Patterns of Trademarking Activity in Australia*

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Abstract

Over the past quarter of a century, trade mark applications have grown by 2.3 per cent per annum faster than real GDP in Australia. This paper explores the factors associated with this growth. We find some evidence that over the past two decades, trademarking has been associated with more inventive companies, the growth of the service sector, globalisation and industry based microeconomic reforms. There is provisional evidence that higher levels of real income per capita have supported some of these factors.

3.

1. Introduction

This paper attempts to take a preliminary step in overcoming the dearth of economic analysis of trade marks by analysing trends in trade mark activity in Australia and examining some hypotheses that may explain these movements. We review the reasons companies trade mark and subsequently discuss a number of endogenous and exogenous factors that may affect the level of trade mark activity over time[1].

The level of registered trade mark activity has increased faster than Australian GDP since the mid 1970s. Over the period 1975 to 2002, trade marks increased annually by 2.3 per cent more than GDP (adjusted for inflation). This was a break from the past. From the time of their inception in 1906 to 1974, trade mark applications approximately paralleled GDP. Similar post-1970s trends have been observed in both the UK and the US[2]. However, little is known about the causes of this growth.

Despite growing interest in the economics of intellectual property rights, the economics profession has focused much of its attention on patents rather than trade marks. In many ways, the effects of investment in trade marks are more relevant to the marketing profession, an observation which is reflected in the depth and diversity of research

[1] A factor is exogenous to a system if it is determined by forces external to that system. Conversely, a factor is endogenous if it is at least partly determined by other factors within the system.

[2] See Greenhalgh C, Longland M and Bosworth D, "Protecting Intellectual Property: British, European and American Patents and Trade Marks of Selected UK Companies 1986-1995" (2001) Working Paper, Oxford Intellectual Property Research Centre, Greenhalgh C, Longland M and Bosworth D, "Trends and Distribution of Intellectual Property: UK and European Patents and UK Trade and Service Marks 1986 - 2000" (2003), mimeo, Oxford Intellectual Property Research Centre. Loundes J and Rogers M, "The Rise of Trade Marking in Australia in the 1990s" (2003), Melbourne Institute of Applied Economic and Social Research Working Paper 8/03, University of Melbourne, March.

interest on 'brand equity' and related subjects in the marketing literature[3]. In our opinion, however, the lack of interest shown by economists in trade marks is an oversight: trade marks are important intangible assets and economists should do more to understand economic issues such as the costs and benefits of trade mark registration, and the effect that trade mark registration has on firm performance and shareholder wealth[4].

The existing literature, to the extent it exists, suggests that the level of trade mark activity may reflect changes in the rate of product innovation in the economy since new products are typically trade marked prior to being launched on the market. Thus, an increase in the number of new goods and services being produced should result in an increase in the number of trade mark applications. On the other hand, the level of trade mark activity could also be affected by factors endogenous to the registration arrangement for trademarking. For example, a legislative change that increased the scope of what is eligible for registration as a trade mark may increase the aggregate level of trade mark applications.

In this paper, we also briefly discuss why companies may rationally choose different levels of branding protection, but we are unable to throw any light on whether there has been a change in the relative prevalence of each type of branding. Since there is no reason or evidence to suggest that there has been a shift towards, or away from, registered

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[3] See, for example, Cohen D, "Trademark Strategy" (1986) Journal of Marketing 50, 61-74, Cohen D, "Trademark Strategy Revisited" (1991) Journal of Marketing 55, 46-59; Aaker DA and Keller KL, "Consumer Evaluations of Brand Extensions" (1990) Journal of Marketing 54, 27-41.

[4] Economists have shown limited interest in such issues. For example, Sappington DEM and Wernerfelt B, "To Brand or Not to Brand? A Theoretical and Empirical Question" (1985) Journal of Business 58(3), 279-293 explored issues related to whether firms decide to 'brand' a product, but this is a slightly different issue to whether they decide to register a trade mark since an unregistered trade mark can also be considered to be a brand.

trade marks to less formal forms of branding, we assume, perhaps heroically, that the trends and patterns in registered trade marking is indicative of trends and patterns in product branding more broadly.

2. What is a trade mark?

A trade mark is a legally protected name, symbol, design or other defining characteristic used by a producer to identify its products. In Australia, trade marks are protected through the *Trade Marks Act 1995* which enables producers to register a trade mark. Following examination by the Australian Trade Marks Office to determine whether the mark is distinctive[5], the mark can be registered for an initial period of 10 years[6]. This can be renewed *ad infinitum*, however, as long as the mark continues to be used and renewal fees are paid.

By registering a trade mark, the owner establishes an exclusive right to use that mark (and to prevent others from using that mark) within Australia in the relevant markets or 'classes'. The definition of the class is important in determining whether infringement occurs – for example, Apple records and Apple computers can co-exist within the same legal jurisdiction because they compete in different markets[7]. In instances where imitation of a trade mark is alleged, the owner of a registered trade mark has the right to obtain relief from infringement of the trade mark through legal action. Proof of infringement requires the trade mark owner to demonstrate consumer confusion about the

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[5] A trade mark cannot be registered if it uses generic terms or geographic names.

[6] Prior to 1996, this was 14 years.

[7] While these two trade mark rights to the name "apple" happily co-exist, the situation is more complex with regard to rights over internet domain names since it is not clear which party has the right to the

source of the two products[8]. Taking action against infringement protects the investment made by firms in product quality since it punishes those that free ride on others' products.

Unregistered trade marks are also provided some protection under the common law tort of "passing off". Section 52 of the *Trade Practices Act 1974* enables firms to seek protection against deceptive and misleading conduct. The purpose of this *Act* is the protection of consumers against such practices, but firms are also able to seek remediation against firms that have appropriated their goodwill through product imitation. Protection of a trading name through "passing off" legislation requires an additional cost associated with reputation.

3.1. 3 Why companies brand

In many markets, there is an informational asymmetry between the buyer and seller: the seller has more information about the product's quality than the buyer. Products in these markets are often referred to as "experience goods" since their quality characteristics cannot be observed until after the product has been consumed. By allowing identification, trade marks play an important role assisting consumers to learn, classify and recognise these unobservable characteristics[9]. In doing so, they lower consumer search costs and reduce the social losses associated with consumption of products with undesirable qualities. Other research suggests that brands may play an important role in signalling to

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name www.apple.com. See Gordon WJ, "Intellectual Property". Chapter 28 in Can P and Tushnet M, (eds) *The Oxford Handbook of Legal Studies* (Oxford University Press 2003), for more on this point.

[8] This is increasingly being achieved through statistical analysis of sample surveys. See Gastwirth JL, "Issues arising in using samples as evidence in trademark cases" (2003) Journal of Econometrics 113, 69-82, for a recent discussion.

[9] Economides (1997) argues that the degree to which trade marks successfully convey information about unobservable quality characteristics depends on: the nature of the product, the frequency of purchase, ease of information diffusion amongst consumers, and consumers' ability to recall a trade mark.

others about one's status: either by purchasing brands that distinguish the consumer from everyone else (the "snob" effect) or by purchasing brands that suggest that you are part of the crowd (the "bandwagon" effect)[10].

Wine is a good example of a product where trade marks play an important role in informing the consumer since wine quality is a mix of both objective (e.g. grape variety) and unobservable factors. Although consumers know whether they prefer a Yarra Valley sauvignon blanc to a Hunter Valley chardonnay, they are unable to determine which of the competing brands (of the same grape variety from the same region) they prefer until they have consumed the wine. Wine brands, therefore, play an important role in providing consumers an assurance about the quality of a wine[11]. They are not perfect signals of quality, however since consumers also rely on third-party information such as the ratings provided in James Halliday's *Wine Companion*.

Trade marks also provide firms with an incentive to invest in product quality since they can recoup their investment in high quality by including a premium in the price, providing consumers are able to differentiate between products of different quality. However, branding and trademarking has also become a popular vehicle for marketing products that are essentially homogeneous. Trade marks and brands can thus be used to increase consumer confusion. Such an argument is often made with regard to competition between branded and generic pharmaceuticals. In this product market, differences in

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[10] See Leibenstein H, "Bandwagon, Snob and Veblen Effects in the Theory of Consumers' Demand" (1950) Quarterly Journal of Economics 64(2), 183-207; and Seabright P. "Street Credibility for Sale: a Theory of Branding", mimeo, University of Toulouse.

[11] The extent of consumers' willingness to pay for the quality assurance provided by brands is an empirical question that has yet to be answered. The recent proliferation in the market for generic (or "cleanskin") wines provides an opportunity for examination of this issue.

quality between branded and generic products are not an issue since both products contain identical chemical compounds. Neither price nor brand can be expected to play an important role in providing quality signals to consumers here since the products are homogeneous. This is particularly apparent in the case of non-prescription pharmaceuticals whose patents have long expired, such as paracetamol. Yet, much of the empirical work in this area suggests that branded products do generate a price premium over and above production and marketing costs, and that trade marks play an important role in maintaining customer loyalty long after the patent has expired[12].

While there are obvious benefits of trade marks for both consumers and producers, it is not clear that an increase in trade mark activity is welfare-improving since trade marks also introduce a number of distortionary effects. First, trademarking and the associated costs of registration and marketing may increase the costs of production and thus prices without any commensurate increase in the quality of the product.[13] If demand for a given product is constant, then an increase in the number of competing brands may lead to a reduction in the size of production runs with a subsequent loss of scale economies (long-run average costs are falling). Social welfare could be enhanced by reducing the number of brands since this would result in longer production runs providing the same level and quality of output at lower prices.

Secondly, increases in trademarking can result in inefficient resource allocation decisions. The launch of a brand typically requires substantial investment in advertising

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[12] See Hurwitz MA and Caves RE, "Persuasion or information? Promotion and the share of brand name and generic pharmaceuticals" (1988) Journal of Law and Economics 31(2), 299-320.

[13] Underlying this is an assumption that demand is more responsive to apparent quality than to price.

in order to inform consumers about the new product. Under certain conditions, this can lead to an “advertising arms race”, where rival firms engage in a zero-sum game in order to increase market share. This can lead to over-investment in advertising which results in both wasted resources and higher product prices.

Thirdly, trade marks may enable firms to charge prices in excess of normal profits and thus earn monopoly rents. This can occur when the trade mark has managed to establish a level of customer loyalty that is disproportionate to the quality of the good, for example through “snob” and “bandwagon” effects. Trade mark owners may be able to convince consumers through persuasive advertising techniques that their product is high-quality, when in fact it is not. By engaging in such behaviour, a trade mark owner could create monopoly rents by charging high-quality prices for low-quality products. It may take considerable time before consumers work this out. However, it is difficult to establish empirically whether this occurs or whether the firm is merely receiving a normal rate of return on investment.

Finally, by raising the costs of doing business in a market, trade marks and associated marketing activities may create a time and financial barrier to entry for other firms interested in entering this product market. While barriers to entry do not necessarily cause monopoly profits – as this depends on the intensity of competitive behaviour among incumbents – they are conducive to edging prices up above normal costs. Barriers to entry also act to discriminate against smaller entrepreneurs who wish to do business in a market. It may take considerable time to re-educate consumers about a new product if they have strong buying habits for incumbent products, regardless of the difference in

quality of the new and old products. Small entrepreneurs do not usually have the cash flow to "wait" for a shift in consumer buying patterns.

3.2. 4 Choosing the branding level

As mentioned above, companies do not need to register a trade mark either to establish a brand for marketing purposes or to designate a mark as an unregistered trade mark. While government fees for trade mark registration and renewal are small[14], there can be significant professional fees and considerable demands on company managerial resources if the application is complex or is opposed by interested parties.[15] Added to these costs is the uncertainty of protection if the registered mark is latter legally challenged.

Companies will accordingly only be expected to register a mark if there are clear benefits. The benefits of registering a trade mark are that it confers nationwide protection for marks that would only be protected locally under common law and it gives the owner a tradable asset for sale or licensing. It is commonly argued that registration makes litigation cheaper and easier in the event of infringement or imitation, as reputation does not need to be established once a trade mark has been registered. However, this hypothesis has not been tested empirically.

We expect, *a priori*, that companies will tend to register a trade mark for brands that are expected to attain significant value (due to the value of the information to consumers and the volume of sales), or products that are expected to eventually reach a national market.

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[14] At 2004, they are $150 to lodge an application and $300 to register for the first 10 years.

[15] There is no data on the average costs of professional fees for registering a mark. Anecdotally, fees in the tens of thousands of dollars are not uncommon.

3.3. 5 Trends in trade mark activity

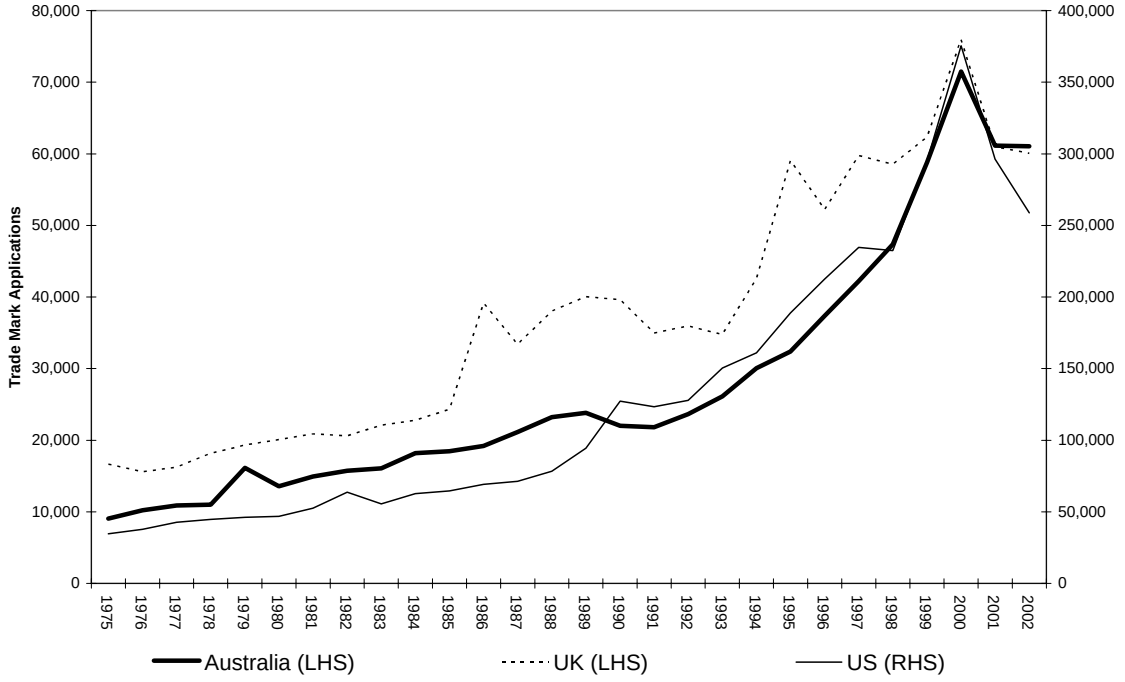
1.1.1 5.1 Global trends

Given the background to the costs and benefits of trademarking, it is interesting to turn to recent global trends.Figure 1 presents trade mark activity levels in Australia, the UK and the US using data on the number of trade mark class applications over the period 1975-2002, using data collected from the Annual Reports of the World Intellectual Property Organisation (WIPO). [16]

Despite some lumpiness in the growth across all three nations, the one outstanding feature of the graph is the consistency in both the level and growth rate of trademarking activity. In the United States and United Kingdom, for example, trade mark classes grew by approximately 8.7 and 5.8 per cent per annum respectively, while in Australia, trade mark classes grew by 6.9 per cent per annum.

[16] Note here that we refer to the sum of applications in each class and not the sum of single applications. The two measures of trade marking activity diverge in the 1990s when applicants were permitted to make a single application for more than one class. The implications for the data are discussed in the appendix.

Figure 1: Recent Trends in Global Trademarking Activity, 1975-2002



Source: WIPO data base.

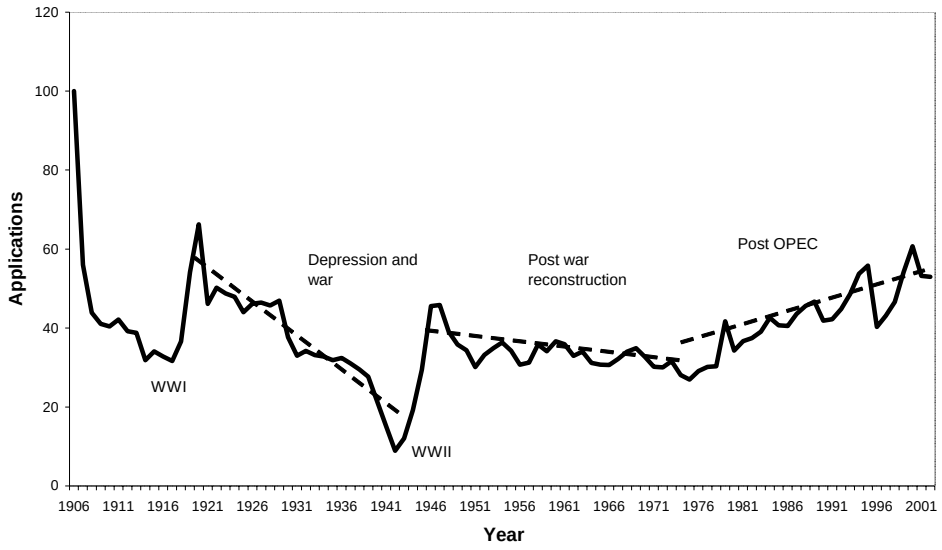
1.1.2 5.2 A closer look at Australia

Trade marks were first registered in Australia in 1906, and since that time the number of new applications has been increasing at an average rate of 3.4 per cent per annum. Figure 2 shows that there have been several distinct periods. During the Depression and WWII, the rate of trademarking fell relative to real GDP[17] by 5.9 per cent per annum – a fairly considerable rate of decline. During the subsequent post-war reconstruction phase, trademarking rates rose but not by the same extent as GDP and the index of trademarking to GDP still fell, but at the annual rate of 0.9 per cent. Most notably however, the strongest growth in trade mark activity relative to GDP has been in the post-OPEC epoch

[17] Real GDP is a measure of the volume of goods and services produced in an economy in a given period. It represents the sum of the market value of all goods and services, adjusted for inflation.

with average annual increases of 2.3 per cent. These periods have been punctuated by notable troughs during WWI and WWII and consequent catch-up periods immediately after.

Figure 2: Ratio of trade mark applications to real GDP, Australia, 1906 to 2002, index (1906=100)



Note: Data for GDP 1997 to 2002 has been based on the ratio of the Maddock-McLean data to ABS data for the overlapping period 1960-1996. This ratio was 1.3312.

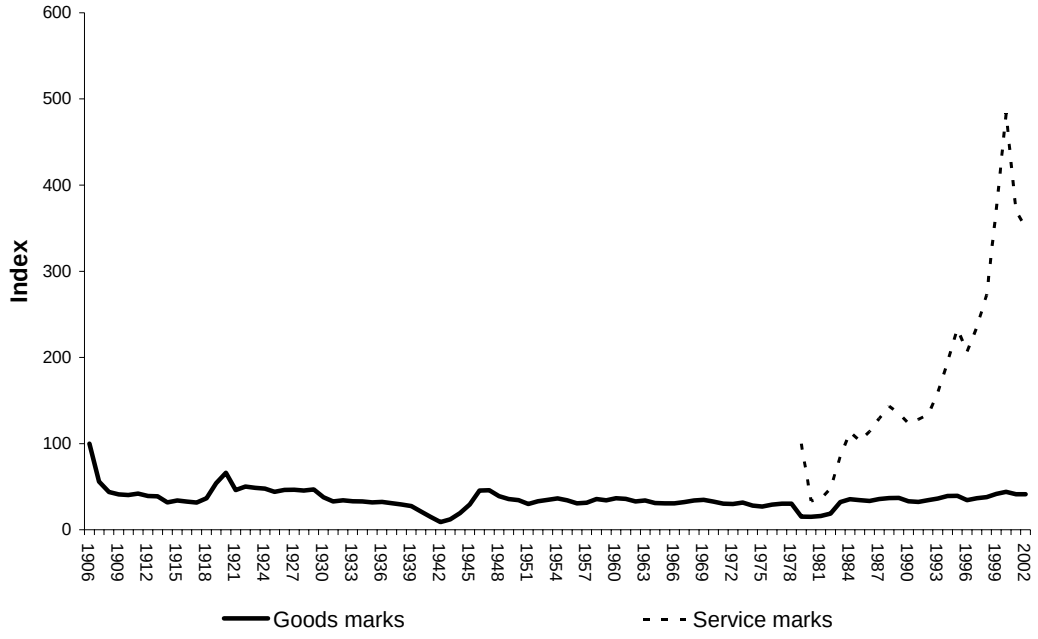
Source: IP Australia data base, ABS table 5204010.wks, Maddock, R., and McLean, I. W., (1987) The Australian Economy in the Long Run, Cambridge University Press, Statistical Appendix, Table 4.

Further differential trends become apparent if we separate trade marks into goods and services as shown in Figure 3. There has been slight negative growth in goods marks relative to GDP since 1906, and this probably mirrors the decline in the value of

production in the goods sectors. Service marks, which were introduced in 1979, have however enjoyed a strong rate of growth relative to GDP of 6.8 per cent per annum. Again, part of this will be due to the shift in GDP towards the service sectors.

A notable feature of the service mark trends is the bubble in trademarking activity that occurred around 2000, a feature common to other countries, such as France, the UK, the USA, New Zealand and Canada. According to Summers[18], this was due to the dotcom boom (and bust) which dominated the global business environment during 2000[19].

Figure 3: Ratio of goods and service mark applications to real GDP, Australia, 1906 to 2002, Goods mark index (1906=100), Service mark index (1979=100)



[18] Summers P, "Forecasting Trademark Applications: Modelling Demand for the Services of IP Australia" (2003), unpublished paper, Melbourne Institute of Applied Economic and Social Research, University of Melbourne, September.

[19] Although it is difficult to establish causality, Summers (2003) argues that the high-tech stock price movements affected trade mark registrations (rather than the reverse). Using a Granger causality test, Summers rejected the hypothesis that the NASDAQ is of no use in predicting trade registrations, while

Note: Data for GDP 1997 to 2002 has been based on the ratio of the Maddock-McLean data to ABS data for the overlapping period 1960-1996. This ratio was 1.3312. The division between goods and service marks for 1979 to 1984 has been based on the division of marks which were still current in 1985.

Source: IP Australia data base, ABS table 5204010.wks, Maddock, R., and McLean, I. W., (1987) The Australian Economy in the Long Run, Cambridge University Press, Statistical Appendix, Table 4.

Disaggregating the data according to the country of the applicant reveals that part of the recent growth in Australian trademarking relative to GDP may be due to off-shore companies targeting local markets. Since 1985, applications made by Australian-based companies has fallen from 64.9 to 54.6 per cent of applications in 2002. As shown in Figure 4, this has been in favour of foreign companies which has risen from 22.9 to 30.6 per cent of all applicants. The remainder, about 13 per cent, were estimated to be from Australian individuals. This trend is likely to be associated with the fall in transport and communication costs and heightened globalisation of the world economy. WIPO data indicates that there was no easily identifiable overall trend in the comparative trademarking rate for local vis-à-vis off-shore companies before the 1980s.

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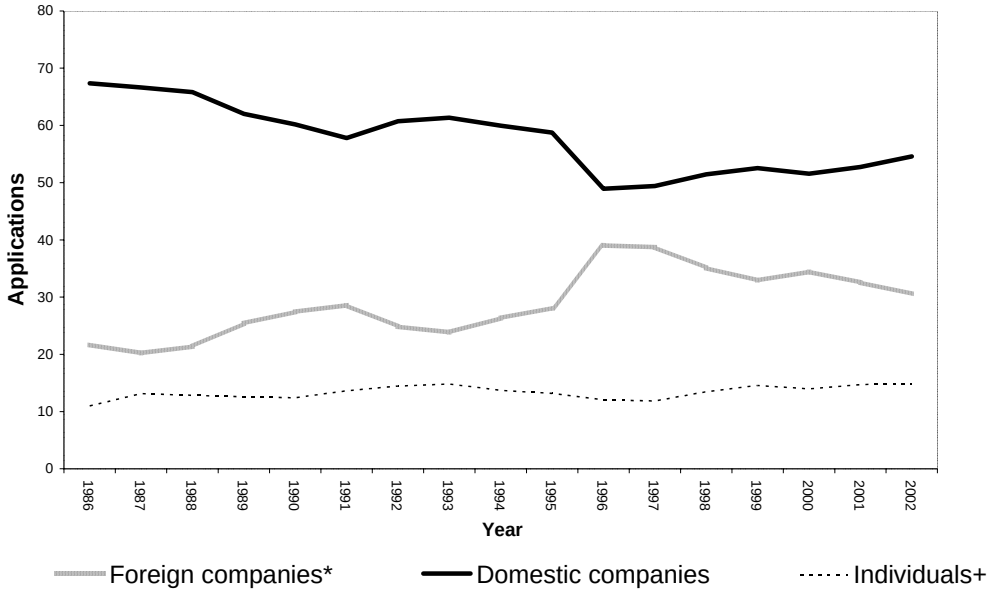
accepting the hypothesis that past values of trade mark registrations are of no use in predicting future high-tech stock prices.

Figure 4: Percentage share of trade mark applications by type of owner, Australia, 1985 to 2002.



Notes: * Foreign companies are those identified as having a foreign address. Included in the domestic count are foreign multi-national companies who give an Australian address.

† Individuals are identified as applicants whose first word begins with a recognised given name.

Source: IP Australia data base.

Table 1: Percentage annual rate of increase in trade mark applications by class, Australia, 1985 to 2002

	Class	*Domestic company application*	*All applications †*	*All applications 2002†*
		%	*%*	*No.*
1	Adhesives, preservatives, industrial chemicals	4.4	5.7	1144
2	Paints, varnishes, lacquers, dyes	4.0	5.8	382
3	Bleaching, cleaning preparations, perfumery, cosmetics	4.0	7.1	2013
4	Fuels, oils, greases, tallows, waxes	5.8	6.9	278
5	Pharmaceutical products, herbicides, pesticides	5.3	7.8	2866
6	Cast and rolled metal products	4.2	6.1	937
7	Machines, machine tools	1.4	5.6	1010
8	Cutlery, side arms, hand tools, instruments	2.5	5.2	373
9	Scientific and commercial apparatus or instruments	6.7	9.8	6206
10	Surgical, medical, dental instruments and apparatus	1.6	8.3	1017
11	Lighting, heating, cooling, ventilating, water supply	4.6	6.8	1170
12	Vehicles, ships, aircraft	2.9	6.5	1121
13	Firearms, ammunition, explosives	2.5	5.9	53
14	Jewellery, clocks, precious metals and stones	4.7	8.2	739
15	Musical instruments	0.6	2.3	71
16	Paper and printed matter, stationery	5.7	7.6	3281
17	Packing, stopping and insulating materials	1.9	4.1	411
18	Leather goods	5.2	8.1	975
19	Building materials, natural and artificial masonry	3.8	5.3	795
20	Furniture etc.	3.9	5.9	951
21	Domestic utensils, glassware, brushes, sponges, etc.	4.9	6.8	845
22	Rope, string, cordage, tents and tarpaulins	4.5	5.4	174
23	Yarns, threads	-3.1	-1.0	62
24	Piece goods, linen and textiles not included elsewhere	5.0	6.4	683

25	Clothing, including footwear and headgear	3.1	4.9	4281
26	Haberdashery	4.1	5.7	174
27	Carpets and floor coverings	4.0	5.9	210
28	Articles for sport or amusement, armaments	3.4	5.8	1873
29	Meat, fish, poultry, dairy products, edible fats, preserves	4.8	6.3	1471
30	Coffee, tea, cocoa, sugar, spices, flour, cereal products	6.1	7.6	1963
31	Fresh fruits and vegetables, animal products	7.5	8.4	990
32	Beer, ale, porter, mineral and aerated waters	5.6	7.8	1022
33	Wines, spirits, liqueurs	9.6	10.5	1722
34	Tobacco, matches, other smokers' articles	-1.3	5.9	222
35*	Advertising and business services	15.7	17.7	5100
36*	Insurance and financial services	11.1	13.7	2552
37*	Construction and repair services	10.3	11.8	1530
38*	Communication services	13.3	16.7	1377
39*	Transport and storage services	10.2	12.2	973
40*	Material treatment services	10.9	13.4	407
41*	Educational and entertainment services	14.5	16.1	4567
42*	Miscellaneous services not described in classes 35-41	9.9	12.1	3344
	Total (including classes 43 to 45)	**3.8**	**5.3**	**63906**

Note: † Includes both domestic and foreign applications. * 1979 to 2002 for classes 35 to 42.

Source: IP Australia data base.

Aside from these general trends, there has been considerable variation in the growth of trade mark applications across classes (see Table 1) and industries (see Table 2). Most notably, Table 1 indicates that the classes created since 1979 (classes 35 to 42), which primarily relate to service sector activities, have experienced the strongest demand.[20] Within the goods sector, the fastest growing classes since 1985 have been alcoholic drinks and sophisticated apparatus and instruments.

Table 2: Annual rate of growth of domestic company[(a)] trade mark applications by industry, Australia[(b)], 1985-2002

	Industry[(c)]	*Annual rate of growth 1985-2002*	*Applications 2002 Est. No.[(d)]*
A	Agriculture, Forestry and Fishing	6.0	984
B	Mining	2.6	187
C	Manufacturing	5.3	12710
D	Electricity, Gas and Water Supply	8.2	127
E	Construction	-0.9	464
F	Wholesale Trade	8.0	11803
G	Retail Trade	5.6	6464
H	Accommodation, Cafes and Restaurants	0.5	409
I	Transport and Storage	7.9	663
J	Communication Services	29.8	451
K	Finance and Insurance	6.0	1433
L	Property and Business Services	4.9	5332
M	Government Administration and Defence	2.6	567
N	Education	10.5	521
O	Health and Community Services	4.5	826

[20] The newest classes, 43 to 45, are too recent for trend analysis.

P	Cultural and Recreational Services	6.4	1334
Q	Personal and Other Services	9.2	1168

Notes: (a) Applicants were classified as an individual if the first word in the applicant name began with a recognised given name. The remainder were deemed companies.

(b) 'Australian' means the given address of the applicant was Australia.

(c) Companies can be in several industries.

(d) Only 38.6 per cent of company applicants were matched to Australia OnDisc in 2002. The actual number of matched in 2002 have been divided by 0.386 to obtain an estimate.

Source: IP Australia data base.

The growth in service marks is also reflected in the data on inter-industry variation in trade mark applications presented in Table 2. Industry classifications were compiled by matching domestic trade mark applications across to a company telephone directories from the 'Yellow Pages' (Australia OnDisc)[21]. These directories provide multiple industry classifications that are not mutually exclusive.[22] Analysis of this data indicates that over the period 1985-2002, there has been a pronounced difference in growth rates across industries. Two features stand out about the inter-industry differentials. First, the service industries – such as communication, education and personal services – have experienced particularly strong growth in trade mark applications. Communications services increased at the phenomenal rate of 29.8 per cent per annum, although it was starting from a low level of activity since the total number of applications in 2002 was only 451. Secondly, industries that have been subject to considerable economic

[21] Australia OnDisc is only available for 1992 to 2002. Trade mark applicants prior to 1992 were matched on the 1992 listing. Surprisingly, there was no trend in the percentage of domestic company trade mark applicants who were matched to telephone listing over this period. The average match rate was 40.0 per cent with a standard deviation of 6.8.

deregulation and re-structuring over this period – such as electricity, gas and water; and education – also seem to have experienced stronger growth than most other industries.

3.4. 6 Evidence on the determinants of increased trade mark activity

There are a number of plausible theories regarding the observed patterns in trademarking activity. These can be broadly grouped according to whether the effect is exogenous or endogenous to the trade mark system.

1.1.3 6.1 Exogenous economic factors

Companies apply for a trade mark when they want to launch a new product, update the image on existing products or launch a new offspring company. One potential cause of the economy wide changes in trademarking may be sourced to the growth in real income per capita. It is well-known that as the population becomes wealthier, there is a demand-driven effect that causes a shift in consumption preferences toward both higher quality products and greater product variety. Firms respond to these changes through product differentiation – producing a wider array of products with different quality characteristics – and by increasing the flow of novel, improved or re-fashioned products. Trademarking is one way the firm can signal to consumers the distinction between its new and its existing products and those of its rivals. However, part of the growth in trademarking may also be due to the natural growth in production, parallel to population increases, and the resultant growth in the number of products and companies in the economy.

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[22] In particular, a very high proportion of companies which produce goods were also classified as operating in the wholesale trade industry.

To test for the effects of rising standard of living *per se* (as distinct from changes to production levels) on the level of trademarking activity by locally situated companies, we estimated a random effects regression model using panel data with industry as the homogeneous unit of analysis. Two independent variables are used: industry value added, to capture the effects of the change in production levels (supply effect); and real GDP per capita, to capture the effects of increased incomes among Australian households (demand effect). Both of these variables and the dependent variable are estimated in natural logarithms. Table 3, which presents the results from this analysis, shows that trademarking activity responds positively but not in full proportion to changes in production in each industry (the coefficient is 0.497 suggesting that a 10 per cent increase in production is associated with a 4.97 per cent increase in industry trade mark applications). However, it is also highly responsive to average household income (real GDP per capita). The coefficient for the latter suggests that an approximate 10 per cent increase in household income is associated with a 20 per cent rise in trade mark applications across all industries.

These findings are consistent with the hypothesis that the rise in trademarking (relative to real GDP) has been caused by the demand side shift in consumer demand for more product variety and quality. The less responsive rate of trademarking relative to production levels may reveal an economies of scale with respect to the use of brands for production. Trademarking may be associated with more varieties of goods and services, not higher levels of production of each variety.

Table 3: Random effects regression of the determinants of trademarking, Australia, 1975 to 2002

Independent variable	*Coefficient*		*z*
Ln (industry value added)	0.498	†	1.72
Ln (GDP per capita)	2.000	**	3.84
Cons	-19.550	**	-6.90
17 groups, 18 years			

Random-effects GLS regression

R-sq:	within	= 0.4056	Obs per group:	min	= 9
	between	= 0.3114		average	= 17.4
	overall	= 0.2413		max	= 18

Further evidence that trademarking is associated at the company level with the launch of new products and company innovation can be found in an analysis of company based data. In a separate paper[23] we present results from an analysis of 2450 large Australian companies for the period 1989 to 2002 which found that the number of trade mark applications was significantly related to patent applications, R&D expenditure, industry classification and whether they operate in the for-profit sector.

Allegrezza and Guard-Rauchs[24] present similar evidence on the relationship between trade marks and innovation in the Benelux nations. Using data collected from a sample of 1611 telephone survey questionnaires of firms before and after an advertising campaign

[23] Jensen and Webster (2004) "Trade marking and competition", IPRIA working paper, University of Melbourne.

[24] Allegrezza S and Guard-Rauchs A, "The Determinants of Trademark Deposits: An Econometric Investigation" (1999) Economie Appliquee 52(2), 51-68.

designed to raise awareness about the benefits of trade mark registration, they were able to determine what factors affect a firm's decision to register a trade mark. Their results indicate that R&D intensity (which is a proxy for product innovation) and the possibility of product imitation are both important determinants of trademarking. Greenhalgh, Longland and Bosworth (2003) also find a positive correlation between patenting and trademarking at a company level over the period 1986 to 2000. [25]

In contrast to these results, Loundes and Rogers[26] find that the relationship between trademarking and R&D expenditure in a sample of 846 Australian firms is weak and negative. They argue that one possible explanation of this seemingly counter-intuitive result relates to the timing of investment decision: firms invest in R&D in the early stages of innovation (by definition), whereas they typically invest in trade mark registration at the end of the innovation cycle, once a product has been proven in the market.

Hand-in-hand with the motive to use trade marks to launch new products and companies is the hypothesis that trade marks assist the firm to appropriate the related pecuniary benefits. Two recent surveys of businesses conducted by the Intellectual Property Research Institute of Australia (IPRIA) provide some support for this hypothesis[27]. In these surveys, 430 large Australian companies were asked to rate the effectiveness of different methods – including secrecy, patents and control over distribution channels – on

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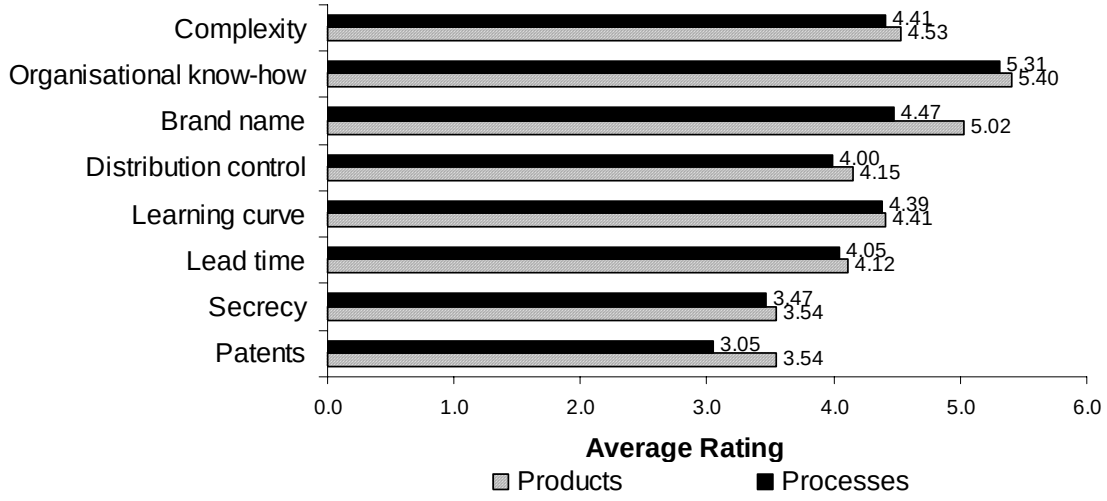
[25] Greenhalgh C, Longland M and Bosworth D, "Trends and Distribution of Intellectual Property: UK and European Patents and UK Trade and Service Marks 1986 - 2000" (2003), mimeo, Oxford Intellectual Property Research Centre.

[26] Loundes J and Rogers M, "The Rise of Trade Marking in Australia in the 1990s" (2003), Melbourne Institute of Applied Economic and Social Research Working Paper 8/03, University of Melbourne, March.

[27] Intellectual Property Research Institute of Australia (2001, 2002), *Business Surveys*, University of Melbourne.

a Likert scale of 1 to 7 in protecting competitive advantage in both products and processes. The results from these surveys are presented in Figure 5. For both products and processes, "brand name" was the second most important means of protecting competitive advantage behind organizational knowledge. The mean rating by survey respondents for brand name was 5.02 for products and 4.47 for processes. This suggests that companies believe that trade marks are an effective tool for capturing the wealth created by innovation.

Figure 5: Effectiveness of Different Methods in Protecting Competitive Advantage



If we accept that trademarking is associated with product innovation, then a comparison of the growth of trademarking by Australian companies to the growth of all trademarking can be an indicator of emerging areas of comparative advantage from a more innovative domestic industry vis-à-vis foreign competitors.[28] Table 1 implies that Australia's strongest areas are (in order) Wines, spirits, liqueurs; Educational and entertainment

[28] We expect that the level of trade marking will indicate either the size of the domestic market and importance of branding; the overall growth of trade marking should indicate changes to the size of domestic the market and relevance of branding and changes to the ease of transferring goods and services overseas.

service; Fresh fruits and vegetables, animal products; Advertising and business services; Construction and repair services and Fuels, oils, greases, tallows, waxes. The areas that declined relative to foreign applications were Yarns and threads; Tobacco, matches, other smokers' articles; Surgical, medical, dental instruments and apparatus; Musical instruments and Machines, machine tools. A higher growth rate in foreign relative to local trademarking may also, or instead, reflect lower transport and communication costs that make it easier for overseas companies to penetrate the local market.

1.1.4 6.2 Endogenous factors

Changes to the regulations which affect the costs and benefits of trademarking can also affect the rate at which companies and individuals apply for trade marks. We have already discussed the effects which the introduction of multi-class applications had on the application rate. However, there have been two other major changes to the legislation which may have increased the level of trademarking activity. The first is the extension of registration to service marks (classes 35 to 42) in 1979 which could have increased firms' propensity to trade mark. Not only was this an extension to companies that could not have otherwise trade marked, but it is possible that services benefit more from trademarking than goods since services have numerous quality characteristics that are unobservable. Since trade marks provide signals about unobservable quality characteristics, they may be more intensively used for services than for goods. Therefore, the post-industrial revolution – the phenomenon that has resulted in services contributing a greater proportion to GDP than manufacturing – could have caused an increase in trademarking activity.

The data provide some support for this hypothesis. Since 1979, service marks have increased at an annual rate of 9.4 per cent while comparative rate for goods was 3.8 per cent. Prior to 1979, the trend rate of growth for goods was 2.5 per cent. Looking at the data on the trends in trademarking activity by industry sector presented in Table 2, it is apparent that the industries driving the increase in trademarking activity are predominantly service-based: communications, personal services and education in particular. In general, the growth in service mark registration experienced in countries such as the US, the UK and Australia has been much stronger than that of trade marks.

A second endogenous factor that may have affected the level of trade mark activity is the legislative change included in the *Trade Marks Act 1995* that permitted other product attributes – such as smell, shape, and colour – to be eligible for registration as part of a trade mark, as long as they satisfy the 'distinctiveness' criterion. This seemingly opens up the door for an increase in the level of trade mark activity since it increases the pool of business marks that are potentially eligible for trade mark registration. Preliminary research on this issue conducted by IPRIA, however, suggests that trade marks applications have not permanently increased as a result of the *Trade Marks Act 1995*. The acceleration in applications occurred earlier in the 1980s.

The final endogenous factor that may have affected trademarking activity is the Madrid Protocol, which Australia signed in July 2001. The intent of the Protocol is to improve the efficiency of international trade mark registrations by lowering the cost and speeding up the process. This is achieved because the Protocol allows applications to be filed in one national trade mark office, in one language, for many countries. Previously, applications had to be lodged in each individual national trade mark office. At this stage,

data on the effects of the Madrid Protocol are still being collected, and it is too early to determine its effects on Australian trademarking activity.

3.5. 7 Conclusions

To conclude, trademarking activity, which has been increasing about 2.3 per cent per annum faster that the rate of GDP since 1975, appears to be associated with the globalisation of the economy, the growth of household income and the extension of trademarking to the service sector. On a company basis, trademarking appears to be also linked to measures of innovation and product design. These may have been driven by the series of microeconomic reforms since that time, which have increased the influx of companies in and out of markets and spurred the rate of introduction of new products.

1.1.5 Appendix Measures of trade mark activity

For the purposes of analysing recent trends in trade mark activity, it is important to define how trade mark activity is measured. In this paper, both the number of new applications and the number of new applications in each class are used as a proxy for trade mark activity. Each measure embodies a different aspect of the market for branding intentions and both series include a discontinuity at 1996. It is not clear which measure is unambiguously preferred. Prior to 1996, companies and individuals in Australia wishing to claim exclusive rights over a particular trade mark in several classes were required to lodge multiple applications. However, this changed with the introduction of the *Trade Marks Act 1995* which permitted single applications for multiple classes. While this (and other parallel changes) streamlined the administrative burden for companies, we would expect that there will be a once-off reduction in the number of trade mark applications as businesses are no longer required to lodge separate applications for the same mark for separate classes.

However, estimating the number of duplicated applications is not straight forward. It is not simply the number of multiple applications by the same entity in the same year as these remained common post-1996. Table 4, which presents a summary of the number of multiple applications by the same company before and after 1996, show a 10 per cent drop at the time of the *Act*. On this basis, any time series analysis of the application data should adjust upwards the data since 1996 by a factor of 1.11.

Table 4: Percentage of trade mark applications made by applicants who had more than one application in that year, Australia, 1990 to 2002.

Period	*One application in the given year*	*More than one application in the given year*	*Total*
1990 – 1995	31.3	68.7	100.0
1996 – 2002	41.4	58.6	100.0

Source: IP Australia data base.

Using the data series on new applications in each class does not appear to be a more consistent intertemporal measure of trademarking activity as there are grounds for believing that the series containing the number of classes has also been affected. By making it easier and cheaper to apply for multiple classes[29], the *Trade Marks Act 1995* appears to have caused a steady growth in the average number of classes per application since 1996 (see Table 5).

Accordingly, both the trade mark application and class data sets require some numeric or interpretative adjustment to correct for the discontinuity at 1996. Since neither indicator is an unambiguously superior measure of branding and marketing intentions, both are used in this paper, depending on data availability.

Table 5: Mean number of classes per trade mark application, Australia, 1996 to 2002

Year	*Mean number of classes per application*

[29] While the government fee per class is constant, the trade mark attorney fees generally relate to the number of applications not classes.

1996	1.484
1997	1.524
1998	1.533
1999	1.593
2000	1.656
2001	1.629
2002	1.600

Source: IP Australia data base.