Centre for Transformative Innovation

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SWINBURNE UNIVERSITY OF TECHNOLOGY

Trade in Ideas:

The Cross Flow of Ideas between Australia and the Rest of the World

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HOW IDEAS ARE TRADED

An idea has three geographic dimensions: where it is created; where it is owned; and where it is used. Cross-national trade in ideas occurs whenever the creation, ownership and use of a particular idea takes place in more than one country.

Ideas can be embodied in goods and people, or alternatively in patents, blueprints or other written material. It is common for a particular idea to be embodied in several forms. For example, the codifiable part of a new product idea may be captured by a patent application, the tacit (uncodifed) part will be retained in the minds of the inventor, and the final incarnation of the idea will be revealed in the good itself.

This report seeks to document the trade in *recent* ideas. That is, ideas that are traded at some measurable price because they have not yet fallen into the 'public domain'. In contrast, the invention of the wheel remains a good and valuable idea, but the idea is free and not traded for a price. Trade in recently created ideas often leave a paper trail such as investment flows (e.g., R&D spending) or Intellectual Property (IP) registrations. The three main channels of trade of ideas are summarised below.

- **Ownership**: when firms can buy technology from inventors (or owners) abroad and we observe international R&D investment, patent assignments or investment in high technology companies.
- **Licence for use**: user can 'rent' technology from an owner abroad which is observed as international payments of royalty and license fees.
- **Trade in goods embodying new ideas**: whenever the user is located in a different country from the manufacturer, we observe payments for 'high tech' goods.

Existing data collations are not perfect. They do not allow us to record all these aspects of cross-national trade. For example, while we can measure foreign investment flows with accuracy, we do not know which portion of these is associated with the purchase of 'new idea'-intensive companies. While we can measure payments for imported and exported goods, it is not simple to measure the share of value attributable to embodied new ideas.[1] While we can measure the cross-flow of people, measuring the extent to which they are a catalyst for new ideas is not straightforward.

Accordingly, in this report we consider only cross-border flows of R&D, IP, patent assignment, and royalties and licence fees

[1] Statistical agencies, including the ABS, collect trade data by commodity group which can be aggregated into 'high tech' and 'low tech' groups. Such measures can be indicative, there are several substantive limitations to this approach. The first relates to component trade, the phenomenon whereby firms import components in high tech commodity groups perform 'low tech' assembly using these components and re-export. Such exports would be counted as 'high tech' despite none of the technology being created in the exporting country. Second. Most commodity groups include a mix of high and low tech so the accuracy depends on the level of granulation. Third, identifying that certain commodities embody some threshold of technology does not identify the share of the value of traded goods which should be attributed to this technology (that is, the royalty mark-up).

At a glance

This snapshot of Australia's 'trade in ideas' finds that:

- Australia accrues a net deficit in the technology balance of payments: Australians spend more importing foreign ideas than we receive exporting ideas owned by Australian organisations.
    - The single biggest driver of our technology balance of payments deficit is royalties and licence fees for software, trademarks, franchises and music.
- The sectoral composition of trade in ideas largely reflects sectoral patterns of R&D. That is, broadly speaking larger the share of R&D the larger the magnitude of trade flows.
- Most trade in ideas is with OECD countries, and the technology balance of payments is mostly negative.
- Australia accrues a positive technology balance of payments with Non-OECD Asia (i.e. Asia excluding Japan and South Korea).
- Australia is a net exporter of patented inventions due to foreign firm's offshoring R&D to Australia. National scientific capacity, underpinned by our higher education sector provides some explanation of this.
- The implications for community well-being arising out of importing or exporting technology is not straightforward; it is not a case of 'deficits=bad' 'surplus = good'. A deficit may mean Australians are very good at absorbing ideas from the rest of the world which is clearly better than trying to invent everything themselves.

1. Trade in ideas

This report provides a snapshot of available indicators of Australia's 'trade in ideas'. Trade in ideas includes royalties, licence fees, R&D offshoring and purchases of high technology companies. Despite the ever increasing importance of intellectual property and intangible capital in global economic output, international scholarship into the welfare implications of trade in ideas is in its infancy. The contribution of this report is to summarise available indicators of Australia's trade in ideas and to outline some of the factors that may be driving them. We emphasise that the implications for community well-being arising out of importing or exporting technology is not straightforward and these issues are not canvased in any detail in this report.

The terms 'export of ideas', and 'import of ideas', bundles different types of transactions. An export can occur when an idea is created in Australia at the request of an overseas organisation who then owns the idea. Alternatively, an export might occur when an idea is owned by an Australian resident but then licensed to overseas users. Both transactions result in a payment into Australia. However, these two examples differ according to who has taken the risk investing in the creation of the idea, and therefore, who subsequently owns it.

This balance of trade is composed of two factors: (a) how well Australian ideas are spread abroad (exports) minus how well Australians learn and imitate from foreign ideas (imports) and (b) whether there are payments associated with these flows. A negative balance of trade may indicate that Australians have an excellent capacity to absorb ideas and technologies from overseas (a good thing) or that they are poor at extracting payments for ideas they create (possibly a bad thing).

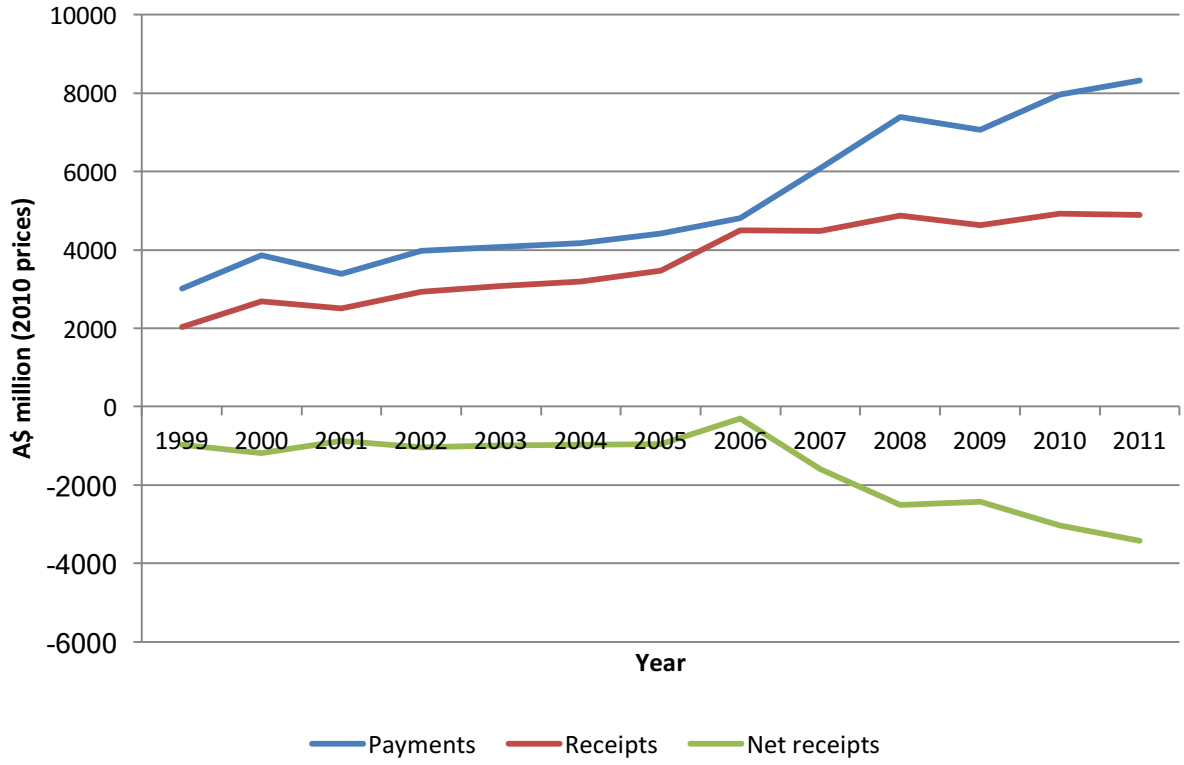
In this report we begin by providing an overview of the aggregate export and import payments for new ideas. The aggregate data are primarily descriptive, since they reflect underlying movements in a range of factors whose interpretations are not necessarily consistent. Section 3 provide a more detailed analysis of underlying components of aggregate trade and discuss factors which appear to be driving these.

2. Technology receipts and payments

Figure 1 below shows the aggregated technology balance of payments position for Australia over the period 1999-2011 and comprises both the cross-border trade in assets and the right to use ideas. This includes the sums of money paid and received for the acquisition and use of patents; licences; trademarks; designs; know-how and closely related technical services (including technical assistance); and industrial R&D carried out abroad during the period 1999 to 2011.

Since 1999, payments by Australians to acquire and use the technology of overseas entities have outpaced receipts from the sale and licensing of intellectual property and related technical services to overseas entities. Payments and receipts moved broadly in tandem from 1999 to 2006, but diverged sharply thereafter. Technology payments abroad increased at an annual rate of 8.9 per cent from 1999 to 2011, whereas receipts rose by 7.6 per cent per annum. The overall net balance of payments deficit in technology fell from $976 million in 1999 to a low of $306 million in 2006, before increasing to $3.4 billion in 2011.

Figure 1: Payments have outpaced receipts over the period leading to a widening deficit. Cross-border technology receipts and payments, A$ million (2010 prices), 1999–2011



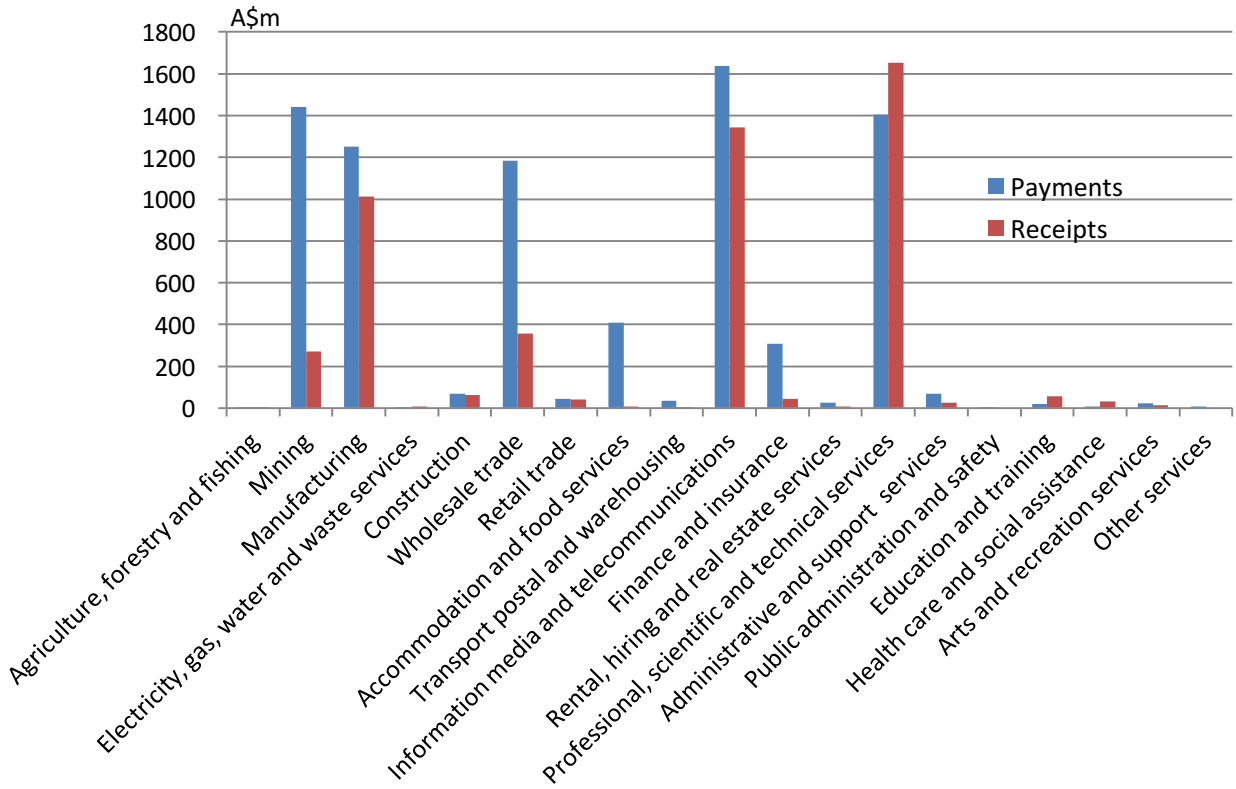
Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker

Figure 2 provides a snapshot of cross-border technology payments and receipts broken down by industry sector. Sectoral patterns in cross-border technology payments closely resemble patterns in R&D investment. That is sectors which account for a greater share of aggregate R&D account for a commensurately greater share of exports and imports of technology payments. This suggests that these are driven by a common factor relating to each sector's technological intensity, which to some extent reflects the rate of technological change in each sector.

Just five of the 19 industries accounted for the great bulk of cross-border payments and receipts. These comprise: Information media and telecommunications; Professional, scientific and technical services; Manufacturing; Mining; and Wholesale trade. Together these five industries accounted for 87.1 per cent of total payments abroad for the acquisition and use of technology, and 93.8 per cent of total receipts from the sale and lease of technology, in 2010. These industries are also amongst the biggest spenders on R&D: Manufacturing, Mining and Professional scientific and technical services together accounted for two-thirds of total business expenditure on R&D in 2009–10.[2] In two industries (Accommodation and food services, and Finance and insurance) payments for the purchase of technology were moderately high at around $300 to $400 million but receipts were minimal. Meanwhile in 12 industries cross-border receipts and payments for technology were minimal – such that neither payments nor receipts exceeded $100 million in 2010.

[2] ABS Cat. 8104 *Research and Experimental Development, Businesses, Australia*.

Figure 2: Technology payments and receipts by industry, A$ million (2010 prices), 2010



Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

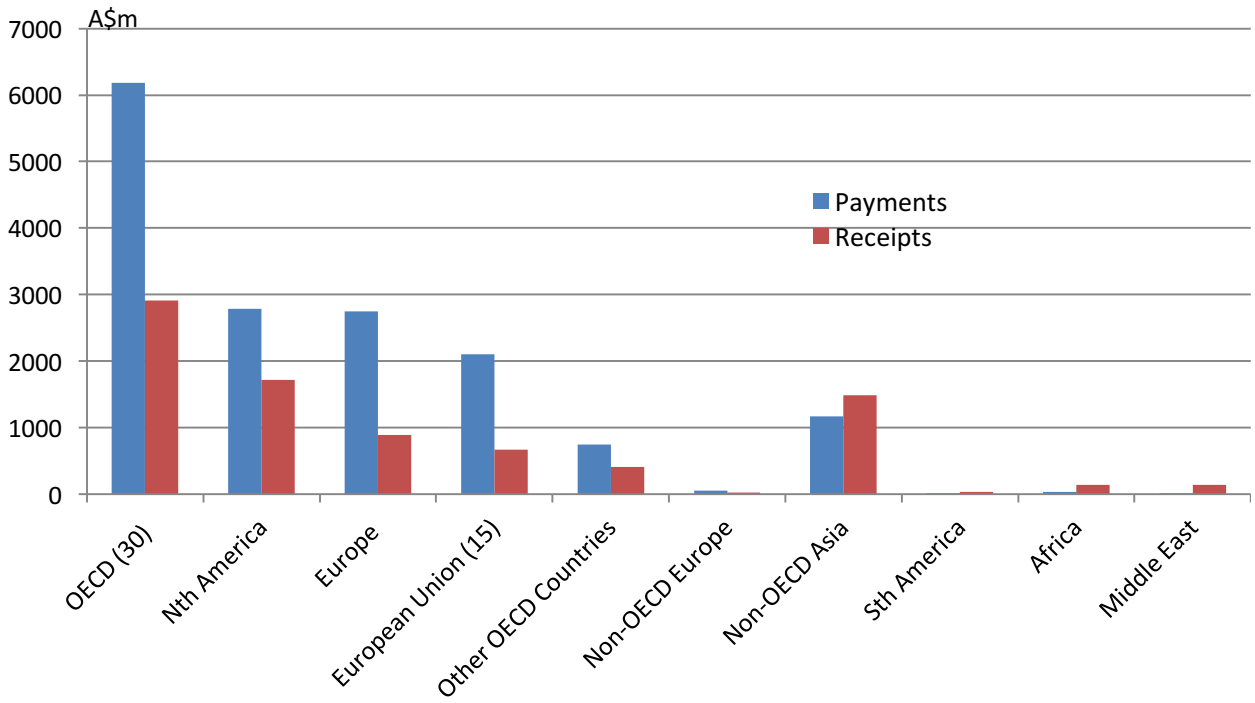
The data also show that there have been hefty increases in technology payments by some of these industries over recent years. For example, Mining sector payments rose at an annual rate of 76.1 per cent between 2006 and 2010, and Information media and telecommunication payments increased by 88.4 per cent per annum. Growth in payments abroad by the Manufacturing and Wholesale trade industries were more modest, at 3.2 and 8.4 per cent respectively during the period, while payments abroad by the Professional scientific and technical services sector actually fell during the period.[3] Again, changes in the contribution of each sector is reasonably similar to changes in the contribution of each sector to Australia's aggregate business expenditure on R&D.[4] For example, the contribution of the mining sector to total business expenditure on R&D in Australia increased from 8 per cent in 2005-06 to over 20 per cent in 2010-11. The sharp rise in mining technology payments abroad during this period is almost certainly explained by the boom in mining investment in Australia which drove Australia's terms of trade to record highs. The mining boom was driven by an escalation in global energy and resources prices associated with increased Chinese demand for iron ore and coal which together accounted for 42 per cent of Australia's total goods exports in 2011.[5]

The period from 2006 to 2010 was also one of rapid innovation and development in information and communications technology and associated investment.[6] These developments may partly explain the jump in technology payments abroad, as well as the high level of receipts by the Information/telecommunications industries. The Information media and telecommunications, Professional, scientific and technical, and the

[3] These increases are estimated from background ABS data and are not evident from the figures presented here.
[4] The reader is referred to ABS Cat. 8104 *Research and Experimental Development, Businesses, Australia* for details on this point.
[5] ABS Composition of Trade, 2011
6 See IBM – Melbourne Institute Innovation Index of Australian Industry (2010) Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Manufacturing industries each received between $1 billion and $1.7 billion from the sale or leasing of technology abroad in 2010.

Figure 3: Technology payments and receipts by partner region, A$ million, 2010



Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

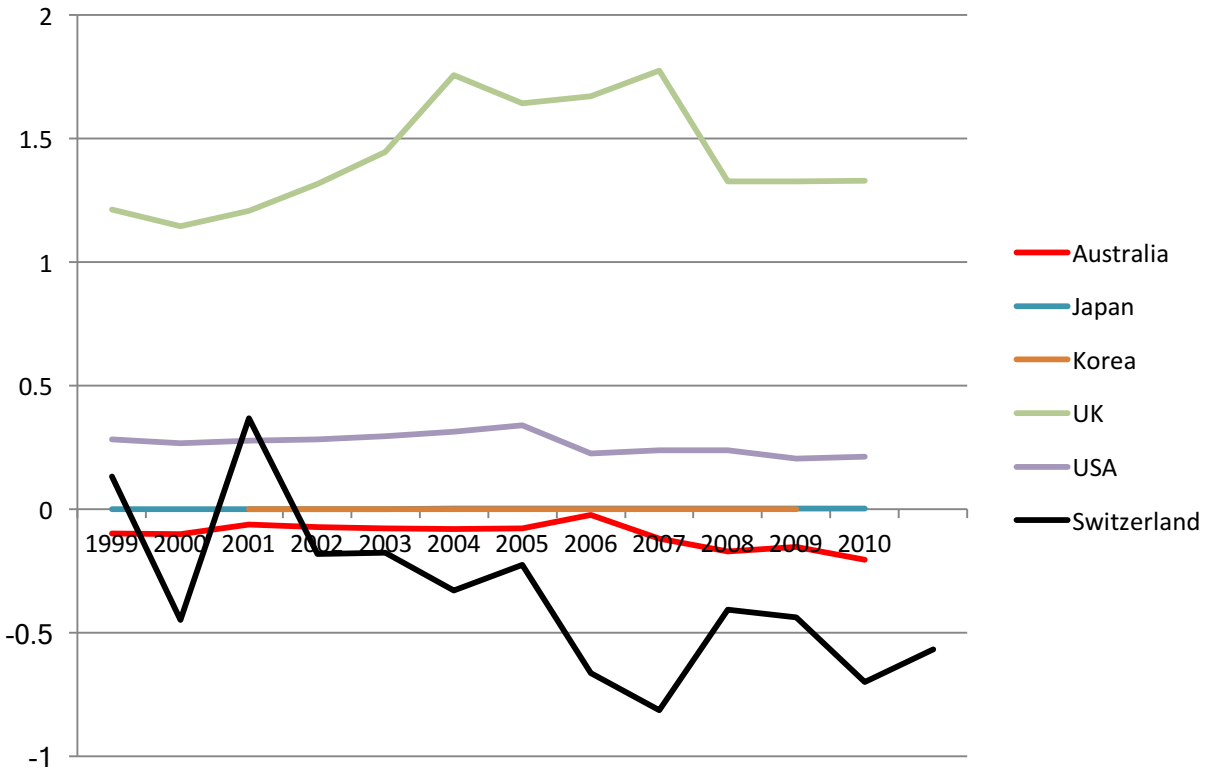
Figure 3 presents the source of Australia's technology payments and receipts. The OECD group of countries accounted for the biggest 'regional' share of receipts and payments in 2010, at 78 per cent and 59 per cent respectively. Given the established link between a country's spending on technology and its overall economic development and performance over time, it is not surprising that Australia's technology engagement with fellow-OECD developed countries is significant. North America (mostly the United States) and Europe accounted for the major part (close to 90 per cent in each case) of the OECD's share of Australia's technology receipts and payments. The other significant region is Non-OECD Asia (i.e. Asia excluding Japan and South Korea) where Australia had a positive technology 'balance of payments'.

It is also interesting to compare Australia to other developed nations. The two panels of Figure 4 illustrate the *net* technology receipts as a per cent of GDP for Australia and comparison countries. Net technology receipts include each country's cross-border acquisition and use of patents, trademarks, designs, know-how and closely related technical services. A country's net position can be thought of as its 'balance of payments' in technology. Some of the exports will be for contracted services or IP sales and will be in the form of royalty payments for the use of Australian owned technologies (and the reverse for imports).

According to Figure 4, Australia has maintained a small net technology deficit across the entire period from 1999 to 2010. Switzerland has run a net deficit in technology trade in almost every year of the period. As will be illustrated in the next section, despite apparent similarities, Australia and Switzerland appear to be driven by very different factors. Australia runs a technology deficit because of high royalty and license fee payments whereas Switzerland's deficit is driven by heavy investment in R&D abroad resulting in the transfer of patented technology to Swiss firms.

These data show that the United Kingdom and Austria have a positive technology balance of payments. As will be shown below, these countries are also net exporters of R&D services. The net positions of Japan and South Korea have been in near balance across the period which is more reflective of their relatively 'closed' technology trade, rather than a perfect balancing out of receipts and payments.

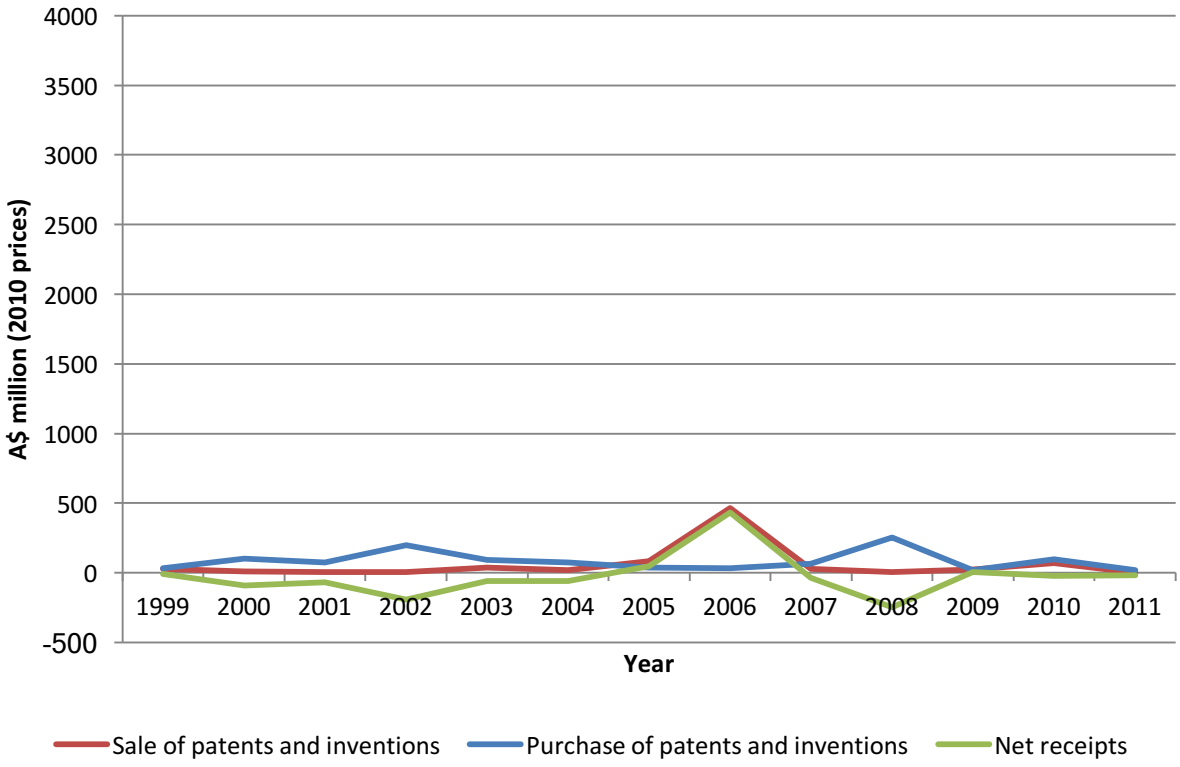
Figure 4: Net technology receipts as a % of GDP, Australia and comparator countries, 1999–2010



Source: SourceOECD, MSTI Main Science and Technology Indicators, data extracted on 07 Mar 2013 03:54 UTC (GMT) from OECD iLibrary

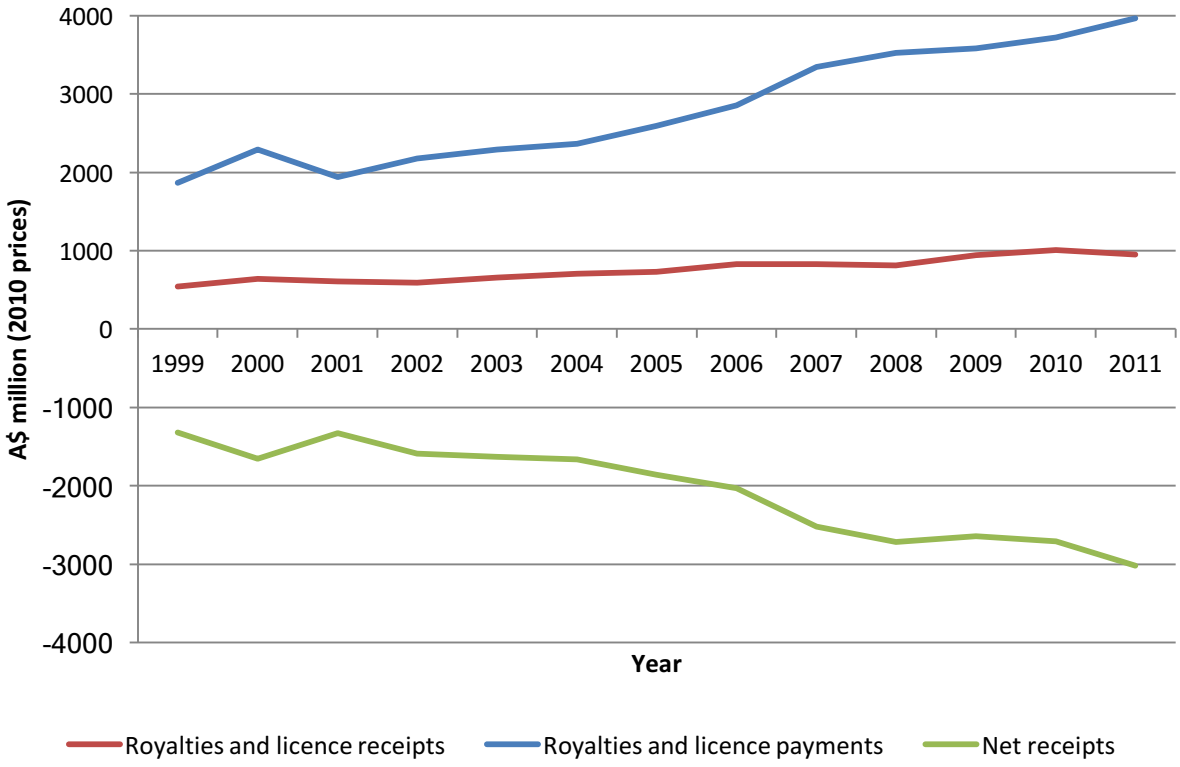
As mentioned previously, technology balance of payments comprise a number of underlying components. These components are illustrated in Figure 5. This shows that receipts are dominated by Technology-related services which accounted for just over 70 per cent of total technology-related receipts in 2011. Receipts relating to this item increased strongly at an annual rate of 9.0 per cent from 1999 to 2011. . Cross-border receipts related to Royalties and licence fees and Overseas-funded R&D in Australia also rose steadily between 1999 and 2011, at an annual rate of 4.7 and 6.6 per cent respectively. There has been virtually no growth in the sale of patents and inventions, despite the occasional upward 'blip', notably in 2006.

Figure 5a: Technology receipts, A$ million (2010 prices), 1999–2011, Patents and inventions



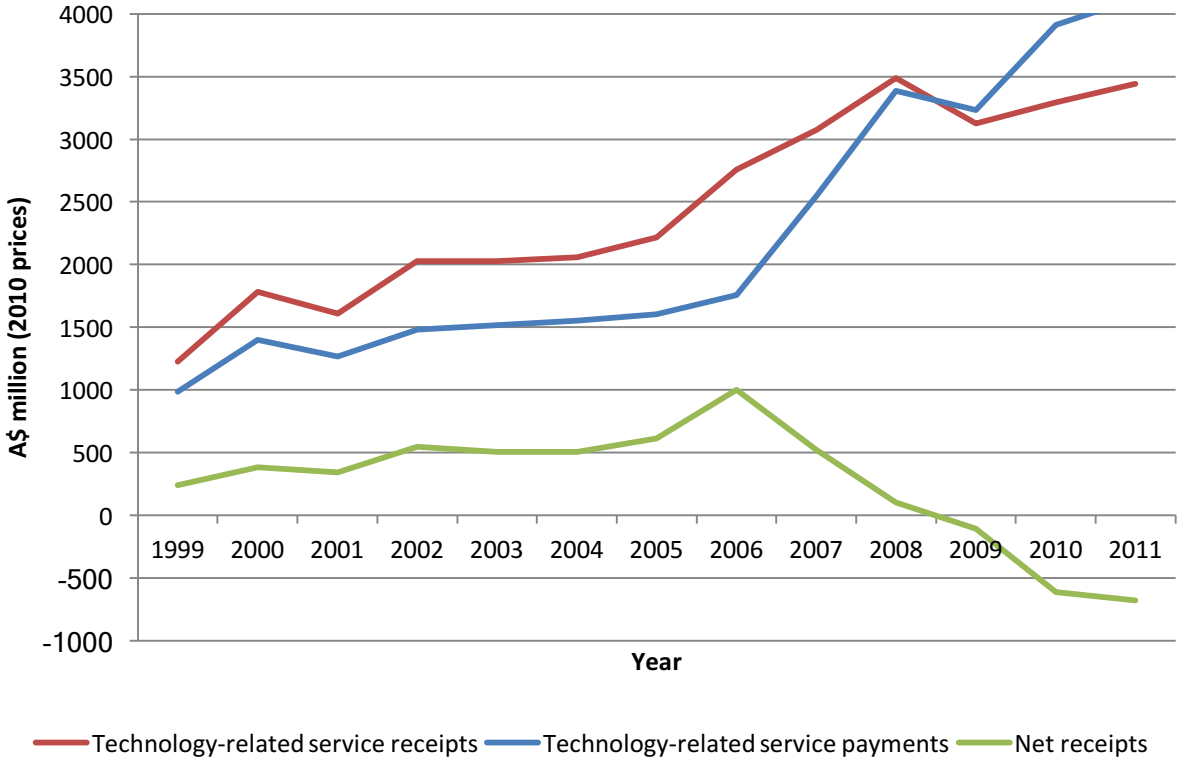
Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

Figure 5b: Technology receipts, A$ million (2010 prices), 1999–2011, Royalties and licences



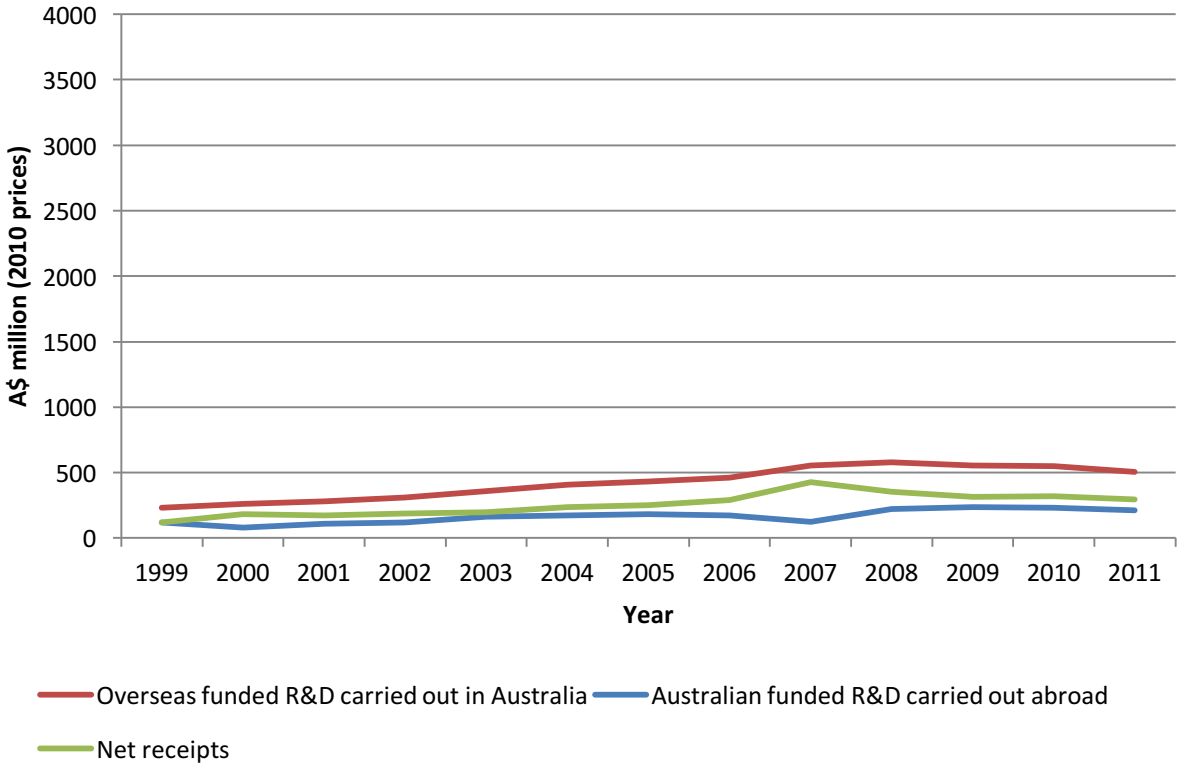
Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

Figure 5c: Technology receipts, A$ million (2010 prices), 1999–2011, Technology-related services



Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

Figure 5d: Technology receipts, A$ million (2010 prices), 1999–2011, R&D carried out abroad



Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker.

In summary, Figures 5a -5d indicate that Australia is a:

- Minor net buyer of patents and inventions (net importer) except 2006. However, the level of both inflow and outflows of assets is small.
- A very large net user of licensed technologies (net importer).
- A significant net seller of technology-related services (net exporter) prior to 2009 (and a net buyer from 2009 to 2011).
- A net seller of R&D services (net exporter).

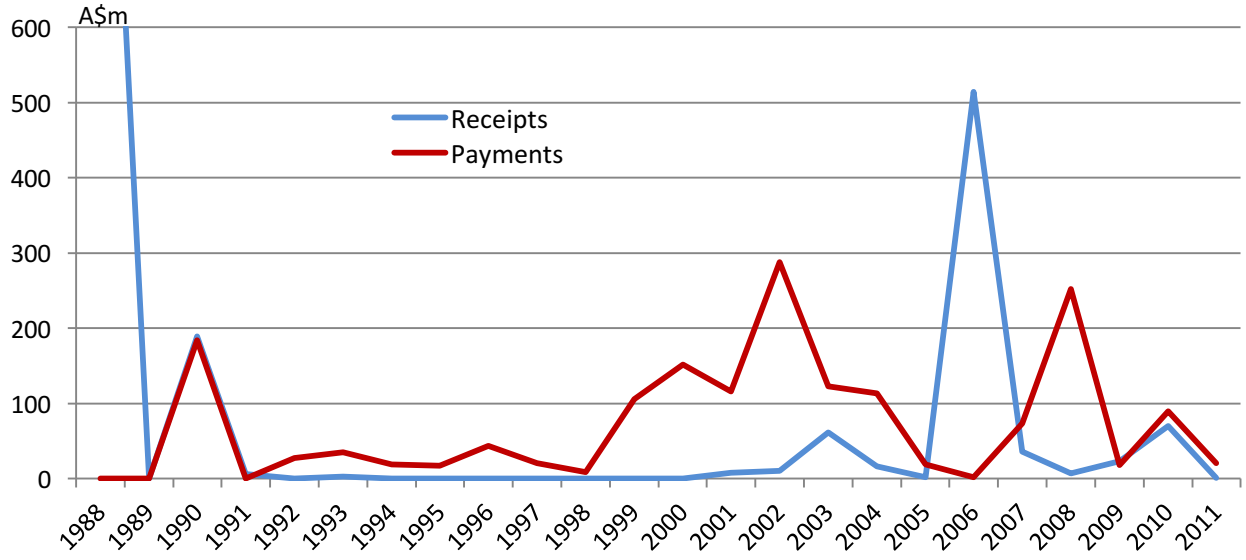
3. Types of trade – further information

In this section we delve deeper into our data sources to reveal more information about (a) IP sales and purchases (b) Royalties and license fees and (c) the trade in R&D services. We have no further information about the trade in technology-related services.

(a) IP assets sales and purchases

Figure 6 presents a longer time series of data on the outright sale and purchase of 'disembodied' IP assets, that is, of assets such as patents, copyright, trademarks and franchises. It covers the period from 1988 to 2011. Both payments and receipts are subject to periodic 'spikes' such that they rise and fall quite sharply. Overall, however, there is little evidence of a real trend in either series during the period shown in the chart.

Figure 6: Sales and purchases of disembodied IP assets, A$ million (2010 prices), 1988–2011



Notes: Sales and purchases of patents, copyrights, trademarks, franchises. Potentially includes transactions in embassy land but these are estimated by the ABS to be very minor. Source: ABS 5331.0 - Balance of Payments and International Investment Position, Australia, Concepts, Sources and Methods, 1998. ABS 5206.0 - Australian National Accounts: National Income, Expenditure and Product, Jun 2012. ImplicitPriceDeflators-GrossDomesticProduct-A2303730T.

(b) Royalties and licence fees

Figures 7a to 7d below present disaggregated data on Australian payments and receipts for royalty and licence fees as a percentage of GDP. The categories are Software; Hardware and design; Trademark and franchise; and Music and 'other'; Since 1988 payments exceeded receipts in all categories. The greatest difference between payments and receipts was for Software and Trademark and franchise. For this group, payments abroad as a percentage of GDP rose while receipts have been falling. In contrast, both payments and receipts for Hardware and design and Music and 'other' have been falling modestly as a percentage of GDP since 1998. Technological developments may account for these falls [7]

Australia's widening net deficit in royalty and license fee payments in relation to both Software and Trademark and franchising in the past decade or so has been the most notable trend. The rise in the value of the Australian dollar since 2009 may have facilitated increased purchases of technology abroad. Booming commodity prices, and ensuing mining investment, may also partly explain these developments.

[7] Evidence on the effect of piracy on retail sales is mixed, however, McKenzie and Walls (2013) find piracy reduces cinema ticket sales in Australia.

Figure 7a: Software

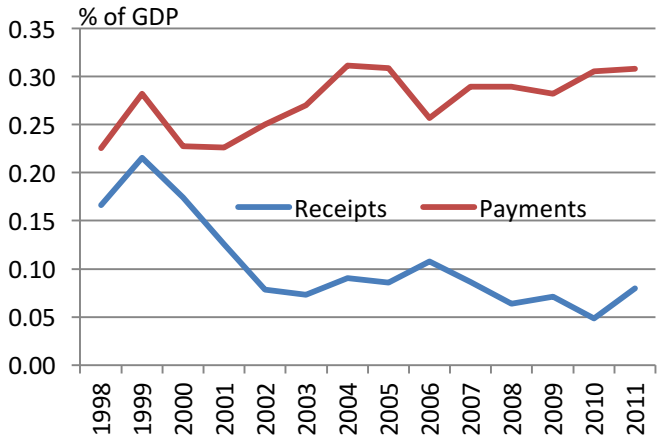


Figure 7c: Hardware and design

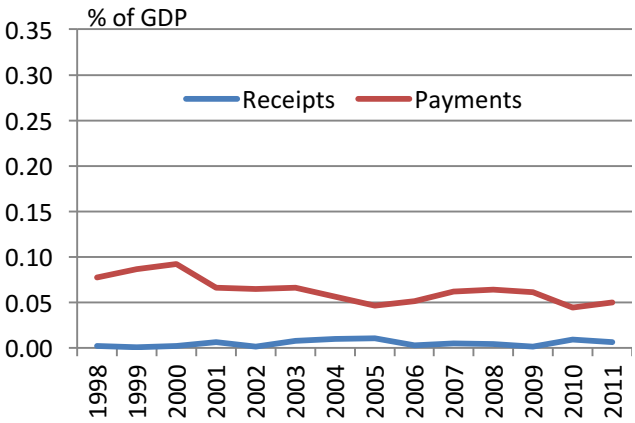


Figure 7b: Trademark and franchise

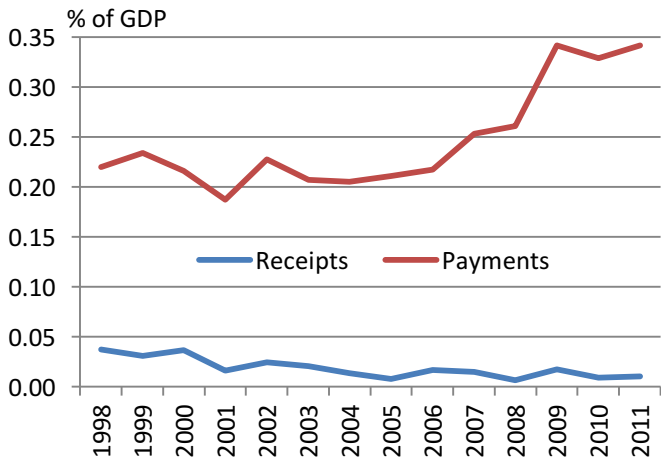
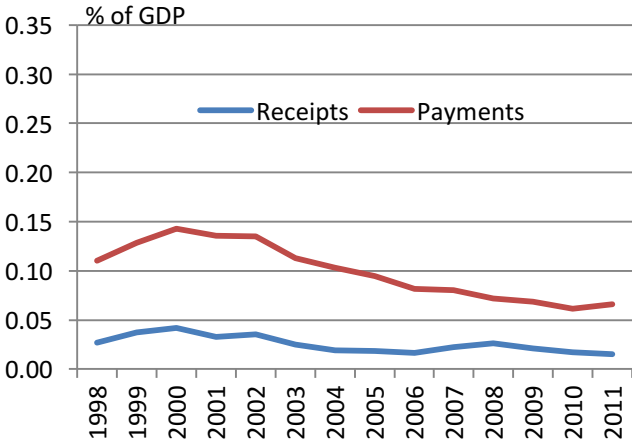


Figure 7d: Music and other



Source Figures 8–11: ABS 5302.0 Balance of Payments and International Investment Position, Australia.

(c) Trade in R&D services

Patents assignment data can be used to shed light on the 'trade in R&D services' since the country of the inventor listed on a patent reflects the country where the R&D took place while the country of the applicant corresponds to the 'buyer'. The firm doing the R&D (the seller) and the patent applicant (the buyer) are usually part of the same multinational enterprise, so the indicator can also be thought of as a measure of net R&D offshoring.[8] Countries which offshore R&D effectively import ideas. Countries which host offshored R&D, effectively export ideas. Negative net exports reflect firms in the country offshore more R&D than foreign firms undertake in that country.

[8] Technically, some foreign patents may be the result of the temporary secondment of nationals from the inventing country to the assignee country or ex-post reassignments.

R&D offshoring primarily occurs between developed economies. While the 21st Century has seen high rates of growth in R&D offshoring to developing countries, developed countries remain the dominant host for offshored R&D (the sellers) and they are the primary source of offshored R&D (the main buyers) (Thomson 2013). Firms offshore to technologically advanced countries since such countries offer more opportunity to tap into the global technological frontier (example Samsung set up R&D in Silicon Valley in the 1980s). To this end there exists reasonably robust evidence that the quality of higher education institutions and basic scientific capacity are important in determining the attractiveness of countries as locations to invest in R&D (Thomson 2013).

The technological capacity of the firms' home base is also a key factor in determining which countries offshore R&D (i.e., who are the buyers). This is because only firms on the technological frontier have the capacity to manage globalized R&D operations and integrate derived technologies in their global operations. Firms operating on the technological frontier have often exhausted available possibilities for learning within their home country and therefore have more to benefit from offshoring R&D (example).(See Song and Shin 2008)

There is no strong theoretical evidence to support the hypothesis that being a net exporter of R&D services is unambiguously good or bad in the context of welfare or economic growth. But the evidence is more instructive: the seven countries in the OECD that are net importers of R&D (USA, Switzerland, Netherlands, Sweden, Finland, Japan and Korea) are among the most technologically advanced economies in the world.

Figure 8 depicts net exports of R&D services for Australia and a sample of other developed economies. A positive net R&D export share indicates fewer patents are assigned to the country than are invented by its residents.[9] Using this measure, about 11 per cent of OECD R&D services were off-shored in 2005, which is about double what it was in 1985.

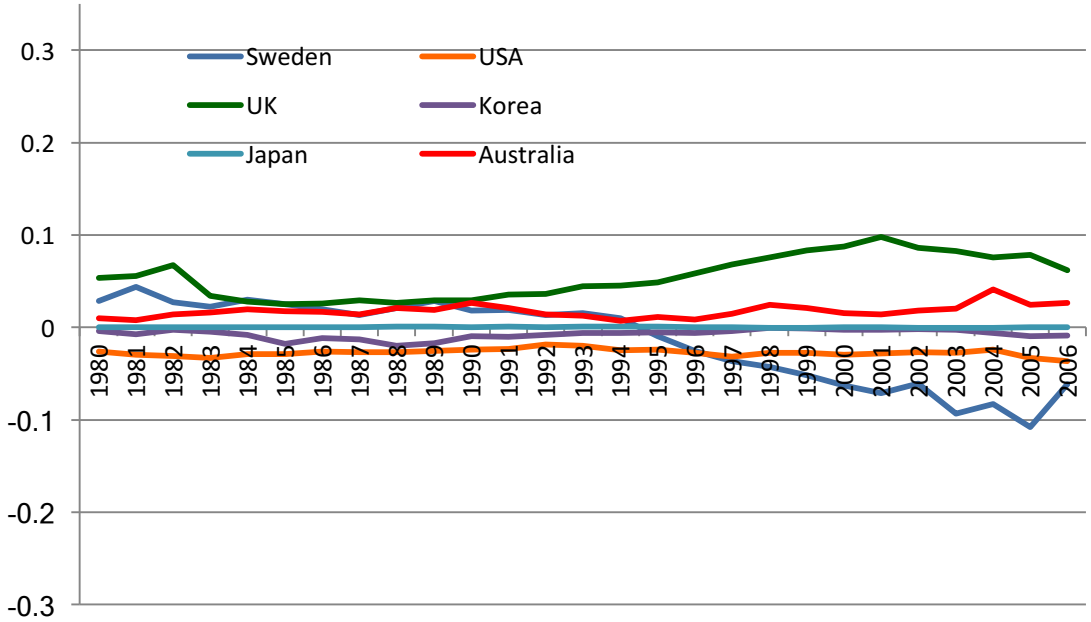
This data confirms that Australia is a net exporter of R&D services. That is, more foreign firms undertake offshored R&D in Australia than Australian firms do abroad. Most trade in R&D services is thought to be mediated through multinational firms and therefore the presence or absence of multinational companies domiciled in each country has an important bearing on patterns of R&D offshoring. The high degree of foreign ownership within the Australian economy, and particularly in patent intensive sectors such as manufacturing, may explain our net exporter status. That is, much of the exporting is likely to reflect foreign-owned manufacturing firms operating in Australia undertaking R&D on behalf of the parent company. In addition, the strength of Australia's higher education sector, in terms of research output, may also contribute to making Australia an attractive location to undertake R&D (See Thomson 2013).

The pattern for other countries reveals more understanding about the pattern of R&D off-shoring. Switzerland is a relatively large net importer of R&D services. That is, the number of patents assigned to Switzerland that are invented abroad minus the number of patents invented in Switzerland and assigned to foreign firm is equivalent to more than 30 percent of the total number of patents assigned to Swiss entities each year. This might be explained by the fact that Switzerland is home to several very large multinational companies such as ABB (Engineering), Nestle(Food and beverage), and pharmaceutical firms Novartisand Roche (industry?). Sweden also appears to be importing an increasing volume of R&D[10] and like Switzerland, this may reflect the important role of technology intensive multinational enterprises (SAAB, AstraZenica, Ericsson) in the Swedish economy.

Both Japan and Korea are comparatively 'closed' in the sense that firms from these countries do little offshoring and few foreign firms perform R&D in Japan or Korea. The essentially 'non-globalized' nature of Japanese R&D activities has been widely noted. Up until about a decade ago, researchers often attribute this to Japan's 'latecomer status'; Japanese firms only began to internationalize R&D in the 1990s.

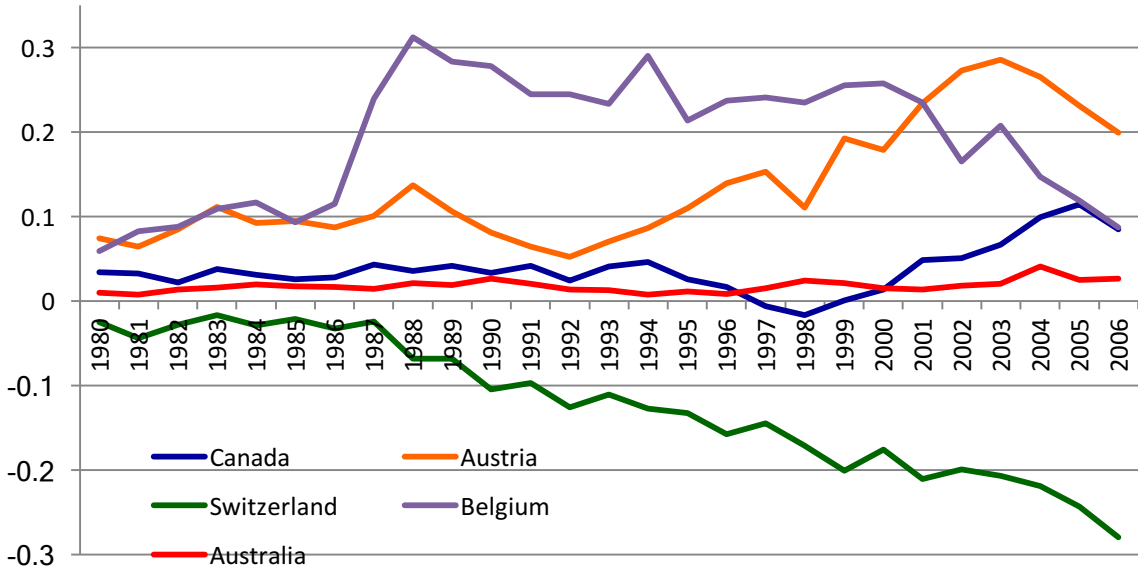
[9] R&D exports is indicated by the number of patents invented in a country less the number of patents assigned to the same country (standardised by the number of patents invented in the country).
[10] These estimates of R&D exports are based on patent data so reflect volumes rather than values.

Figure 8a: Net export of R&D services (evidence from patent data), Australia & comparator countries, 1980–2006



Source: Adapted from Thomson (2012)

Figure 8b: Net export of R&D services (evidence from patent data) Australia & comparator countries, 1980–2006



Source: Adapted from Thomson (2012)

Research has revealed a correlation between offshoring locations and common language as well as cultural and geographic proximity (see e.g., Ambos 2005, Thomson 2013). In fact language barriers may well play a role in explaining Japan and Korea's limited offshoring. Similarly, the geographic distance between these East Asian innovators and other advanced economies, especially when compared to the highly integrated economies within Europe, probably plays a role. For example, Austria, Belgium and the UK stand out as significant net exporters of R&D services this high rate of exporting reflects the high degree of foreign ownership of large Austrian firms (Gassler and Nones 2008). Germany is the major destination for patents invented in Austria (geographic proximity and shared language), the main export destination of UK patents are firms in the USA (shared language and culture) and Belgium shares a land border with major R&D offshoring nation's Germany and the Netherlands.

It should be cautioned however the presence of foreign-owned firms in a host country does not conclusively predict substantial 'exports' of R&D services. In many instances multinational firms that focus on production or distribution and do little R&D. Moreover, data suggests that most R&D performed by multinational firms abroad is solely targeted to the host country market and therefore would involve transferring IP to the home base.

4. Concluding remarks

Looking at balance of payment figures and patent data tell two different stories. Australia has a large net deficit in the balance of payments in payments for software, trademarks, software and music. However, like most countries, Australia is a net exporter of patents which indicates Australia in an exporter of R&D services.

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Appendix: Data sources

OECD Technology Balance of Payments

Money paid or received for the acquisition and use of patents, licences, trademarks, designs, know-how and closely related technical services including technical assistance) and for industrial R&D carried out abroad, etc. This is a composite measure which comprises both for the trade of the asset (between, for example, creators and owners) and trade involving the right to use idea (between, for example, the owner and user).

Balance of payments measure	Sources	Notes
"Technology balance of payments"	OECD MSTI, payments made and received. Source: OECD Paper: DSTI/IND/WPGI(2012)3, by Isabelle Desnoyer-James and Koen Debacker, These data from Isabelle Desnoyer-James (isabelle.desnoyers-james@oecd.org) were sent on 10 January 2013 to Benjamin Mitra-Kahn, Second e-mail received 7/2/13, updating 2010 and 2011 figures. Historic figures from SourceOECD, MSTI Main Science and Technology Indicators, data extracted on 07 Mar 2013 03:54 UTC (GMT) from OECD iLibrary.	This refers to "commercial transactions related to international technology transfers". It consists of money paid or received for the acquisition and use of patents, licences, trademarks, designs, know-how and closely related technical services (including technical assistance) and for industrial R&D carried out abroad, etc.

Trade in R&D Services Patent data.

Our measure of R&D offshoring uses a count of priority patent applications (Data for the USPTO are granted patents) according to the country of the inventor and the country of the applicant. It includes patent applications made at every office. The indicators are derived in Thomson (2012) from raw data compiled by de Rassenfosse et al. (2011) from the PATSTAT dataset using standard fractional counting methodology to account for multi-inventor and or multi-applicant patents.

Sale of IP assets

The only ABS data series publicly available refers to a combination of different intellectual property asset types – there is no separation by intellectual property asset type. The question used was: "Did this business have any transactions with non-residents relating to the purchase or sale of any licences, leases, goodwill, patents, copyrights, software rights or other rights etc. (resulting in a change of ownership of the asset)?". The follow-up Q7 does ask for details of the assets: "Please provide details of transactions indicated in Question 6. Description of asset sold or purchased." While in theory this data series also includes "...the acquisition of land by a government or international organisation (for the purpose of establishing an embassy or similar institution), or the disposal of such land", the ABS believes that this includes only minor additions to the totals.

Trade in assets - trade of all future rights	Sources	Notes
Trade in patents, copyrights, trademarks and franchises as assets	ABS 5302.0 - Balance of Payments and International Investment Position, Australia. Quarterly, Flow. Series A3533998F, A3534021V, A3533767W (net, credits and debits respectively)	Acquisition and disposal of non-produced, non-financial assets: These comprise intangible assets recorded in the capital account such as sales of patents, copyrights, trademarks, franchises and some transactions in embassy land.

Royalties and license fees

The ABS has several IP royalty and licensing fee data series, some of which are summations of other data series. All of these series are based on data obtained from surveys that are part of the national accounts and balance of trade figures. The survey instrument is provided at Appendix 1, and the relevant subsection is 'Transactions in services and royalties'. Licence fees associated with computer software are at Item 20, licence fees associated with computer design and hardware are at Item 21. Data on royalties, distribution, franchise, copyright, licence and patent fees and trademarks are collectively obtained from the same survey instrument. This collection of fees for the use of intellectual property (excluding computer software, design & hardware) is grouped as follows:

- Films, TV programs, video and multimedia (Item 39)
- Music (Item 40)
- Patents, industrial knowhow, manufacturing rights and prototypes (Item 41)
- Trademarks and franchising fees (Item 42)
- Other royalties (Item 43).

In all cases these charges refer to trade in stand-alone licences. These are not trade in the underlying intellectual property asset and are not licences purchased as part of purchasing a company, or part of purchasing a larger IT system for example. It is expected that these survey items include licensing fees paid or received as part of court judgements or out of court settlements. The ABS gives no explicit place to court judgements or out of court settlements in the national accounts. However where royalties are paid as a result of a court judgement or an out of court settlement then it is reasonable to expect royalties to be treated as royalties.

Where judgements or settlements include 'compensation', such compensation receipts take on the character of the item they replace for tax purposes.[11] This taxation treatment of compensation means that most organisations face this classification issue. So they would appear to have information about how such compensation should affect their survey responses. However we are unable to determine if this is the practice actually followed by organisations surveyed – as for all of these survey responses there is no strict way for us to know how surveyed organisations construe the survey questions. We believe it is reasonable to assume that compensation for royalties would be treated as royalties for the purpose of national accounts compilation.

We have been unable to identify any database of intellectual property-related judgements and settlements. Even if such a database is available, many out-of-court settlements in particular do not have their details disclosed. So it is difficult to know how significant these judgements and settlements are for total licensing cash flows. Some such judgements and settlements may cover many years of royalty payments or compensation. So they have the potential to be quite 'lumpy'.[12]

Trade in licensing of intangible assets – charges for use of IP	Sources	Notes
Charges for the use of intellectual property not included elsewhere n.i.e.	Credits - ABS Series A3533818K Debits – ABS Series A3533912F	
Charges for the use of intellectual property n.i.e. - Licences to reproduce and/or distribute computer services	Credits - ABS Series A3533708W Debits – ABS Series	Sum of software and design and hardware series.

[11] Commissioners of Taxation (NSW) v Meeks (1915) 19 CLR 568, (per Griffith J).

[12] For example, a 2012 settlement paid to CSIRO for wi-fi technology it developed in the 1990s has been reported at $220 million in royalties (The Australian, 2012)

	A3533839W
Charges for the use of intellectual property n.i.e. - Licences to reproduce and/or distribute computer services, Software	Credits - ABS Series A3533690K Debits – ABS Series A3533740W
Charges for the use of intellectual property n.i.e. - Licences to reproduce and/or distribute computer services, Hardware and design	Credits - ABS Series A3533734A Debits – ABS Series A3533762K
Charges for the use of intellectual property n.i.e. – Outcomes of research and development	Credits - ABS Series A3533905J Debits – ABS Series A3533970C
Charges for the use of intellectual property n.i.e. - Franchise and trademarks licensing fees	Credits - ABS Series A3533709X Debits – ABS Series A3533799R
Charges for the use of intellectual property n.i.e. – Other charges	Credits – ABS Series A3534027J Debits – ABS Series A3533822A
Charges for the use of intellectual property n.i.e. - Other charges, Royalties on education	Credits - ABS Series A3533691L Debits – ABS SeriesA3533971F
Charges for the use of intellectual property n.i.e. - Other charges, Music	Credits - ABS Series A3533710J Debits – ABS Series A3534038R
Charges for the use of intellectual property n.i.e. - Other charges, Other	Credits – ABS Series A3533882C Debits – ABS Series A3533823C

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