

New Zealand Commercial Service Exporters

**First Evidence from the Prototype
Longitudinal Business Database**

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Abstract

Commercial services* are becoming an increasingly important component of world trade. The sector has the potential to play a key role in lifting New Zealand's export and economic performance given the growing demand for internationally traded commercial services and the absence of typical natural resource constraints. Little is known, however, about the characteristics and performance of the commercial services sector in NZ. This paper seeks to fill this knowledge gap by providing a set of stylized facts - including size, labour productivity and foreign ownership of firms engaged in commercial services trade, using Statistics New Zealand's prototype Longitudinal Business Database.

* 'Commercial services' in this paper excludes travel, transportation, insurance and government services. Refer to Appendix A for an exhaustive list of services covered under commercial services.

Key Points

Commercial services[†] are becoming an increasingly important component of world trade. The sector has the potential to play a key role in lifting New Zealand's export and economic performance given the growing demand for internationally traded commercial services and the absence of typical natural resource constraints. Little is known, however, about the commercial services sector in NZ. Statistics New Zealand's prototype Longitudinal Business Dataset (LBD), which now includes the International Trade in Services and Royalties Survey (ITSS), can help bridge at least part of this knowledge gap. Analysis of the integrated dataset has found the following:

- **Services exporters are more productive than non-exporters:** similar to merchandise goods exporters, service exporters are larger both in terms of average employees and sales; have higher levels of labour productivity; and are more likely to have some foreign ownership.
- **The better performing firms export both goods and services:** firms that export both goods and services are significantly larger and have higher performance levels (sales, value added, and profitability) than firms that export only services and those that only export goods. Despite being smaller in number, firms that export both goods and services account for a majority of services exports.
- **Trade, employment, sales, value added, and profit is concentrated among a few service exporters:** among 'service only exporters', the top 10 percent accounted for: 64.8 percent of total exports; 38.8 percent of all employment; 53.6 percent of value added; and a fifth of all sales.
- **There is a high degree of foreign ownership among the top exporters:** out of the 78 firms that represented the top 10 percent of exporters in the 'service only exporter' group, 39 firms (i.e. 50 percent of all firms) had some level of foreign ownership. Similarly, foreign ownership among the top 25 percent of 'goods and service' exporters was 82.6 percent.
- **Service exporters exported to a narrower range of markets:** the median 'goods only exporter' exported to three markets compared with just one market for the 'service only exporters'. About 25 percent of all service export receipts were generated by firms exporting to either one or two markets. This contrasts with goods exporters where only 4 percent of all export receipts were generated by firms exporting to either one or two markets.
- **Firms that export several services types or to several markets account for a disproportionate share of exports, employment, sales, value added and profitability.**

[†] 'Commercial services' in this paper excludes travel, transportation, insurance and government services. Refer to Appendix A for an exhaustive list of services covered under commercial services.

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1. Introduction

Rapid technological progress, especially in the information and communication technology (ICT) sector, coupled with global trade liberalisation, has resulted in a world-wide surge in commercial services businesses.¹ Earlier classified as non-tradables, commercial services are now gaining an increasing share of world trade. Prominent examples of commercial services include construction and related engineering services, accounting, legal, management and consultancy services.

In New Zealand (NZ), the services sector dominates the domestic economic landscape and accounts for over 70 percent of registered businesses, national output and employment.² Services are also a significant source of export revenue for the country. In 2009, NZ services exports were valued at \$12.7 billion and represented 22 percent of all exports.³ Among service exports, travel and transportation dominated with a 77 percent share. The remaining 23 percent was accounted for by commercial services.

The commercial services sector is expected to play a key role in lifting NZ's economic performance and exports given the growing global demand for expertise and specialised services and the lack of typical natural resource constraints (i.e. land availability and environmental pressures).

However, little is known about the characteristics and performance of the commercial services sector in NZ. There are very few published statistics on bilateral and regional trade in services, performance of service exporters, and types of services exported and imported. From a trade policy perspective, the lack of knowledge makes it difficult to:

- identify issues that really matter to commercial service exporters;
- advance the interests service exporters during trade negotiations and in policy formulation; and
- evaluate the impacts accruing from increased liberalisation of services trade.

This is in contrast to the existing knowledge on merchandise goods exports sector. Research programmes undertaken by Fabling and Sanderson have provided extensive documentation on NZ merchandise exports. Specifically, in the context of merchandise exports they have found that exporters are larger and more productive than firms with a purely domestic orientation (Fabling and Sanderson, 2009b). They also observe that productive firms self-select to exporting (Fabling and Sanderson, 2009b) and that much of the export business is concentrated among a small

¹ Commercial services' in this paper excludes travel, transportation, insurance and government services. Refer to Appendix A for an exhaustive list of services covered under commercial services.

² Business Demography Statistics: as at Feb 2009; Gross Domestic Product Statistics: December 2009 quarter; Linked Employer Employee Data: March 2008 year. Statistics New Zealand.

³ Balance of Payments and International Investment Position: Year ended 31st March 2009. Statistics New Zealand

proportion of exporting firms (Fabling and Sanderson, 2008). This paper adds to this knowledge base by providing evidence on commercial services exporters.

This paper, the first in a series, provides a set of stylized facts for firms engaging in commercial services trade, using Statistics New Zealand's prototype Longitudinal Business Database. The paper considers the characteristics and performance of service exporters and the concentration of activity between firms and how this compares with merchandise goods exporters.

The paper is structured as follows:

- Section two discusses the importance of services trade and identifies the barriers that have prevented us from obtaining a better understanding of this sector;
- Section three provides a summary of existing literature on exporting and firm performance;
- Section four describes the dataset used in the analysis;
- Section five provides a summary of our key services exports and markets;
- Section six establishes a set of stylized facts that characterise service exporters;
- Section seven analyses service type and market diversification and investigates the concentration of activity by the number of service categories and markets a firm exports to; and
- The final section concludes and outlines areas for future research.

2. Services Trade – ‘Engine of World Growth’ and a Key Sector in Lifting NZ’s Economic Performance

Services trade has been recognised as the ‘engine of world growth’ (Hufbauer and Stephenson, 2007). Since the 1980s, global services trade has been growing more rapidly than production and merchandise trade (Lamy, 2009). And unlike the manufacturing sector, it was largely unaffected by the global economic recession (Borchert and Mattoo, 2009).

Global demand for specialised service inputs is likely to rise further as global production networks are increasingly organised at the task level (also referred to as trade in tasks).⁴ NZ is well placed to capitalise on the

⁴ Trade in tasks captures the disaggregation of the value chain into a large number of relatively small “tasks” or discrete steps, which could include development or design of some aspect of the product, software development, and production of components, package design, or logistics.

demand for internationally traded non-routine tasks (as opposed to tasks that are routine and where the information is codifiable, this category of service inputs or tasks are more easily off-shored or outsourced) given its relatively well educated workforce (OECD, 2009);⁵ international recognition for its skills, knowledge and innovativeness (MED, 2003);⁶ and access to advanced computing and telecommunications technology (Weforum, 2009).⁷

The lack of typical natural-resource constraints (i.e. land availability and environmental pressures) in the provision of commercial services also provides vast opportunities for growth. This is in contrast to the natural resource-based industries, which dominate NZ's merchandise goods exports, where exports are limited to what can be sustainably grown.

The Government's Economic Growth Agenda recognises NZ's potential in commercial services and has identified the services sector (particularly commercial services) as a key contributor to lifting NZ's economic performance.

The limited information on the commercial service exporters has been an impediment in better understanding and advancing the needs of these exporters. However, the integration of the International Trade in Services and Royalties (ITSS) data with the prototype Longitudinal Business Database (LBD) offers new opportunities.

3. Literature Review

Numerous empirical studies have analysed exporter performance. However, the focus of these studies has almost always been merchandise goods exporters. Some of the key results of these studies from NZ are summarised below.

Fabling and Sanderson (2008) in their paper '*Firm level patterns in Merchandise trade*' found that:

- export value is highly concentrated among a small proportion of exporting firms;
- the majority of aggregate export growth comes from existing product-market relationships;

5 The OECD Education at a Glance Report (2009) ranks New Zealand above Australia, the UK and the OECD average, for the proportion of the population who hold a tertiary qualification.

6 The MED Growth and Innovation Framework Benchmark Indicators Report (2003) compares the rate of innovation of NZ manufacturing and services sectors with their European counterparts. Innovativeness is measured as the proportion of firms with new products (goods or services). The comparison suggested that NZ businesses are at least as, if not more, innovative than their EU counterparts.

7 New Zealand ranks 19 out of 133 countries or (19th out of the 46 high income countries) in the World Economic Forum Networked Readiness Index. The index identifies the enabling factors for countries to fully benefit from ICT. Enabling factors include the political and regulatory environment; infrastructure; individual and business readiness in terms of capability to absorb new technology and availability of technology; and usage of ICT amongst households, businesses and government.

- exporting spells tend to be short, with over half of all firm level export relationships (firm, product, and market combination) ending after a single year; and
- firms that maintain an ongoing export presence often do so while switching between products and markets.

The paper “*Export market choice for New Zealand firms*” (Fabling, Grimes and Sanderson, 2008) investigated ‘what determines a firm’s ability to export; and given a firm’s ability to export, what determines the choices they make about what to export and where to’. Some of the key results included:

- a firm is more likely to introduce a new product to a market where they have an established trade relationship, i.e. sunk costs are an important determinant of export market entry;
- firms generally choose to expand exporting by introducing their existing successful products to new geographical markets; and
- population, openness, and foreign incomes are some of the determining factors that influence entry into a new market. However, the relative influence of these factors differs across product types.

A further paper, ‘*Entrepreneurship and aggregate merchandise trade growth in NZ*’ (Fabling and Sanderson, 2009a) found the following:

- much of the growth in merchandise goods exporting came from the firm-level decision to innovate, either by becoming an exporter for the first time or expanding into trade relationships associated with varying degrees of novelty;
- a large proportion of expansion among incumbent firms came from introducing new goods to current trade partners, i.e. leveraging off existing market knowledge and networks; and
- eighty percent of the trade relationship (product-country) relationships came to an end after the first year, suggesting a considerable degree of short-term exporting.⁸

Investigations into ‘*Exporting and Firm Performance: the impact of destination characteristics on learning effects*’ (Fabling and Sanderson 2009b) found that:

- more productive firms self select into exporting; and
- there was little evidence to suggest learning by exporting.

⁸ Fabling and Sanderson (2009a) attribute the high degree of short-term exporting to one of exporters taking advantage of specific market opportunities (such as a low exchange rate or a fortuitous offshore order); or alternatively unsuccessful attempts to break into a market after encountering barriers.

'Exporter Performance in the German Business Services Sector: First evidence from the services statistics panel' (Vogel, 2009) is one of the few papers that attempts to level our understanding of service exporters with that of merchandise goods exporters. The paper finds evidence to suggest that:

- similar to the manufacturing sector, German business service enterprises that export are larger, more productive, and pay higher average wages than non-exporting firms;
- large enterprises self-select into export markets; and
- evidence of learning-by-exporting was inconclusive (this may be because of the short time period of the data).

'Service Traders in the UK' (Breinlich and Criscuolo, 2008) is another paper that focuses on service exporters and importers. The paper drew the following conclusions:

- services trade is concentrated in a small number of sectors and the bulk of the trade is carried out by a small fraction of firms within these sectors;
- service traders are bigger, more productive, and more likely to be foreign owned or part of a multinational enterprise;
- most firms just trade with a small number of countries and in a single service type; however, the small group of firms that trade with many countries or in many service types account for a disproportionate share of total exports, employment, sales, and value added; and
- trade is also concentrated within firms, in that a firm exporting more than one type of service, or exporting to more than one country, continues to receive most of its export receipts from a single service type or from a single market.

Breinlich and Criscuolo's novel paper uses firm-level data. In our analysis of New Zealand service exporters, we draw on some of the techniques used by Breinlich and Criscuolo.

4. Data Description

4.1 Prototype Longitudinal Business Database (LBD)

Firm level analysis of service exporters is enabled by Statistics NZ's prototype Longitudinal Business Database (LBD). The LBD contains enterprise-level data for financial years 2000 – 2008.⁹ At the heart of the LBD is the Longitudinal Business Frame (LBF). The LBF contains longitudinally linked data for most enterprises operating in NZ. The LBF

⁹ An enterprise is defined as a service entity operating in NZ.

contains data on key enterprise level characteristics such as industry, location, employment, and ownership details including the relationship of an enterprise to a parent or subsidiary enterprise.

Most enterprises operate independently, but a small proportion of this population are part of a group structure sharing a common 'group-top-enterprise' (GTE) with other enterprises i.e. have a parent subsidiary relationship. Despite being small in number, groups account for a substantial proportion of total employment and value added (Fabling and Sanderson, 2008).

Integrated to the LBF are various administrative datasets and survey data.¹⁰ The most recent addition funded by MFAT, is the ITSS. The ITSS collects information on NZ's trade in commercial services. The integration paves the way for firm level analysis of service exporters similar to that of merchandise goods exporters.¹¹

4.2 International Trade in Services and Royalties Survey (ITSS)

The ITSS collects information on commercial services trade (imports and exports) by country and service category for the compilation of Balance of Payments Statistics and National Gross Domestic Product.¹² The survey is carried out on a quarterly basis and a census of service traders is carried out approximately once every five years. An ad-hoc 'ITSS Birth Survey' is sent out to all newly identified service traders, identified from either the media or from the Annual Frame Update Survey.¹³

The population of service traders is identified from the Annual Frame Update Survey (AFUS), which is primarily used to update the Business Frame. The survey is targeted at all economically significant firms and enterprises with multiple geographic locations. Firms below the economic significance threshold are not surveyed and therefore, the service traders identified by Statistics NZ generally excludes enterprises below the AFUS threshold.¹⁴

The survey is sent out to all tier-one firms on an annual basis, and tier-two firms on a triennial basis.¹⁵ The survey identifies firms as service traders (exporters and importers) if they "paid or received transactions totalling

¹⁰ Administrative datasets integrated to the LBF include GST returns; financial accounts (IR10); company tax returns (IR4); PAYE returns; and shipment level merchandise trade data. Survey data integrated to the LBF include Annual Enterprise Survey; Business Operations Survey; Manufacturing and Energy Use Survey; Business Finance Survey; and Research and Development Survey.

¹¹ For more information on the prototype Longitudinal Business Database refer to R Fabling 2009. A rough guide to New Zealand's prototype Longitudinal Business Database.

¹² Travel, transportation, insurance and government services are not covered in the ITSS survey. For a list of the service categories covered in the ITSS see Appendix A.

¹³ The last ITSS Birth Survey was sent out in 2005.

¹⁴ The AFUS threshold cannot be disclosed for confidentiality reasons.

¹⁵ The Business Frame groups firms into three tiers. Tier one firms are economically significant firms. Tier two firms are moderately significant and tier 3 firms are not significant.

\$20,000 or more per annum from commercial activity¹⁶ with any overseas located business”.¹⁷ In addition to the AFUS, business and news media and official industry sources are used to identify service traders.

The census is sent out to all identified service traders. The 2005 ITSS census was directed at approximately 4,000 NZ businesses and the response rate was 89 percent. Of all enterprises surveyed: 54.3 percent responded with data, i.e. the enterprises had some international service and royalty transactions for the reference period; and 34.7 percent reported no data, i.e. did not have any international service and royalty transactions.

Those who responded to the ITSS census then become the base population from which a sample is selected for the ITSS quarterly survey. The quarterly survey is comprised of all firms that collectively make up 95 percent of exports in a particular service category. The quarterly survey also includes new firms that are identified, for example through the media, as engaging in services exports. Approximately 1000 questionnaires are sent out for the quarterly surveys. Statistics NZ ensures a 100 percent response rate for key firms and 80 percent response rate for all other firms.¹⁸

In instances where the enterprise is in a group structure, the GTE would initially be sent the survey form and asked to complete the response on behalf of the group. Subsidiaries that the GTE is not reporting on behalf of, but are in the population, are sent their own survey form.

The ITSS census is available in the LBD for years 1999 and 2005 and the quarterly surveys are available from 1996 to 2008.¹⁹ The different components of the ITSS data integrated with the LBD are further discussed in Appendix B.

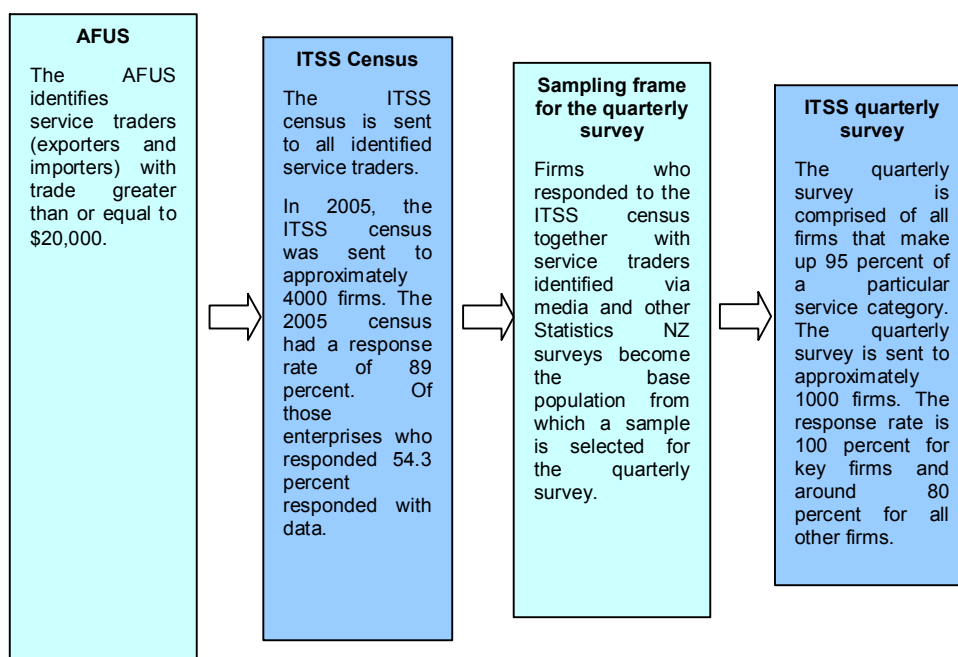
¹⁶ Commercial activity includes: consultancy, management or computer services; brokering or other financial services; professional, technical or engineering services; equipment leasing, agency services; and fees received from or paid for outsourcing services activity with offshore parties.

¹⁷ AFUS has a response rate of 84 percent. Non-response will result in service traders not being picked up by the survey and may also result in firms that have since stopped exporting/importing services continued to be identified as service traders. Additionally, with the tier two firms being surveyed once in every three years, firms that have ceased to export will be shown to be exporting continuously for three years before the service trading status is revised. See Appendix C for some of the data limitations.

¹⁸ Key firms are those considered important to the survey for a variety of reasons, usually because they are big and have a significant effect on the estimates.

¹⁹ The service trader indicator from the Business Frame is also scheduled to be integrated with the LBD to enable industry level analysis.

Figure 1: ITSS - Identifying commercial service traders and collecting information



As with any survey, there is some uncertainty with regard to the accuracy of the answers, exhaustiveness of the list of services on which information is obtained, and the clarity of the concepts/definitions in the survey. However, Statistics NZ addresses this uncertainty by carrying out cognitive tests before a survey is released into the field to educate the industry on the concepts and definitions and by following up with the respondent when the response is unclear or unexpected.²⁰

Given the survey nature of the services trade statistics, the types of questions that can be asked of the data are very different to the types of questions that can be asked of merchandise trade data. Merchandise trade data in the LBD is based on administrative data where all exports/imports greater than \$1,000 are captured. Services trade data on the other hand is only available for identified service exporters who have responded to the ITSS survey so the analysis is influenced by the way in which the population is identified and the survey response. For more discussion on some of the limitations of the integrated ITSS data in analysing service exporters refer to Appendix C.

²⁰ Fabling, Grimes and Stevens (2008), in their comparison of self-reported firm performance measures in the Business Operations Survey against measures taken from administrative sources, found that there was much commonality between the two data sources. This result provides some assurance on the accuracy of survey responses.

4.3 Sample Selection

The ITSS census is the most comprehensive source of information on NZ's services trade (exports and imports) with the rest of the world and the most recent ITSS census relates to the 2005 June year.²¹ To build a better initial understanding of service exporters and investigate how they compare with other firms, we therefore restrict our analysis to firms in operation in the 2005 year.

Service exporters are identified in the LBD if they had a non-zero response to the 2005 ITSS Census.²² Likewise, merchandise goods exporters are identified if they had a positive export value during the time period under consideration. The identification of service and goods exporters allows us to categorise firms as 'service only exporters', 'goods only exporters', 'service and goods exporters', and 'non-exporters'. 'Non-exporters' are firms that were not observed to be engaging in any good or services exports. However, these firms could include genuine service exporters who have not been identified as service exporters or those who have not responded to the ITSS survey.

To allow for comparisons to be made between non-exporters and merchandise goods exporters, the set of conditions that qualifies a firm to be a candidate for the ITSS survey are applied across all firms. ITSS candidates are in turn identified in the AFUS survey if the respondent indicates they export/import services greater than \$20,000 per annum. Given this, the set of conditions that qualify a firm to be a candidate for the AFUS survey are applied across all firms and additionally, a filter of exports greater than \$20,000 per annum is applied to merchandise goods exports so that the population is broadly comparable with those who receive the ITSS questionnaire.

The sample is further restricted to "private for profit" firms. This excludes households, firms operating in the 'public administration and safety' industry classification, and firms located offshore. Additionally, only economically active firms in 2005 with an industry classification are considered in the analysis.²³

To account for the group filing of ITSS forms and also merchandise goods exports, all the data are aggregated to the group level. In order to make the distinction clear from here on we will distinguish between firms and enterprises. A firm will refer to both independent enterprises (firms that

²¹ The next ITSS Census is scheduled to take place in 2011 with results being made available late 2011.

²² Businesses which reported zero exports/import in the survey or census cannot be identified. These firms will instead appear as non-service exporters during the particular year/quarter. – note these firms might be genuine exporters but with zero exports for the year under consideration.

²³ Economically active enterprise are defined as enterprises that meet at least one of the following criteria in a particular year:

- Linked Employer Employee Data (LEED) rolling mean employment (RME) greater than zero
- GST sales greater than zero
- GST purchases greater than zero
- IR10 total income greater than zero
- IR10 total expenditure greater than zero
- IR10 total fixed assets greater than zero.

(Fabling, Grimes, Sanderson and Stevens, 2008)

don't belong to a group) and aggregate group enterprises i.e. enterprises with a parent subsidiary relationship.

Table 1 summaries the count of firms considered in the analysis, by type of activity.²⁴

Table 1: Summary statistics

Type of Activity	Number of Firms
Non-exporter	143,760
Goods only exporter	5,037
Service only exporter	780
Goods and service exporter	282
Total	149,859

Notes: (1) Firm counts have been randomly rounded.

Source: Authors' calculation

5. What We Export and Where

Of key interest from a trade negotiation and trade policy perspective are insights into: the markets we export to; the types of commercial services we export; and the firms engaging in services trade.

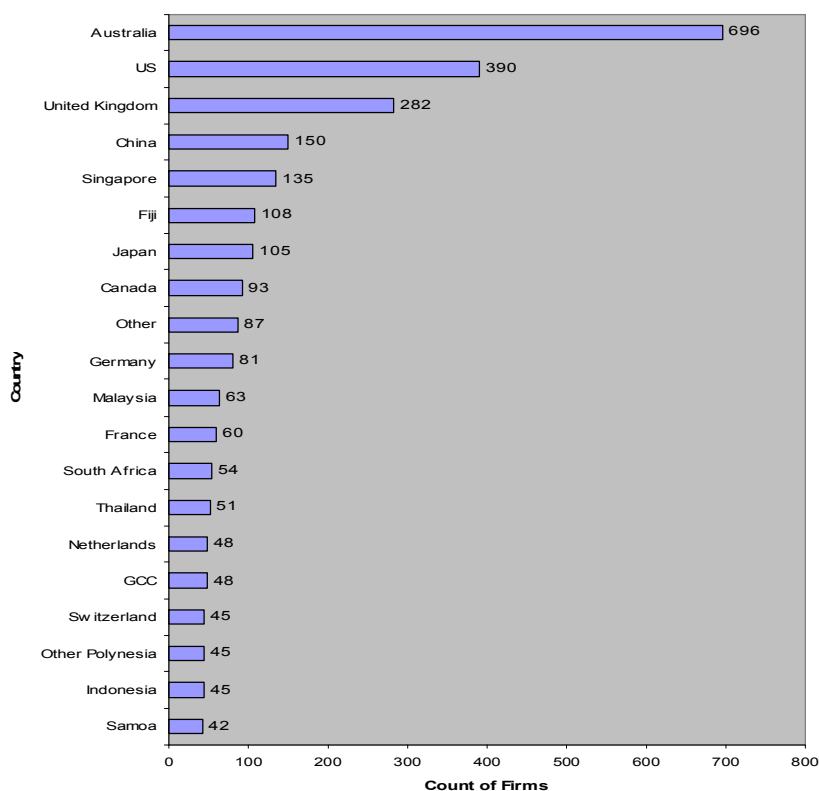
Figures 2 and 3 summarise our top 20 export markets by the number of firms exporting to that market and also by the value of exports respectively.²⁵

²⁴ The discrepancy between the total response rate for the ITSS Census (i.e. 54 percent out of the 4000 firms that were sent the questionnaire) and the reported number of service exporters 1062 can be explained by importing firms that are also part of the population, and enterprises that fill out the survey independently but belong to the same group.

²⁵ Countries have been aggregated in some cases to preserve the confidentiality of firms.

A firm will be counted multiple times if it exports to multiple markets. Additionally, firm counts have been randomly rounded.

Figure 2: Top 20 service export destinations, by count of firms, June 2005 year



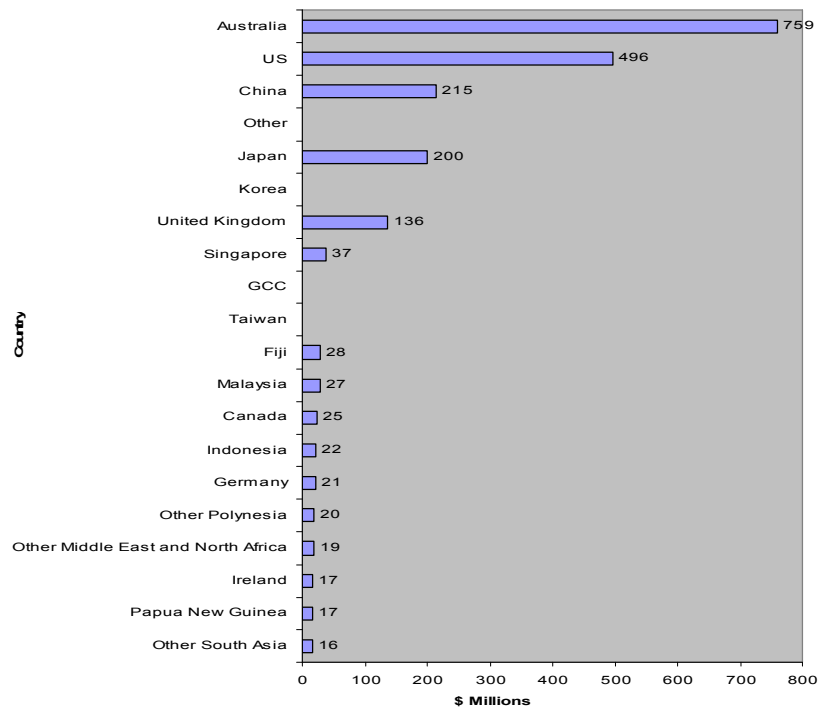
Notes: The Gulf Cooperation Council (GCC) group of countries includes Saudi Arabia, Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates (UAE). The "Other" category includes firms exporting to Antarctica, Bermuda, North Korea, Norfolk Island, an unspecified country and to an unknown destination.

Source: Authors' calculation

In 2005, Australia was by far the biggest export destination, both in terms of the count of firms involved and by the value of services exported. Around 65 percent, or 696 of the 1062 service exporters in our sample, exported their services to Australia. By value of exports, Australia accounted for 28.8 percent of our total services exports in 2005.

The US and the UK were the second and third most important service export destinations by firm count, with 390 and 282 firms exporting to these markets respectively in 2005.

Figure 3: Top 20 service export destinations, by value of exports, June 2005 year



Notes: NZ services export to South Korea, Taiwan, GCC and the 'Other' country grouping has been suppressed for confidentiality reasons.

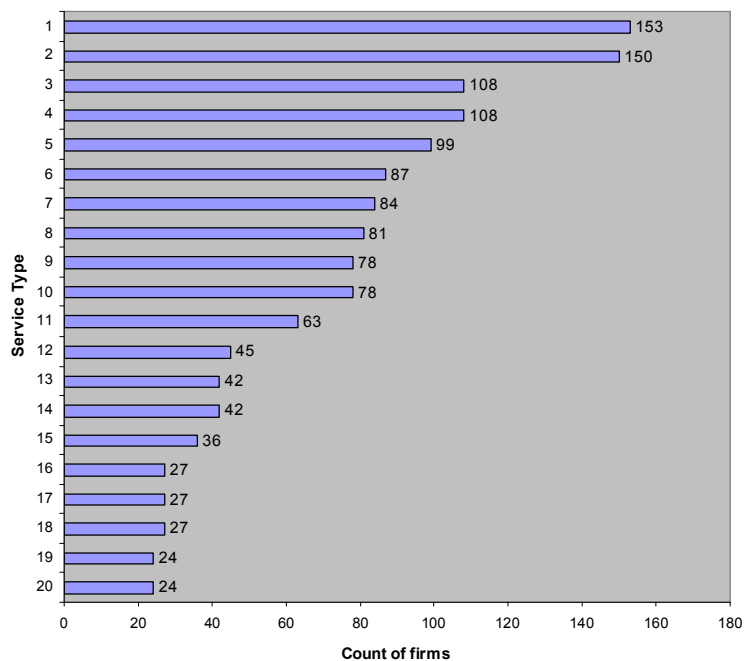
Source: Authors' calculation

By value of service exports, the US and China (includes Hong Kong and Macau) were the second and third biggest export destinations, accounting for 18.8 percent and 8.1 percent of total exports in 2005 respectively. Collectively Australia, US, and China account for over half (55.8 percent) of NZ's services exports. For more information on NZ's services export by export destination, see Appendix 3.

Figures 4 and 5 provide insights into the composition of our commercial services trade in 2005. Figure 4 summarises our services exports by count of firms and Figure 5 summarises our services exports by value of trade.²⁶

²⁶ Service categories have been aggregated to preserve the confidentiality of firms, and firm counts have been randomly rounded.

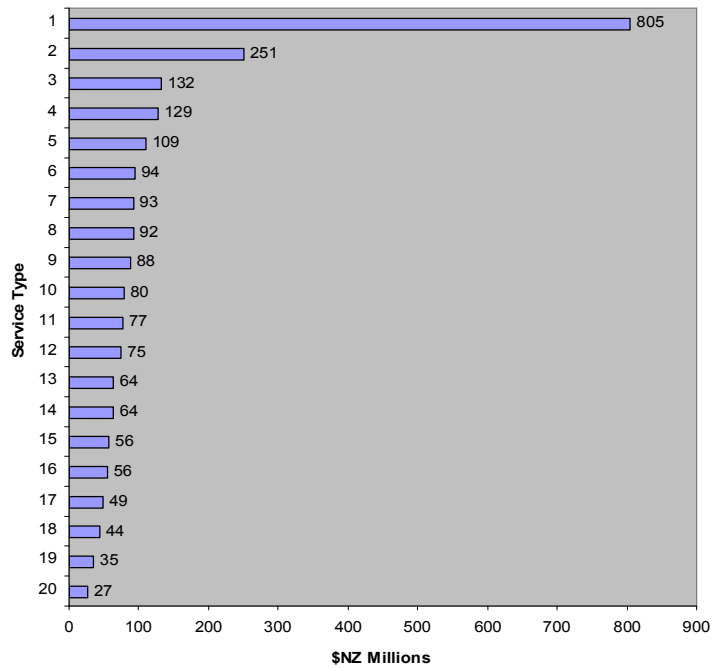
Figure 4: Top 20 service categories, by count of firms, June 2005 year



Source: Authors' calculation

Key	
1	Management consultancy services, Property management services, Postal and courier services
2	IT design and development services
3	IT technical consulting and support services
4	Management fees between you and any foreign parent or subsidiary
5	Royalties and license fees received for computer services
6	Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment
7	Commission agent services for trade in goods
8	Engineering consultancy services
9	Public performance royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights, Other royalty payments received/made, Sale/payments of intangible assets
10	Advertising and market research
11	Other telecommunication services, News agency services - provision of news, photographs and feature articles
12	Technical, testing and analytical services
13	Research and development services
14	Merchanting or any trade related service
15	Hosting and IT infrastructure provisioning services
16	Education services
17	Audio visual and related services
18	Construction and installation services
19	Accounting, tax, and auditing services
20	Legal services

Figure 5: Top 20 service categories, by value of exports, June 2005 year



Source: Authors' calculation

Key	
1	Merchanting or any trade related service
2	Other telecommunication services, News agency services - provision of news, photographs and feature articles
3	IT design and development services
4	Management consultancy services, Property management services, Postal and courier services
5	Legal services
6	Management fees between you and any foreign parent or subsidiary
7	Engineering consultancy services
8	Performance and Sport
9	Commission agent services for trade in goods
10	Construction and installation services
11	Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment
12	Advertising and market research
13	IT technical consulting and support services
14	Repair or refurbishing services
15	Public performance royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights, Other royalty payments received/made, Sale/payments of intangible assets
16	Royalties and license fees received for computer services
17	Audio visual and related services
18	Accounting, tax, and auditing services
19	Other financial services
20	Research and development services

By count of firms, the top three service groupings included: Management consultancy services, Property management services, Postal and courier services; IT design and development services; and IT technical consulting and support services. The three groupings each accounted for over a tenth of all service exporters.

'Merchanting or any trade related services' was by far the biggest services export by value, accounting for 30.5 percent (\$805 million) of total commercial services export receipts. Merchanting captures the purchase of a good by a New Zealand resident from a non-resident and the subsequent resale of the good to another non-resident; during the process, the good does not enter or leave New Zealand. The difference between the value of goods when acquired and the value when sold is recorded as the merchanting service provided.

'Other telecommunication services and news agency services' (9.5 percent of total services exports or \$251 million) and 'IT design and development services' (5.0 percent of total services exports or \$132 million) were the second and third biggest services export by value.²⁷ For a breakdown of the types of services exported by 'service only exporters' and 'goods and services exporters', see Appendix 3.

6. New Zealand Service Exporters

6.1 Characteristics

Having investigated the 'what' and 'where' of our services exports in 2005, the next line of enquiry is the comparative performance of services exporters i.e. how service exporters compare to merchandise goods exporters and non-exporters, and their contribution to economic activity.

Firm level characteristics and performance measures of 'non-exporters', 'service only exporters', 'goods only exporters', and 'goods and service exporters' are summarised in Tables 2 and 3.²⁸ Both the average and median measures are reported. The difference in magnitude between the two measures of centrality highlights the asymmetry in distribution (i.e. presence of outliers) within these groups of firms. The relative ranking of the different groups of firms across the different measures is mostly consistent across both the median and average values.

²⁷ News agency services include the provision of news, photographs and feature articles.

²⁸ The sales, value added and profitability measures are not available for all firms in our sample. The averages/medians are based on the observations for which data is available as opposed to an average/median across all firms in the sample. The coverage rate of the various performance measures (sales, value added, profit, value added per employee, and profit per employee) across the various data sources is reported in Table 12 Appendix F. As can be seen the coverage is fairly good at between 100 and 70.4 percent and therefore reasonably high levels of confidence can be placed on the measures of centrality i.e. averages and medians.

See Appendix D for description of measures considered.

Table 2: Characteristics of non-exporters, goods exporters, service exporters and goods and service exporters

Type of activity	Number of Firms	Number of Employees - Average	Number of Employees - Median	Proportion of Firms with Foreign Ownership (%)
Non-exporter	143,760	6.0	2.6	1.7
Goods only exporter	5,037	45.5	9.5	20.8
Service only exporter	780	45.9	5.8	28.1
Goods and service exporter	282	724.1	44.8	55.3
Total	149,859	8.9	2.7	2.6

Notes: (1) Firm counts have been randomly rounded.

Source: Authors' calculation

Table 3: Performance of non-exporters, goods exporters, service exporters and goods and service exporters

Type of activity	Sales	Value Added	Profit	Value Added per Employee	Profit per Employee
	Average				
Non-exporter	1,190,600	336,100	105,400	74,000	32,900
Goods only exporter	17,409,600	4,856,400	1,524,700	136,800	37,200
Service only exporter	12,865,700	5,140,000	2,334,700	262,000	88,900
Goods and service exporter	300,549,500	100,717,200	36,479,500	232,600	86,600
Total	2,376,600	704,900	239,500	77,500	33,500
	Median				
Non-exporter	408,500	136,600	30,000	40,000	9,100
Goods only exporter	2,758,600	688,500	124,300	60,500	12,200
Service only exporter	1,229,800	561,500	123,400	85,300	17,400
Goods and service exporter	21,050,000	6,930,500	1,285,500	86,900	20,500
Total	423,500	141,000	31,000	40,900	9,200

Source: Authors' calculation

In our sample of 1062 service exporters, 780 were engaged in the export of services only while 282 were engaged in the export of goods and services. A larger number of firms (5037) were goods only exporters and the majority of firms (95.9 percent of firms in sample) were non-exporters – firms with no observed goods/services export receipts.

A number of interesting differences are evident when comparing 'non-exporters' and 'service only exporters'. 'Service only exporters' are: larger both in terms of the number of employees and sales; have a higher proportion of firms with some foreign ownership (28.1 percent vs. 1.7 percent); have higher levels of profit and value added; and higher levels of labour productivity (measured by value added per employee).²⁹ These results are largely consistent with research on merchandise goods exporters.³⁰

Both merchandise goods exporters and service exporters have higher levels of profit relative to firms that do not export. This suggests that despite the additional costs incurred in exporting to foreign markets i.e. market research, adaptation of products and services to local regulations, transport costs etc, the increase in revenue streams more than offsets the additional costs.

'Goods only exporters' and 'service only exporters' appear to be the most similar across a number of measures, out of the four groups of firms considered.³¹ A notable difference includes the relatively higher sales amongst 'goods only exporters' (average sales of 17.4 million vs. 12.9 million). This could be due to the administrative nature of the GST dataset. For example goods exporters are more likely to file GST returns since GST is payable on most goods; on the other hand, some services are exempt from GST, for example financial guarantees and commitments. These activities do not appear in the GST sales figure and so this underestimates total sales. The higher labour productivity measure among 'service only exporters' is another point of difference between the two groups of exporters.

The firms that export both goods and services are markedly different from all other groups of firms. These firms are considerably bigger in terms of employment and sales and more than half of all firms in the group have some foreign ownership. 'Goods and service exporters' also have higher levels of value added and profit. Median value added and profit per employee are higher for this group of firms, however average value added and profit per employee are slightly lower than that of 'service only exporters'.

Despite being small in number (0.2 percent of all firms), 'goods and service exporters' account for a disproportionate share of total employment (15 percent), sales (24 percent), and value added (27.8 percent).³² The considerable contribution of this group of firms is also reflected in the total export receipts in our sample. Table 4 summarises the total export receipts received by the different groups of exporters in the 2005 year.

²⁹ Labour productivity, a measure of how efficiently labour is used, is influenced by a number of factors including the level of capital, knowledge and skill of employees; and management practices. These factors are likely to be different across the groups of firms considered. Controlling for these factors in our estimation of labour productivity would allow us to better evaluate the extent of the productivity differentials between the different groups of firms. This will be an area of future work.

³⁰ Bernard and Jensen (1995); Fabling, Sanderson and Stevens (2009b).

³¹ It is of interest to test the equality of means for the two groups of exporters across the measures considered. We will look to include this when we update the paper.

³² Refer to table 11 in Appendix F.

Close to forty percent of all export receipts in the 2005 year, as captured by the customs data (goods exports) and ITSS data (services exports), were from firms that exported both goods and services. The majority (82 percent) of export earnings received by these firms was from the export of goods. Despite there being nearly three times as many 'service only exporters' as 'goods and services exporters', the total export receipts received by this small group of firms for services exports (\$1,911 million) exceeded the total export receipts received by service only exporters (\$713 million). This means that the majority of NZ's commercial services exports in 2005 were from a small number of firms that were engaged in the export of both goods and services. However, the services share of total exports, within this group of firms, still pales in comparison to goods exports (i.e. 18 percent, vs. 82 percent).

Table 4: Total export receipts by type of exporter

Type of exporter	Number of Firms	Total Goods Exports	Total Services Exports	Total Exports
<i>Actual \$</i>				
Goods only exporter	5,037	15,925,465,349	15,925,465,349
Service only exporter	780	...	713,220,700	713,220,700
Goods and service exporter	282	8,573,700,219	1,911,417,008	10,485,117,227
Total	6,099	24,499,165,568	2,624,637,708	27,123,803,276
<i>% of Total Exports</i>				
Goods only exporter	82.6	58.7		58.7
Service only exporter	12.8		2.6	2.6
Goods and service exporter	4.6	31.6	7.0	38.7
Total	100.0	90.3	9.7	100.0

Notes: (1) The total export value in the above table does equate to export receipts as reported in the Balance of Payments given the various restrictions and exclusions (e.g. exclusion of travel and transportation services).

Source: Authors' calculation

6.2 Concentration of Activity

It was apparent in the previous section that firms that exported both goods and services accounted for a disproportionate share of export receipts. In this section we investigate the concentration of activity within the different exporter groups. Table 5 reports on the share of economic activity of the top 10, 25, 50, 75, and 90 percent of exporters in terms of the total export value by exporter type.

Consistent with research on merchandise goods exports (Fabling and Sanderson, 2008) there is a concentration of trade, employment, sales, value added, and profit among a few 'service only exporters'. For example, the top 10 percent of 'service only exporters' by export value in 2005 accounted for: 64.8 percent of services exports; 38.8 percent of employment; a fifth of all sales; 53.6 percent of total value added; and 64.8 percent of total profit. The top 50 percent of the firms accounted for most

exports (95.2 percent); 73.9 percent of employment; 81.9 percent of all sales; 82.8 percent of total value added; and 91.0 percent of total profit.

Table 5: Concentration of activity within each group of exporters

Service only exporters							
Exporters by Value of Exports	# of Firms	Share of Exports	Share of Employment	Share of Sales	Share of Value Added	Share of Profit	Proportion of Firms with Foreign Ownership
Top 10%	78	64.8	38.8	20.9	53.6	64.8	50.0
Top 25%	195	69.1	41.0	25.2	55.9	64.6	26.2
Top 50%	390	95.2	73.9	81.9	82.8	91.0	34.6
Top 75%	585	99.1	92.3	94.0	93.9	96.7	31.8
Top 90%	702	99.9	96.6	96.6	97.2	98.7	28.2
Total	780	100.0	100.0	100.0	100.0	100.0	28.1

Good only exporters							
Exporters by Value of Exports	# of Firms	Share of Exports	Share of Employment	Share of Sales	Share of Value Added	Share of Profit	Proportion of Firms with Foreign Ownership
Top 10%	504	88.0	42.4	45.8	53.2	51.0	35.1
Top 25%	1260	95.9	60.6	62.2	67.7	67.1	27.1
Top 50%	2517	98.9	77.5	77.1	82.1	82.0	24.3
Top 75%	3780	99.7	89.7	89.1	92.9	93.1	22.6
Top 90%	4533	99.9	96.4	97.4	97.3	98.0	21.3
Total	5037	100.0	100.0	100.0	100.0	100.0	20.8

Goods and service exporters									
Exporters by Value of Exports	# of Firms	Share of Exports - Goods	Share of Exports - Services	Share of Exports - Goods and Services	Share of Employment	Share of Sales	Share of Value Added	Share of Profit	Proportion of Firms with Foreign Ownership
Top 25%	69	95.4	97.3	86.9	86.6	85.8	86.5	87.2	82.6
Top 50%	141	98.9	99.4	96.8	92.8	92.5	91.8	91.0	70.2
Top 75%	213	99.8	99.9	99.5	97.5	95.8	94.6	92.9	62.0
Top 90%	252	100.0	100.0	99.9	99.1	99.3	99.4	99.4	58.3
Total	282	100.0	100.0	100.0	100.0	100.0	100.0	100.0	55.3

Notes: (1) The table shows the contribution the top 10, 25, 50, 75 and 90 percent of the firms make towards total exports, employment, sales, value added and profit. The final column shows the proportion of firms with some foreign ownership.

(2) The top 10 percent of 'Goods and service exporters' is not reported due to confidentiality reasons.

(3) Firm counts have been randomly rounded

Source: Authors' calculation

There is also concentration in activity among 'goods and services exporters', with the top 25 percent of exporters accounting for: 86.9 percent

of exports; 86.6 percent of employment; 85.8 percent of total sales; and 86.5 percent of total value added.

Another interesting result is the high degree of foreign ownership among top exporters across all groups. Out of the 78 firms that represented the top 10 percent of exporters in the 'service only exporter' group, 39 firms (i.e. half of all firms) had some level of foreign ownership. The proportion of foreign ownership among the top 25 percent of 'goods and service' exporters was 82.6 percent.

The relatively high levels of foreign ownership among top exporters' raises interesting questions about the relationship and direction of causality between foreign ownership and the firms ranking as a top exporter in their respective grouping. More specifically, it is not clear whether firms attracted foreign investment by virtue of their high performance, or whether it was the foreign investment that gave the firms access to capital, know-how, and new markets that enabled them to realise their full potential, or if it was combination of the two. Further work will look to investigate this relationship in more detail.

7. Product and Market Diversification

7.1 Number of Service Types, Product Types and Markets

The extent of diversification, in terms of the types of services exported and the number of export markets, can be investigated using service type and destination data available in the ITSS survey.

Table 6 reports on:

- the number of service categories or product types (at the HS2 level for goods exporters) a firm exports;
- the number of countries it exports to; and
- the number of established relationships - where a relationship is defined as the product-country-firm combination, as in Fabling and Sanderson (2009a).

'Service only exporters' exported on average 1.3 service types to 3.1 countries in 2005. However, there is considerable asymmetry in the underlying distribution, with half of all firms exporting a single service to a single country and a small number of 'service only exporters' exporting multiple services to multiple markets. The skewed distribution with a small number of firms exporting multiple goods to a multiple markets is also true for 'goods only exporters' and 'goods and services exporters'. These results are consistent with Fabling and Sanderson (2009a) analysis of merchandise goods exporters.

Given the different nature of goods and services, service categories and product types are not directly comparable. The number of export markets can, however, be directly compared. Looking at the market diversification of 'goods only' and 'service only' exporters, we see that 'goods only exporters'

export to relatively more markets than ‘service only exporters’. The median number of countries a goods exporter exports to is three, compared with just one for service only exporters. Future work will look to unpick this finding further, as it would be helpful to know if this was related to high barriers to entry in the areas of services trade relative to goods trade.

Once again, the ‘goods and services exporters’ appear to be in a league of their own, exporting a wider range of services and product types to more markets relative to ‘service only’ and ‘goods only’ exporters. It would be of interest to investigate if it was their relatively bigger size that facilitated increased market diversification or if there were other factors at play.

Table 6: Diversity of export portfolios

	Service only exporters			Goods only exporters			Goods and service exporters					
	# of service categories	# of countries	# of relationships	# of goods (HS 2 classification)	# of countries	# of relationships	# of service categories	# of countries	# of relationships	# of goods (HS 2 classification)	# of countries	# of relationships
Number of firms	780	780	780	5037	5037	5037	282	282	282	282	282	282
mean	1.3	3.1	3.6	4.4	4.4	9.6	1.7	3.9	5.1	8.2	10.3	30.3
Percentile												
10%	1	1	1	1	1	1	1	1	1	1	1	2
25%	1	1	1	1	1	2	1	1	1	2	2	4
50%	1	1	2	3	3	5	1	2	2	4	4.5	9
75%	1	3	4	5	5	10	2	4	5	10	13	25
90%	2	5	6	10	10	20	3	9	11	20	25	80
95%	3	8	11	14	14	32	4	14	19	31	38	125
99%	5	31	31	28	27	77	c	c	c	c	c	c

Notes: (1) The firms are ordered by the number of service categories they export, the number of countries they export to and the number of relationships they have to calculate the various percentile values

(2) c – cell suppressed for confidentiality reasons.

Source: Authors’ calculation

7.2 Product and Market Concentration

The previous section investigated the export service/product and market diversification of firms. This section investigates the concentration of trade, employment, sales, value added, and profit according to how many service types (goods) firms export and the number of countries they trade with. Tables 7 and 8 below capture the key details.³³

Most service exporters export only a single service type. However, a disproportionate share of exports, employment, sales, value-added, and profit is accounted for by a small number of service exporters exporting four or more service types. The 3.7 percent of ‘service exporters’ exporting to four or more countries account for 15.4 percent of all services exports, just over half of all employment and sales, and approximately 60 percent of

³³ The coverage rate of the various performance measures (sales, value added, and profit) across the various data sources is reported in Tables 12 and 13 in Appendix F.

value added and profit. Foreign ownership is also greater in these 'four-plus' service exporters.

Table 7: Concentration of activity by number of services/goods exported

Count of Services/ Goods Exported	Count of Firms	% of Firms	% of Exports	% of Employment	% of Sales	% of Value Added	% of Profit	% of Firms with Overseas Ownership
Service Exporters								
One	792	74.6	63.5	35.6	31.7	26.0	26.2	32.6
Two	174	16.4	13.7	11.0	11.0	12.4	8.7	39.7
Three	54	5.1	7.3	3.0	5.0	2.5	2.1	42.1
Four plus	39	3.7	15.4	50.4	52.3	59.1	63.0	61.5
Goods Exporters								
One	1476	27.8	7.3	6.7	7.9	4.1	3.1	13.6
Two	1005	18.9	5.2	6.0	4.6	3.6	2.3	18.5
Three	729	13.7	5.1	5.1	5.8	5.3	4.7	21.4
Four plus	2106	39.6	82.5	82.2	81.8	86.9	89.9	31.3

- Notes: (1) Service categories are based on the ITSS questionnaire service categories
(2) Goods exported are analysed at the HS2 level, to make it relatively more comparable with services
(3) Firm counts have been randomly rounded.

Source: Authors' calculation

Table 8: Concentration of activity by count of export destinations

Count of Export Destinations	Count of Firms	% of Firms	% of Exports	% of Employment	% of Sales	% of Value Added	% of Profit	% of Firms with Overseas Ownership
Service Exporters								
One	516	48.6	15.8	15.2	15.4	11.3	12.0	33.7
Two	186	17.5	10.7	6.3	8.2	7.2	5.0	32.3
Three	117	11.0	12.2	19.3	11.2	11.0	12.1	35.9
Four	66	6.2	c	2.6	7.7	4.7	6.1	40.9
Five	54	5.1	c	10.9	c	8.2	6.6	33.3
Six	24	2.3	4.5	1.8	c	3.4	4.0	37.5
Seven plus	96	9.0	29.2	43.8	42.4	54.2	54.2	43.8
Goods Exporters								
One	1494	28.1	2.1	7.0	7.9	4.7	4.2	17.1
Two	990	18.6	2.0	6.4	5.4	5.0	4.8	20.3
Three	717	13.5	3.1	4.6	4.7	3.9	3.7	18.0
Four	513	9.6	2.5	4.6	5.7	5.2	5.6	21.6
Five	315	5.9	1.5	2.9	2.9	2.2	2.3	24.8
Six	252	4.7	3.9	3.9	4.1	3.8	3.7	27.4
Seven plus	1038	19.5	84.9	70.6	69.4	75.1	75.7	34.7

- Notes: (1) c – cell suppressed for confidentiality reasons.
(2) Firm counts have been randomly rounded.

Source: Authors' calculation

Parallel analysis on the concentration of activity by the number of markets a firm exports to shows that 48.6 percent of all service exporters export to just one destination. However, the small proportion of firms (9.0 percent) that export to seven or more destinations account for a disproportionate share of exports, employment, sales, value added, and profit. The skew in the economic activity towards those exporting to seven or markets is also evident amongst goods exporters with the skew being relatively more pronounced in the case of goods exporters than service exporters, i.e. 19.4 percent of goods exporters exported to seven or more markets. These goods exporters account for over 70 percent of employment, value added and profit.

The analysis of concentration in activity by the number of service type and the number of markets a firm serves in suggests that

- exporting is concentrated among relatively few firms;
- trading in multiple service types; and
- in multiple markets.

7.3 Concentration of Activity within Firms

Breinlich and Criscuolo (2008) in their analysis of service exporters in the UK found that firms that exported multiple service types and/or to multiple markets derived most of their export receipts from their most important (primary) service type or in their primary market. In this section, a similar analysis of primary service type/market is carried out.

Table 9 reports on the proportion of export receipts derived from the primary service type or good. Column 1 ranks the services/goods exported by a firm according to the service/good deriving the most export receipts for the firm. Columns 3-7 report on the proportion of exports receipts obtained from the most important service/good export, second most important, third most important etc.

Consistent with research on UK service traders, there is evidence to suggest that on average the bulk of a firm's export receipts is derived from its primary service export. For example, across all firms the largest service export accounts for, on average, 91.6 percent of all exports. For firms exporting five service types, the largest service export accounts for on average 61.1 percent of all export receipts. As expected, the importance of the primary service export declines with the number of service types a firm exports. However, the primary service export continues to generate the most export receipts.³⁴

³⁴ Given the different ways in which goods and service types are classified, concentration by primary service type and goods type are not directly comparable.

Table 9: Concentration of activity by primary service/goods type

		Number of Service Types Exported				
Ranking of Service type	Proportion of Total Exports	1	2	3	4	5
1	91.6	100.0	86.3	75.2	67.7	61.1
2	5.6		13.7	18.1	17.3	25.8
3	1.8			6.6	12.6	8.1
4	0.4				2.4	3.7
5	0.2					1.2
	100.0	100.0	100.0	100.0	100.0	100.0
		Number of Goods (HS2) Exported				
Ranked Goods exported	Proportion of Total Exports	1	2	3	4	5
1	82.9	100.0	96.5	94.3	86.8	89.5
2	9.6		3.5	4.9	10.6	9.3
3	4.0			0.8	2.0	1.0
4	1.3				0.6	0.2
5	0.6					0.1
	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculation

Similar analysis by primary service market is summarised in Table 10. Results suggest that exporters derive most of their income from the primary export market. For service exporters, the primary market accounts for, on average, 63.8 percent of all export receipts. The relative importance of the primary market fluctuates as the firm diversifies across a number of markets, but the primary market continues to account for the largest proportion of export receipts.

For goods exporters, there is a noticeable decline in the relative importance of the primary market as firms diversify across markets. The results also suggest that, on average, goods exporters are relatively more diversified than service exporters, with the primary market accounting for 44.4 percent of all export receipts compared with 63.8 percent for service exporters. However, there clear differences by the number of markets.

The above analysis suggests that even with diversification into new markets and service types, the primary market and service type continues to be of particular importance for the firm in terms of generating the bulk of export receipts.

Table 10: Concentration of activity by primary export market

		Number of Markets - Services Exports							
Ranked export market	Proportion of total exports	1	2	3	4	5	6	7	8
1	63.8	100.0	68.1	49.3	60.8	49.7	51.1	53.8	64.0
2	17.5		31.9	42.7	19.9	23.1	24.9	24.5	18.1
3	10.3			8.1	12.1	15.9	12.9	9.9	10.1
4	3.8				7.1	7.6	5.9	5.1	3.6
5	1.3					3.7	3.5	3.2	1.8
6	0.8						1.7	2.3	1.2
7	0.6							1.2	0.8
8	0.4								0.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		Number of Markets - Goods Exports							
Ranked Goods market	Proportion of total exports	1	2	3	4	5	6	7	8
1	44.4	100.0	88.4	86.5	79.5	75.6	75.2	62.0	56.3
2	16.6		11.6	11.2	15.0	16.6	16.8	19.1	22.0
3	9.1			2.4	4.5	4.9	4.6	12.6	9.1
4	5.5				1.0	2.1	2.0	3.7	5.6
5	4.2					0.8	1.0	2.1	3.6
6	3.2						0.3	0.4	2.5
7	2.5							0.1	0.9
8	2.0								0.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculation

8. Conclusion

This paper has sought to obtain a better understanding of NZ's commercial service exporters using the newly integrated ITSS and LBD dataset. Analyses into our main commercial services export markets and key services exports in 2005 showed that:

- Australia, US and UK were the top three markets by firm count;
- Australia, US, China (includes Hong Kong, and Macau) were the top three markets by value of trade;
- 'management consultancy services', 'IT design and development services', and 'IT technical consulting and support services' were our top three exports in terms of the number of firms involved; and
- 'merchandising or any trade related service', 'other telecommunication services, news agency services', and 'IT design and development

services' were the top three service export groupings by value.

Investigations into the characteristics of firms that engage in services exports revealed that similar to merchandise goods exporters, service exporters are larger in terms of average employees and sales, have higher levels of labour productivity, and are more likely to have some foreign ownership compared with non-exporters.

Furthermore, firms that export both goods and services are significantly larger and have higher levels of sales, value added, and profit than firms that export only services and those that only export goods. The (median) labour productivity measures of value added per employee and profitability per employee are higher than that of 'goods only exporters' and marginally higher than that of 'service only exporters'. This group of exporters only accounted for 0.2 percent of all firms under consideration but accounted for forty percent of total export receipts. Additionally, the total export receipts received by this small group of firms for services exports (\$1,911 million) exceeded the total export receipts received by service only exporters (\$713 million), suggesting that the majority of New Zealand's services exports in 2005 were from a small number of firms that exported both goods and services. However, the 'goods and services exporters' share of services exports, relative to goods exports is still small, i.e. 18 percent vs. 82 percent. This suggests that growing this segment of exporters is likely to provide considerable returns to the NZ economy. Future work hopes to look into this area in more detail.

Consistent with research on merchandise goods exports (Fabling and Sanderson, 2008), a disproportionate share of trade, employment, sales, value added, and profitability is concentrated among a few service exporters. A relatively large number of these top exporters also had some level of foreign ownership. For example, out of the 78 firms that represented the top 10 percent of exporters in the 'service only exporter' group, 39 firms had some level of foreign ownership. Similarly, foreign ownership among the top 25 percent of 'goods and service' exporters was 82.6 percent. The relatively high levels of foreign ownership among the top exporters raises interesting questions about the relationship and direction of causality between foreign ownership and the firms' ranking as a top exporter in their respective grouping.

Analysis of service type and market diversification found that half of all service only exporters exported a single service type to a single country. However, there was considerable asymmetry, with a small number of firms exporting multiple services to multiple markets. The goods and services exporters were in a league of their own, exporting a wider range of services and product types to more markets relative to service only and goods only exporters.

Investigations into the concentration of activity by the number of service types and markets found that the majority of service exporters only exported a single service type to a single market. However, a disproportionate share of trade, employment, sales, value-added, and profit was accounted for by a small number of service exporters exporting multiple services to multiple markets.

Finally, examination into concentration of trading activity within firms highlighted that, despite a firm's attempts to diversify into new markets and service types, firms continued to derive a large fraction of their export receipts from their most important market and/or in their most important service type.

An extension to this descriptive paper would be robust regression analysis of firm-level variables on trading status of firms using a wider sampling frame, i.e. multiple years' worth of data. The rich dataset also allows for other lines of enquiry. For example, the longitudinal nature of the dataset can be utilised to some extent (i.e. follow a group of service exporters surveyed continuously over a period of time) to get a better understanding of the performance of these firms in terms of: the types of services they export; markets to which they export; and how this changes overtime.

In the second half of 2010, the MFAT and the Ministry of Economic Development will undertake a project which will further investigate the importance and economic performance of the services sector in NZ. This project should shed some further light on the role of international business linkages, especially exports and investment in the economic performance of firms in the services sector.

The integrated ITSS – LBD dataset has for the first time allowed us to get an appreciation of the characteristics and performance of service exporters. MFAT will continue to use the LBD to deepen our understanding of service exporters.

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Appendix A: Service categories in the ITSS

50	Information and communication technology services
51	IT technical consulting and support services
52	IT design and development services
53	Hosting and IT infrastructure provisioning services
54	IT infrastructure and network management services
55	Database information services
56	Other data processing
57	Internet access and telecommunication services
58	Other telecommunication services
59	News agency services – provision of news, photographs and feature articles
60	Financial services
61	Asset management fees
62	Guarantees and commitments
63	Underwriting and placement of securities
64	Financial advisory services
65	Financial transaction processing
66	Other financial services
70	Trade and sales services
71	Advertising and market research
73	Commission agent services for trade in goods
80	Business services
81	Accounting, tax, and auditing services
82	Legal services
83	Management consultancy services
84	Management fees between firm and foreign parent or subsidiary
85	Property management services
86	Postal and courier services
87	Printing services
88	Placement of personnel
89	Photographic services
90	Entertainment and recreational services
91	Audio visual and related services
92	Other cultural and recreational services
93	Performance and sports
94	Entertainment services – event promotion
100	Technical and professional services
101	Engineering consultancy services

- 102 Technical, testing and analytical services
- 103 Agricultural, mining and on-site processing services
- 104 Repair or refurbishing services
- 105 Construction and installation services
- 106 Research and development services
- 107 Education services
- 108 Conference presentation or organisation fees
- 109 Health and medical services
- 110 Intellectual property services
- 111 Royalties and license fees received for computer services
- 112 Audiovisual broadcast rights
- 113 Sales and mechanical royalties for musical works and/or sound recordings
- 114 Public performance royalties for musical works and/or sound recordings
- 115 Other royalty payments for musical works and/or sound recordings
- 116 Revenue/payments from franchise rights
- 117 Other royalty payments received/made
- 118 Sale/payments of intangible assets
- 120 Miscellaneous services
- 121 Subscription to newspapers or periodicals
- 122 Membership subscriptions
- 123 Warranty claims
- 124 Operational leasing services
- 125 Fishing vessel charter fees
- 126 Office equipment or ICT equipment rentals
- 130 Services not previously listed
- 131 Translation, editing and interpretation services
- 132 Consultancy services not elsewhere classified
- 134 Other miscellaneous services
- 135 Maintenance and repair of computers and peripheral equipment
- 136 Other trade related service
- 137 Merchanting

Appendix B: Datasets integrated with the LBD

Data set	Description
ITSS Census	<ul style="list-style-type: none"> • The ITSS census is sent out to all identified service traders. • The census is carried out once in every 3-5 years. • The main purpose of the ITSS census is to update the service trader population, from which a sample is selected for the ITSS quarterly survey • The 1999 and 2005 ITSS census results have been integrated with the LBD. • The 2005 ITSS census was sent out to 4000 firms and had a response rate of 89 percent. • The 1999 ITSS census had a different service category classification (hence not directly comparable to 2005 census classification). • The ITSS census results give a fairly good static picture of service traders in terms of characteristics and performance.
ITSS Quarterly Survey	<ul style="list-style-type: none"> • Carried out on a quarterly basis and is used in the compilation of Balance of Payments Statistics. • The ITSS quarterly survey from March 2000 onwards has been integrated with the LBD. • Firms filling out the survey can be tracked over time. In theory can look at how the value, composition of services exports and destination has changed over time. However, the survey is only sent out to a small sample of firms, and not all firms fill out the survey continuously overtime.
ITSS Birth Survey	<p>Sent out on an ad-hoc basis to all newly identified service traders from media reports or the Annual Frame Update Survey. No birth surveys have been sent out since the 2005 ITSS census.</p>
Service Exporter Indicator	<p>Set of indicators from the Annual Frame Update Survey that is used to distinguish a service trader. It is scheduled to be integrated early this year.</p>

Appendix C: Limitations of integrated ITSS data

Given the survey nature of the services trade statistics, the types of questions that can be asked of the data are very different to the types of questions that can be asked of merchandise goods data. Merchandise trade data in the LBD is based on administrative data where all exports/imports greater than \$1,000 are captured. Services trade data on the other hand is only available for identified service exporters who have responded to the ITSS survey. So the analysis is influenced by the way in which the population is identified and the survey response.

Issues related to the way in which population is identified

- The Business Frame (BF) is a statistical business register that covers all economically significant firms in NZ (generally those firms with over \$30,000 in annual sales subject to GST). The BF is primarily maintained from administrative tax and Companies Office information.
- The Annual Frame Update Survey (AFUS) is sent to a sample of large and medium sized firms to validate and supplement the administratively based BF records. A sample of 30,000 firms was surveyed in 2010.
- The service trader population is largely identified from a question in AFUS.
- The frequency at which firms fill out the survey depends on the size of the firm. Firms in the Business Frame are divided into three tiers. Tier 1 (large), Tier 2 (medium sized, in 2010 required approximately \$1 million annual sales to qualify), Tier 3 (small but over the economically significant threshold).
- Tier 1 firms are surveyed on an annual basis in AFUS; tier 2 firms are surveyed once every three years. Finally, tier 3 firms are rarely surveyed.
- A positive response to the AFUS service trader question populates the service trader field in the Business Frame. However, it must be noted that the threshold for ticking yes to the service trader question is \$20,000 in income/expenditure. Hence, smaller firms engaging in export/import of services will not be captured as a service trader.
- AFUS has an 84 percent response rate. Non-response will result in firms that are service exporters/importers not being picked up. Additionally, firms that have exported/imported in the past but have ceased to export/import will continue to be identified as service traders.
- With the tier 2 firms being surveyed once every three years, firms that have ceased to export/import between the survey periods will continue to be identified as service traders until the indicator is revised.
- Therefore, non-response together with the number of years

between the AFUS surveys will bias the population of service traders. It is not possible to precisely identify entry or exit of service traders or export/import spells unlike merchandise goods traders.

Issues related to the ITSS survey

- Detailed information related to services trade i.e. type of services exported/imported, destination/source market and value of trade is obtained from the ITSS survey.
- The quarterly survey is sent out to 1000 firms. The response rate is 100 percent for key firms (firms that account for a large share of trade in a particular category) and around 80 percent for all other firms. With the exception of key firms the mix of firms which are surveyed will vary from one quarter to the next. This, together with non-response, implies that the exporting/importing behaviour of firms cannot to be tracked over time for all firms.

Appendix D: Value of exports and count of firms by service category and destination

All service exporters – Export markets by count of firms and value of exports

Rank by Value of exports	Rank by Count of firms	Country Grouping	Inclusions	Exports in NZ\$	% of Total Exports	Count of Firms
1	1	Australia		758,906,000	28.8	696
2	2	US		496,131,000	18.8	390
3	4	China	China, Hong Kong, Macau	214,787,000	8.1	150
4	9	Other ²	Antarctica, Bermuda, Country Unspecified, Destination Unknown, North Korea, Norfolk Island	C		87
5	7	Japan		200,497,000	7.6	105
6	33	Korea ²		C		27
7	3	United Kingdom	Channel Islands, Isle of Man, Scotland, United Kingdom, Wales	136,023,000	5.2	282
8	5	Singapore		37,345,000	1.4	135
9	15	Gulf Cooperation Council (GCC) ²	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates	C		48
10	24	Taiwan ²		C		33
11	6	Fiji		27,536,000	1.0	108
12	11	Malaysia		27,348,000	1.0	63
13	8	Canada		24,504,000	0.9	93
14	17	Indonesia		21,593,000	0.8	45
15	10	Germany		20,988,000	0.8	81
16	17	Other Polynesia	Cook Islands, French Polynesia, Niue, Pitcairn, Samoa, American, Tonga, Wallis and Futuna	19,750,000	0.7	45
17	22	Other Middle East and North Africa	Egypt, Iran, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Turkey, Western Sahara, Yemen	19,428,000	0.7	36
18	28	Ireland		17,002,000	0.6	30
19	33	Papua New Guinea		16,519,000	0.6	27
20	24	Other South Asia	Bangladesh, Bhutan, Maldives, Nepal, Pakistan, Sri Lanka	16,320,000	0.6	33
21	20	Samoa		14,195,000	0.5	42
22	15	Netherlands		13,128,000	0.5	48
23	12	France		12,649,000	0.5	60
24	37	Spain		9,512,000	0.4	24
25	13	South Africa		8,268,000	0.3	54
26	43	Russia and Central Asia	Afghanistan, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Mongolia, Russia	7,254,000	0.3	18
27	28	Melanesia	New Caledonia, Solomon Islands, Timor-Leste, Vanuatu	6,774,000	0.3	30
28	14	Thailand		6,675,000	0.3	51
29	33	Cambodia, Laos, Viet Nam	Cambodia, Laos, Viet Nam	6,380,000	0.2	27
30	49	Micronesia	Guam, Kiribati, Marshall Islands, Micronesia, Nauru	6,276,000	0.2	12
31	17	Switzerland		6,161,000	0.2	45
32	20	India		5,879,000	0.2	42

33	28	Caribbean	Antigua and Barbuda, Bahamas, Barbados, Cayman Islands, Cuba, Dominican Republic, Guadeloupe, Jamaica, Netherlands Antilles, Puerto Rico, Trinidad and Tobago, United States Minor Outlying Islands, Virgin Islands	5,857,000	0.2	30
34	22	Italy		5,719,000	0.2	36
35	24	Philippines		5,411,000	0.2	33
36	37	Other South America	Colombia, Ecuador, Falkland Islands, Guyana, Paraguay, Peru, South Georgia and the South Sandwich Islands, Suriname, Uruguay, Venezuela	5,145,000	0.2	24
37	49	Central and West Africa	Cameroon, Cape Verde, Congo, Ghana, Liberia, Nigeria, Senegal, Sierra Leone, Togo	4,881,000	0.2	12
38	28	Sweden		4,384,000	0.2	30
39	49	Other Central America	Belize, Costa Rica, El Salvador, Nicaragua, Panama	3,572,000	0.1	12
40	37	Other Southern and South Eastern Europe	Andorra, Bulgaria, Croatia, Cyprus, Czech Republic, Former Yugoslav Republic of Macedonia, Gibraltar, Malta, Moldova, Slovenia, Vatican City State	2,733,000	0.1	24
41	42	Southern and Eastern Africa	Angola, Botswana, Burundi, Ethiopia, Kenya, Mauritius, Mozambique, Namibia, Reunion, Rwanda, Swaziland, Tanzania, Uganda, Zimbabwe	2,717,000	0.1	21
42	37	Brazil		2,239,000	0.1	24
43	28	Denmark		2,053,000	0.1	30
44	46	Argentina		1,740,000	0.1	15
45	43	Chile		1,717,000	0.1	18
46	43	Eastern Europe	Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Ukraine	1,685,000	0.1	18
47	24	Belgium		1,518,000	0.1	33
48	37	Mexico		1,327,000	0.1	24
49	33	Norway		1,228,000	0.0	27
50	49	Austria		1,170,000	0.0	12
51	56	Brunei Darussalam		1,086,000	0.0	6
52	46	Finland		1,036,000	0.0	15
53	49	Other Western Europe	Liechtenstein, Luxembourg, Monaco	406,000	0.0	12
54	49	Other Northern Europe	Greenland, Iceland	363,000	0.0	12
55	46	Greece		226,000	0.0	15
56	55	Portugal		86,000	0.0	9

Notes

- 1) The countries have been aggregated to preserve the confidentiality of firms operating in a particular country. In some instances the confidentiality risk arises due to the small number of firms operating in a particular market; in other instances it is due to a few large firms accounting for most of the exporting.
- 2) The total exports to GCC, Taiwan, Korea, the 'Other' country group have been suppressed for confidentiality reasons.
- 3) The firm counts have been randomly rounded for confidentiality reasons.
- 4) Firms exporting to multiple countries are counted multiple times in the above table.

Service only exporters – Service categories exported by count of firms

Rank	Service Category	W120 Description (where relevant)	Total services exports NZ\$	Count of firms
1	Management consultancy services	Other business services	35,949,000	117
2	IT design and development services	Computer and related services - Software implementation Services	64,192,000	114
3	IT technical consulting and support services	Computer and related services - Consultancy services related to the installation of computer hardware	21,359,000	87
4	Royalties and license fees received for computer services		34,698,000	78
5	Conference presentation or organisation fees, Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment	Other business services	31,334,000	72
6	Advertising and market research	Other business services	46,681,000	63
7	Engineering consultancy services	Professional services	28,178,000	60
8	Management fees between you and any foreign parent or subsidiary		53,148,000	54
9	Commission agent services for trade in goods	Commission agent's services	11,546,000	45
10	Other royalty payments received/made		9,750,000	33
11	Research and development services, Health and medical services	Research and development services	12,701,000	30
12	Technical, testing and analytical services	Professional services	11,359,000	30
13	Hosting and IT infrastructure provisioning services		5,354,000	27
14	Legal services	Professional services	86,072,000	24
15	Other financial services		28,815,700	21
16	Education services		5,426,000	21
17	Audio visual and related services	Audio-visual services	37,396,000	18
18	Database information services	Computer and related services - Database services	11,295,000	18
19	Merchandising or any trade related services	Wholesale trade services	25,397,000	15
20	Financial advisory services	Banking and other financial services - Advisory and other financial services	20,574,000	15
21	IT infrastructure and network management services		8,167,000	15
22	Other telecommunication services, News agency services - provision of news, photographs and feature articles		4,972,000	15
23	Subscriptions to newspapers or periodicals, Membership subscriptions, Warranty claims, Operational leasing services		4,930,000	15
24	Accounting, tax, and auditing services	Professional services	33,279,000	12
25	Asset management fees	Banking and other financial services - Asset management	11,591,000	12
26	Sales and mechanical royalties for musical works and/or sound recordings, Public performance royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights		5,541,000	12
27	Repair or refurbishing services	Other business services - Maintenance and repair of equipment	4,715,000	12
28	Internet access and telecommunication services		2,692,000	12
29	Construction and installation services	Telecommunication services	2,571,000	12
30	Financial transaction processing	Financial services	19,468,000	9
31	Other cultural and recreational services, Entertainment Services - event promotion	Entertainment services; New agency services; Libraries, archives, museums and other cultural services; sporting and other recreational services; Other	11,115,000	9
32	Translation, Editing and Interpretation Services		3,931,000	9
33	Performance and Sport		6,910,000	6
34	Consultancy services not elsewhere classified		4,805,000	6
35	Agricultural, mining and on-site processing services	Other business services	3,633,000	6
36	Other data processing	Financial services	1,831,000	6
37	Guarantees and commitments, Underwriting and placement of securities	Banking and other financial services	1,454,000	6

38	Postal and courier services, Printing services, Photographic services	Postal services	271,000	6
39	Audiovisual broadcast rights		8,014,000	3
40	Placement of Personnel		3,186,000	3

Service only exporters – Service categories exported by value of exports

7	Service Category	W120 Sectoral Classification (where relevant)	Total services exports NZ\$	Count of firms
1	Legal services	Professional services	86,072,000	24
2	IT design and development services	Computer and related Services - Software implementation Services	64,192,000	114
3	Management fees between you and any foreign parent or subsidiary		53,148,000	54
4	Advertising and market research	Other business services	46,681,000	63
5	Audio visual and related services	Audio-visual services	37,396,000	18
6	Management consultancy services	Other business services	35,949,000	117
7	Royalties and license fees received for computer services		34,698,000	78
8	Accounting, tax, and auditing services	Professional services	33,279,000	12
9	Conference presentation or organisation fees, Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment	Other business services	31,334,000	72
10	Other financial services		28,815,700	21
11	Engineering consultancy services	Professional services	28,178,000	60
12	Merchanting or any trade related services	Wholesale trade services	25,397,000	15
13	IT technical consulting and support services	Computer and related Services - Consultancy services related to the installation of computer hardware	21,359,000	87
14	Financial advisory services	Banking and other financial services - advisory and other financial services	20,574,000	15
15	Financial transaction processing	Financial services	19,468,000	9
16	Research and development services, Health and medical services	Research and development services	12,701,000	30
17	Asset management fees	Banking and other financial services - Asset management	11,591,000	12
18	Commission agent services for trade in goods	Commission agent's services	11,546,000	45
19	Technical, testing and analytical services	Professional services	11,359,000	30
20	Database information services	Computer and related services - Database services	11,295,000	18
21	Other cultural and recreational services, Entertainment Services - event promotion	Entertainment services; New agency services; Libraries, archives, museums and other cultural services; sporting and other recreational services; Other	11,115,000	9
22	Other royalty payments received/made		9,750,000	33
23	IT infrastructure and network management services		8,167,000	15
24	Audiovisual broadcast rights		8,014,000	3
25	Performance and Sport		6,910,000	6
26	Sales and mechanical royalties for musical works and/or sound recordings, Public performance royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights		5,541,000	12
27	Education services		5,426,000	21
28	Hosting and IT infrastructure provisioning services		5,354,000	27

29	Other telecommunication services, News agency services - provision of news, photographs and feature articles		4,972,000	15
30	Subscriptions to newspapers or periodicals, Membership subscriptions, Warranty claims, Operational leasing services		4,930,000	15
31	Consultancy services not elsewhere classified		4,805,000	6
32	Repair or refurbishing services	Other business services - Maintenance and repair of equipment	4,715,000	12
33	Translation, Editing and Interpretation Services		3,931,000	9
34	Agricultural, mining and on-site processing services	Other business services	3,633,000	6
35	Placement of Personnel		3,186,000	3
36	Internet access and telecommunication services		2,692,000	12
37	Construction and installation services	Telecommunication services	2,571,000	12
38	Other data processing	Financial services	1,831,000	6
39	Guarantees and commitments, Underwriting and placement of securities	Banking and other financial services	1,454,000	6
40	Postal and courier services, Printing services, Photographic services	Postal services	271,000	6

Notes

- 1) The service categories have been aggregated to preserve the confidentiality of firms exporting a particular service type. In some instances the confidentiality risk arises due to the small number of firms engaging in a particular service activity in other instances it is due to a few large firms accounting for most of the exporting.
- 2) The firm counts have been randomly rounded for confidentiality reasons.
- 3) Firms exporting to multiple service types are counted multiple times in the above table.

Goods and service exporters – Service categories exported by count of firms

Rank	Service Category	W120 Sectoral Classification (where relevant)	Total Services Exports NS\$	Count of Firms
1	Management fees between you and any foreign parent or subsidiary		40,837,000	54
2	Management consultancy services, Property management services, Postal and courier services, Printing services	Other business services	92,715,000	36
3	Commission agent services for trade in goods	Commission agents' services	76,254,000	36
4	Other royalty payments received/made		43,645,000	36
5	IT design and development services	Computer and Related Services - Software implementation services	67,639,000	33
6	Audiovisual broadcast rights, Sales and mechanical royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights		5,505,000	27
7	Merchanting or any trade related services	Wholesale trade services	779,438,000	24
8	Conference presentation or organisation fees, Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment	Other business services;	48,331,000	24
9	IT technical consulting and support services	Computer and Related Services - Software implementation services	42,927,000	24
10	Royalties and license fees received for computer services; Other cultural and recreational services; Performance and Sport		108,922,000	21
11	Technical, testing and analytical services; Agricultural, mining and on-site processing services; Repair or refurbishing services	Professional Services; Other Business Services;	65,983,000	21
12	Engineering consultancy services	Professional services	64,525,000	21
13	Construction and installation services	General construction work for buildings; General construction work for civil engineering; Installation and assembly work; building completion and finishing work; Other	77,134,000	18
14	Accounting, tax, and auditing services; Legal services; Asset management fees; Guarantees and commitments; Underwriting and placement of securities; Financial advisory services; Financial transaction processing; Other financial services	Professional Services; Banking and other financial services;	51,535,000	18
15	Research and development services; Health and medical services; Education services	Research and development services; Professional services; Hospital Services; Other human health services	22,253,000	18
16	Advertising and market research	Other business services	28,607,000	15
17	IT infrastructure and network management services; Database information services; Other data processing; Internet access and telecommunication services	Computer and related services - Data base services; Financial services; Telecommunication services	16,173,000	15
18	Warranty claims		13,600,000	12
19	Sale/payments of intangible assets; Subscriptions to newspapers or periodicals; Membership subscriptions; Operational leasing services		5,728,000	12
20	Other telecommunication services		243,861,000	9
21	Audio visual and related services	Audio-visual services	11,962,000	9
22	Hosting and IT infrastructure provisioning services		2,014,000	6
23	News agency services - provision of news, photographs and feature articles		1,687,000	6
24	Consultancy services not elsewhere classified		135,000	3

Goods and service exporters – Service categories exported by value of exports

Rank	Service Category	W120 Sectoral Classification (where relevant)	Total Services Exports NS\$	Count of Firms
1	Merchandising or any trade related services	Wholesale trade services	779,438,000	24
2	Other telecommunication services		243,861,000	9
3	Royalties and license fees received for computer services; Other cultural and recreational services; Performance and Sport		108,922,000	21
4	Management consultancy services, Property management services, Postal and courier services, Printing services	Other business services	92,715,000	36
5	Construction and installation services	General construction work for buildings; General construction work for civil engineering; Installation and assembly work; building completion and finishing work; Other	77,134,000	18
6	Commission agent services for trade in goods	Commission agents' services	76,254,000	36
7	IT design and development services	Computer and Related Services - Software implementation services	67,639,000	33
8	Technical, testing and analytical services; Agricultural, mining and on-site processing services; Repair or refurbishing services	Professional Services; Other Business Services;	65,983,000	21
9	Engineering consultancy services	Professional services	64,525,000	21
10	Accounting, tax, and auditing services; Legal services; Asset management fees; Guarantees and commitments; Underwriting and placement of securities; Financial advisory services; Financial transaction processing; Other financial services	Professional Services; Banking and other financial services;	51,535,000	18
11	Conference presentation or organisation fees, Other Miscellaneous Services, Maintenance and Repairs of computers & peripheral equipment	Other business services;	48,331,000	24
12	Other royalty payments received/made		43,645,000	36
13	IT technical consulting and support services	Computer and Related Services - Software implementation services	42,927,000	24
14	Management fees between you and any foreign parent or subsidiary		40,837,000	54
15	Advertising and market research	Other business services	28,607,000	15
16	Research and development services; Health and medical services; Education services	Research and development services; Professional services; Hospital Services; Other human health services	22,253,000	18
17	IT infrastructure and network management services; Database information services; Other data processing; Internet access and telecommunication services	Computer and related services - Data base services; Financial services; Telecommunication services	16,173,000	15
18	Warranty claims		13,600,000	12
19	Audio visual and related services	Audio-visual services	11,962,000	9
20	Sale/payments of intangible assets; Subscriptions to newspapers or periodicals; Membership subscriptions; Operational leasing services		5,728,000	12
21	Audiovisual broadcast rights, Sales and mechanical royalties for musical works and/or sound recordings, Other royalty payments for musical works and/or sound recordings, Revenue/payments from franchise rights		5,505,000	27
22	Hosting and IT infrastructure provisioning services		2,014,000	6
23	News agency services - provision of news, photographs and feature articles		1,687,000	6
24	Consultancy services not elsewhere classified		135,000	3

Appendix E: Description of measures

Employment

Employment information is obtained from the Pay-As-You-Earn data from Inland Revenue Department. Employee count is calculated by aggregating rolling mean employment (average number of employees over the year) and the count of working proprietors.

Foreign ownership

Foreign ownership indicator is a binary indicator sourced from AFUS. The percentage of firms with foreign ownership is calculated by dividing the number of foreign owned firms by the total number of firms in each group.

Sales

Sales are based on GST sales and zero rated GST sales as reported in the GST returns.

Value added

The Annual Enterprise Survey (AES) is the primary source of information for the value added measure. Where AES information is not available, a proxy based on net sales reported in GST returns adjusted for changes in stocks (as obtained from the IR10 return) is used.

Profit

The primary source of information for the profitability measure is the AES. Where AES information is not available the net profit as reported in the IR10 form is used.

Value added per employee and profit per employee

Calculated by adjusting the value added and profitability measure for the number of employees.

Appendix F: Distribution and coverage of measures

Table 11: Distribution of key measures by type of activity

Type of activity	Number of Firms	% of Firms	% of Total Employees	% of Total Sales	% of Total Value Added	% of Total Profit
Non-exporter	143,760	95.9	64.9	48.0	45.8	42.2
Goods only exporter	5,037	3.4	17.2	24.9	22.7	21.3
Service only exporter	780	0.5	2.7	2.9	3.7	5.1
Goods and service exporter	282	0.2	15.3	24.2	27.8	31.4
Total	149,859	100.0	100.0	100.0	100.0	100.0

Notes: (1) The above shares are based on rounded values.

Source: Authors' calculations

Table 12: Coverage of firms across performance measures

Type of activity	Count of Firms	Sales	Value Added	Profit	Value Added per Employee	Profit per Employee
		Coverage of firms across performance measures				
Non-exporter	143,760	98.4	84.3	80.6	74.2	70.4
Goods only exporter	5,037	99.8	82.5	80.3	78.7	76.6
Service only exporter	780	100.0	82.7	80.8	77.7	75.4
Goods and service exporter	282	100.0	87.2	88.3	87.2	87.2
Total	149,859	98.5	84.3	80.6	74.4	70.6

Notes: (1) Firm counts have been randomly rounded.

(2) The relatively high coverage rate suggests reasonably high levels of confidence can be placed on the measures of centrality.

Source: Authors' calculations

Table 13: Coverage of firms across performance measures by number of services/goods exported

Count of Services/Goods Exported	Count of Firms	Sales	Value added	Profit
Service Exporters				
One	792	100.0	83.7	82.2
Two	174	100.0	84.5	82.8
Three	54	100.0	88.9	83.3
Four plus	39	100.0	92.3	84.6
Goods Exporters				
One	1476	100.0	81.9	79.7
Two	1005	100.0	80.3	77.9
Three	729	100.0	82.7	79.8
Four plus	2106	99.9	84.8	83.2

Notes: (1) Firm counts have been randomly rounded.
(2) The relatively high coverage rate suggests reasonably high levels of confidence can be placed on the measures of centrality.

Source: Authors' calculations

Table 14: Coverage of firms across performance measures by number of service/goods destinations

Count of Export Destinations	Count of Firms	% of Firms	Sales	Value Added	Profit
Service Exporters					
One	516	48.6	100.0	82.0	80.2
Two	186	17.5	100.0	87.1	83.9
Three	117	11.3	100.0	84.6	79.5
Four	66	6.2	100.0	86.4	86.4
Five	54	5.1	100.0	83.3	83.3
Six	24	2.5	100.0	87.5	87.5
Seven plus	96	9.0	100.0	90.6	90.6
Goods Exporters					
One	1494	28.1	100.0	79.5	77.3
Two	990	18.6	100.0	80.6	77.6
Three	717	13.5	100.0	82.0	79.1
Four	513	9.8	100.0	84.8	83.0
Five	315	5.9	99.0	82.9	80.0
Six	252	4.8	100.0	89.3	88.1
Seven plus	1038	19.4	99.7	87.9	87.3

Notes: (1) Firm counts have been randomly rounded.
(2) The relatively high coverage rate suggests reasonably high levels of confidence can be placed on the measures of centrality.

Source: Authors' calculations