*
13/04	The Determinants of Research and Development and Intellectual Property Usage among Australian Companies 1989 – 2002	*Griffiths / Webster*
12/04	Regulating Private Copying of Musical Works: Lessons from the U.S. Audio Home Recording Act of 1992	*Elkman / Christie*

11/04	*Droit de Suite* Down Under: Should Australia Introduce a Resale Royalties Scheme for Visual Artists?	*Hudson / Waller*
10/04	The Research Exemption to Patent Infringement: A Doctrine In Search of a Principle	*Elkman*
09/04	SMEs and their Use of Intellectual Property Rights in Australia	*Jensen / Webster*
08/04	Catching Up or Standing Still? National Innovative Productivity Among "Follower Nations". 1978 – 1999	*Furman / Hayes*
07/04	Patent Length and the Timing of Innovative Activity	*Gans / King*
06/04	Moving Beyond Tacit and Explicit: Four Dimensions of Knowledge	*Casselman / Samson*
05/04	Examining Biases in Measures of Firm Innovation	*Jensen / Webster*
04/04	Principle or Compromise?: Understanding the original thinking behind statutory licence and levy schemes for private copying	*Gaita / Christie*
03/04	Patterns of Trademarking Activity in Australia	*Jensen / Webster*
02/04	Protecting Indigenous Signs And Trade Marks Under The New Zealand Trade Marks Act 2002	*Morgan*
01/04	Patent Renewal Fees and Self-Funding Patent Offices	*Gans / King / Lampe*
12/03	Accounting for Intangible Assets: A Conceptual Framework for Measurement and Reporting on Intangible Assets	*Wyatt / Abernethy*
11/03	The Decision to Patent, Cumulative Innovation, and Optimal Policy	*Erkal*
10/03	The Protection of National Icons under the Trade Marks Act 1995	*Morgan*
09/03	An Analysis Of The Approaches Of The Trilateral and Australian Patent Offices to Patenting Partial DNA Sequences	*Howlett / Christie*
08/03	Accounting for Intangible Assets: Theory and	*Wyatt*

	Evidence on the Influence of Technology and Property Rights Related Conditions	
07/03	Using Patent-Based Metrics to Understand the Value of Companies	*Matolcsy / Wyatt*
06/03	The Economics of Patent Design: A Selective Survey	*Lampe / Niblett*
05/03	An Analysis of the Approach of the European, Japanese and United States Patent Offices to Patenting Partial DNA Sequences (ESTs)	*Howlett / Christie*
04/03	The Rise of Trade Marking in Australia in the 1990s	*Loundes / Rogers*
03/03	Forces Shaping Firms' Decisions To Innovate: Evidence from Large Australian Organisations	*Webster*
02/03	Virtual Markets for Virtual Goods: An Alternative Conception of Digital Copyright	*Eckersley*
01/03	Managing Ideas: Commercialization Strategies for Biotechnology	*Gans / Stern*
07/02	Intellectual Property Rights: A Grant of Monopoly or an Aid to Competition	*Gans / Williams / Briggs*
06/02	Intellectual Capital: Accumulation and Appropriation	*Hunter*
05/02	The Product Market and the Market for "Ideas". Commercialization Strategies for Technology Entrepreneurs	*Gans / Stern*
04/02	When does Funding Research by Smaller Firms Bear Fruit?	*Gans / Stern*
03/02	Network Externalities and the Myth of Profitable Piracy	*King / Lampe*
02/02	When Does Start-Up Innovation Spur the Gale of Creative Destruction?	*Gans / Hsu / Stern*
01/02	Intangible and Intellectual Capital: A Review of the Literature	*Webster*

Electronic copies of all IPRIA working papers are available at:
www.ipria.org/publications/workingpapers.html