

26 April 2023

Trends of female entrepreneurship and trademark filers in Singapore

Motivation, background and aims of study

Motivation

- Women everywhere are driving scientific breakthroughs, setting new creative trends, building businesses and transforming our world.¹
- When innovation, creativity and business are inclusive and embrace new ideas and perspectives, we all benefit.¹
- Understanding trends in gender and IP can help encourage women participation and diversity.

Background

- In the U.S., women make up growing share of U.S. entrepreneurs (Williams-Baron, et al., 2018) and between 1997 and 2007, the number of women-owned businesses grew by 44%, twice as fast as men-owned firms (U.S. Department of Commerce, 2010).
- In Singapore, women entrepreneurs have succeeded in a wide range of industries across Singapore's economy. Notable standouts include Claire Chiang of Banyan Tree (hospitality), Nichol Ng (food and beverage), Susan Chong of Greenpac (sustainability), Tan Hooi Ling of Grab (transportation) and Rachel Lim of Love, Bonito (fashion), among many.²

Aims of Study

- Understand the entrepreneurial and trademark³ filing landscape of local women in Singapore.
- Obtain insights by examining the male and female shares of local entrepreneurs and trademark filers in Singapore.

¹ Extracted from WIPO's website, <https://www.wipo.int/ip-outreach/en/ipday/2023/story.html>. The theme of this year's World Intellectual Property Day (WIPD) is Women and IP: Accelerating innovation and creativity.

² Accenture's report (2018), "Businesswomen Grow Economies: Singapore Is Next", pp. 2.

³ A trademark is a sign that you use to distinguish your business' goods or services from those of other traders. Once a business name is trademarked, others are prohibited from using it. Since entrepreneurs frequently use trademarks to protect their businesses' products and brand names, this study also examines the trends of women trademark filings in Singapore.

[International studies] Findings on women and entrepreneurship⁴

Understanding women-owned businesses (OECD study, Halabisky, D., 2018)

- Women entrepreneurs tend to operate **smaller businesses** (pp. 6, also found in U.S. Department of Commerce, 2010, pp. 1).
- Women entrepreneurs often operate in **different sectors** than men entrepreneurs (pp. 7).
- The businesses created by women entrepreneurs tend to have **less growth potential** (pp.7).
- The businesses created by women entrepreneurs have **similar survival rates** in many countries (pp. 8).
- Self-employed women **work fewer hours** per week, on average (pp. 9).
- Self-employed women and tend to **earn less** than self employed men (pp. 10, U.S. Department of Commerce, 2010, pp. 1).

Statistics on female entrepreneurship in Singapore and internationally

- Women-owned businesses constitute 27% of all businesses, and 13% of sales in Singapore (Accenture, 2018).
- In the U.S., women-owned businesses accounted for 11% of sales and 13% of employment among privately-held companies (U.S. Department of Commerce, 2010, pp. 1) and the percentage of women-owned firms was 29.6% in 2007 among equally-owned, men-owned and women-owned firms (pp. 6).
- In another U.S. study (Williams-Baron, et al., 2018), the percentage of women-owned firms was 20.8% in 2015.
- In Europe (OECD study, Halabisky, D., 2018), women were half as likely as men in the European Union to be self-employed (9.9% vs. 17.8%) in 2015.

⁴ For literature on women and trademark filings, refer to Williams-Baron, et al. (2018), Alvaro González L. (2022), National Women's Business Council (2012).

Data and methodology

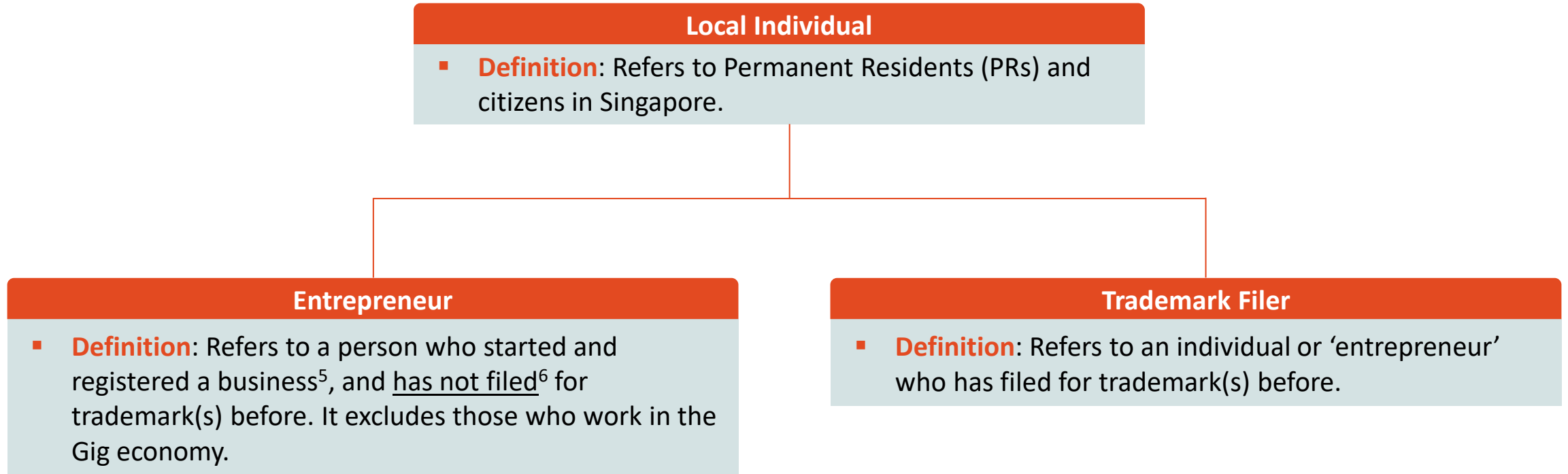
Data

- This study utilises business owners and trademark filings data to understand the trends and landscape of female entrepreneurship and trademark filings in Singapore.
- **Trademark Filings Data:** Trademark filing records from the IPOS' registry.
- **Business Owners Data:** Government administrative records collected via filings from businesses when they register a new business entity or update their business information.

Methodology

- **Gender classification:** This study utilises a 'names-genders' database (Genderize.io) to ascribe genders to the names of business owners and individual trademark filers.
- 'Genderize.io' (Kamil Wais, 2016) is one of several application programming interface (API) gender inference services available online. The data was collected from social networks across 79 countries and 89 languages.
- In particular, the database consists of 337,002 names from Singapore, and it was chosen for this study as most of the names to be classified were local.
- **Framework for analysis:** The framework takes reference from other international studies (Williams-Baron, et al., 2018, Halabisky, D., 2018, U.S. Department of Commerce, 2010, National Women's Business Council, 2012) and is tailored according to data availability and the aims of this study.

Definitions and scopes of the roles analysed in this study



⁵ Based on OECD study, self-employment is one of the measures used in economic analysis to proxy entrepreneurial activity. In labour force surveys, self-employed are defined as those persons who **own and work** in their own business, as employers or own-account workers, unless they are also in paid employment which is their main activity, in that case they are considered to be employees (Halabisky, D., 2018). For further discussion, refer to **Annex**.

⁶ Since entrepreneurs who have filed for trademark(s) before are included in group ‘Trademark Filer’, in order not for the entities in the two groups to overlap, in this study, we compare entrepreneurs who have not filed trademark(s) before with trademark filers.

Definitions of other terms used in this study

Type of Business

- **Definition:** Each type of business corresponds to a 5-digit code which is based on the Singapore Standard Industrial Classification (SSIC7). The SSIC is the national standard for classifying economic activities undertaken by economic units.

Industry/Sector

- **Definition:** 5-digit SSIC codes are aggregated into sectors / industries based on the 'SSIC Codes-Industry' mapping from the Department of Statistics (DOS) Singapore.
- There are 21 industries in total.

GDP Sector

- **Definition:** Industry sectors are aggregated into gross domestic product (GDP) sectors using 'SSIC industries-Output based GDP' mapping from DOS.
- There are 13 GDP sectors in total.

Product & Service

- **Definition:** Each product or service is a named category that corresponds to a trademark class number.
- There are 45 classes in total.

⁷ The SSIC is based on the basic framework of the International Standard Industrial Classification of All Economic Activities Revision 4 (ISIC Rev. 4) developed by the United Nations Statistics Division (UNSD).

Definitions of computed statistics

Formulas

- 3 metrics are computed for this study. They are given by the formulas as follows:
 - Share of females:** Defined as the (total number of females) / (total number of females and males) *100
 - Distribution⁸ of females for particular industry:** Defined as the (total number of females in particular industry) / (total number of females in all industries) *100
 - Distribution⁸ of males for particular industry:** Defined as the (total number of males in particular industry) / (total number of males in all industries) *100
- The shares of females in this study represent the number of females in relation to the number of males.
- The share of females in different industries and the distribution of the number of females and males for the different industries are related to each other since the shares of females in the different industries are determined by:
 - the overall share of females across all industries,
 - the distribution of the number of females for the different industries,
 - the distribution of the number of males for the different industries.

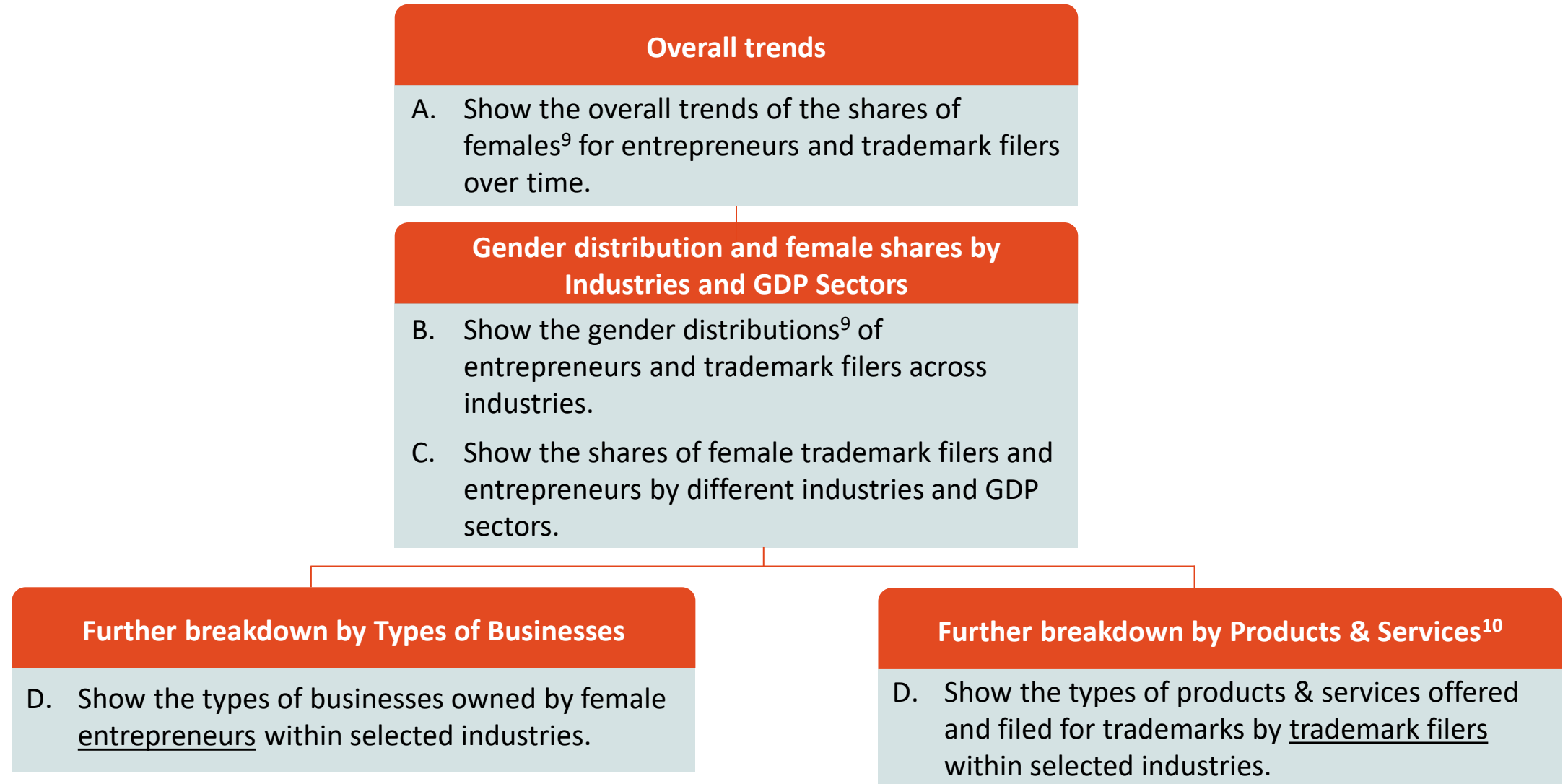
- Mathematically, it can be expressed as:

$$\text{Share of females in industry } i = \frac{\text{tot no. female} * \% \text{ female}_i}{\text{tot no. female} * \% \text{ female}_i + \text{tot no. male} * \% \text{ male}_i} * 100\%$$

where

- tot no. female* – total number of females in all industries,
- tot no. male* – total number of males in all industries,
- % female_i* - distribution of females for industry *i*,
- % male_i* - distribution of males for industry *i*.

Analytical framework of the types of analysis performed in study



⁹ Definitions of the computed statistics for gender distributions of males and females for various industries and shares of females are in the previous slide.

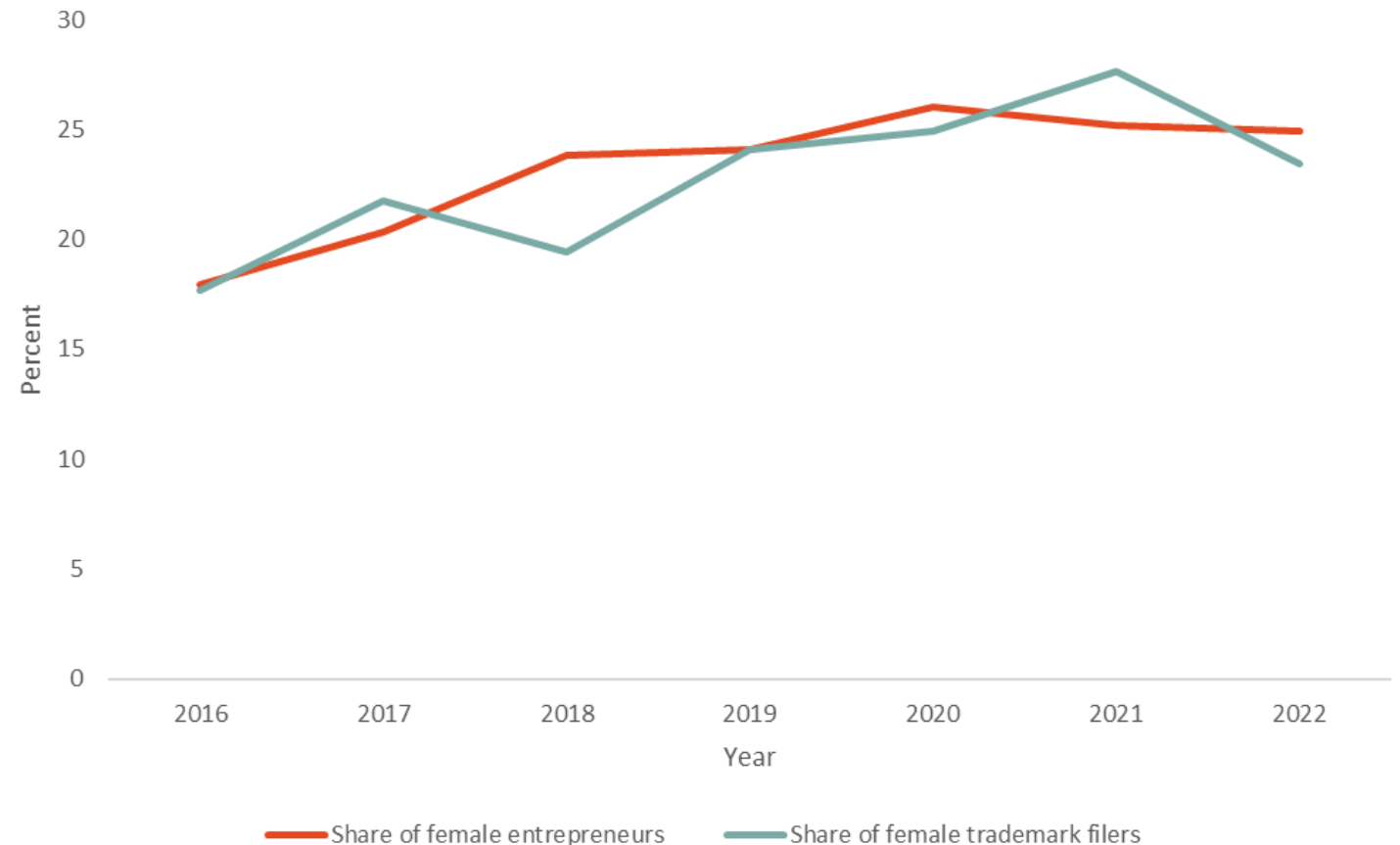
¹⁰ The analysis for the breakdowns by products and services offered and filed for trademarks by trademark filers can be found the **Annex** section.

A. Overview of the trends of shares of female entrepreneurs and trademark filers

Steady increase in local female entrepreneurship, with a similar increase in local female trademark filers in Singapore

- Between 2016 and 2022¹¹, the overall proportion of female entrepreneurs has increased by 5.7% y-o-y (compounding annual growth rate (CAGR)) from 17.9% to 24.9%.
- Between 2016 and 2022^{11,12}, the overall proportion of female trademark filers has increased by 4.8% y-o-y (CAGR) from 17.7% to 23.4%.
- For all years between 2016 and 2022, the overall shares of female entrepreneurs¹³ and trademark filers¹³ stand close to each other, at 22.8% and 23.2% respectively.

Figure 1: Shares of Female Entrepreneurs and Trademark Filers



¹¹ Prior years of the share of female trademark filers were omitted from Figure 1 due to large fluctuations in data for individual female filers as a result of small sample size. Years 2016 – 2022 represent 74.8% of all data points between 2010 and 2022.

¹² This is based on the year of application of trademarks.

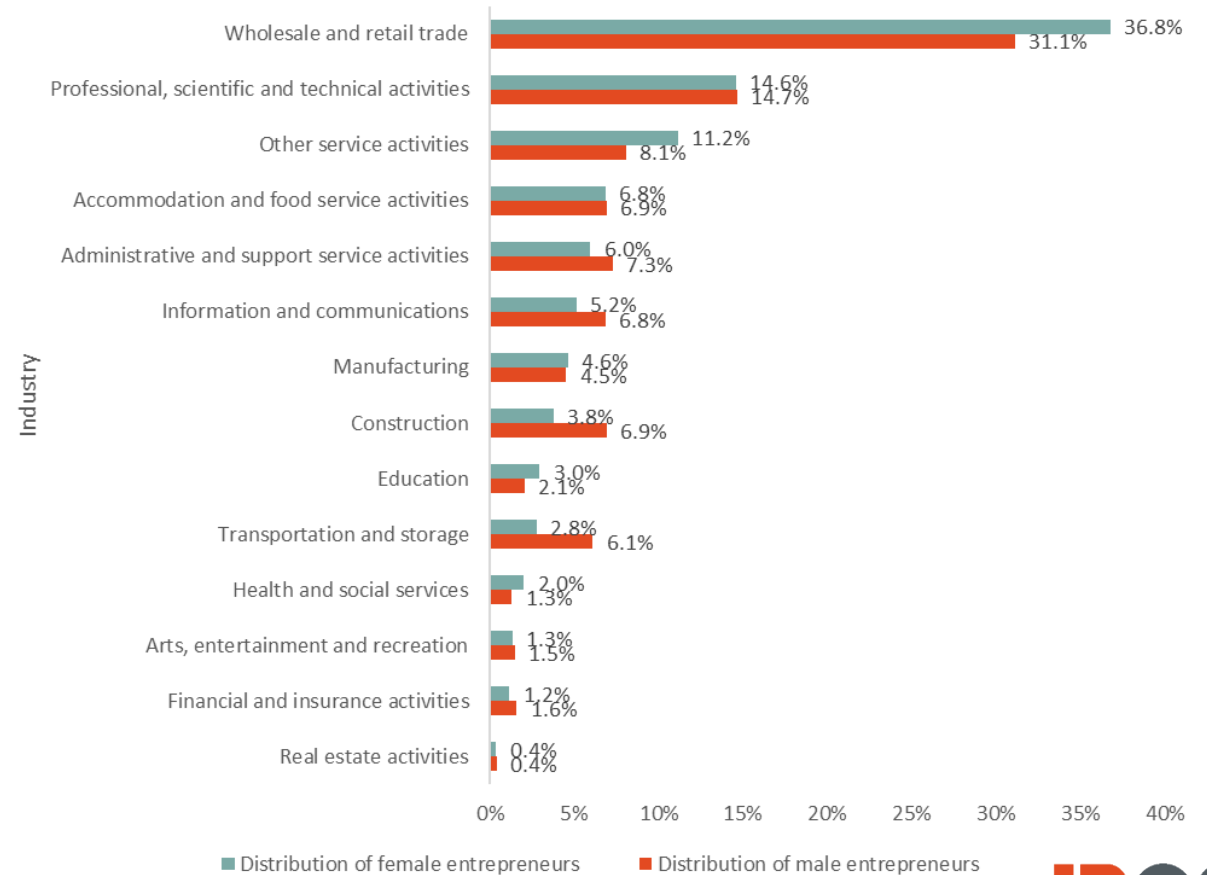
¹³ Gender classification was performed on names in order to identify the genders of entrepreneurs and trademark filers.

B. Gender distribution of entrepreneurs, trademark filers by industry

Higher share of female entrepreneurs in ‘Wholesale and Real Trade’, and ‘Other Service Activities’. Lower share of female entrepreneurs in ‘Construction’, and ‘Transportation and Storage’

- The top 3 sectors¹⁵ with the **most number of female entrepreneurs** are Wholesale and Retail Trade, Professional, Scientific and Technical Activities, and Other Service Activities, two of which have a higher percentage of female entrepreneurs than male entrepreneurs (i.e., Wholesale and Retail Trade, and Other Service Activities).
- The sectors with **largest percentage point differences** between male and female entrepreneurs with higher percentages of male entrepreneurs are Construction (3.1%) and Transportation and Storage (3.3%).¹⁶

Figure 2: Distributions of Female and Male Entrepreneurs by Industry¹⁴ (2010 - 2022)



¹⁴ Due to small percentages and space constraints, **some sectors (and types of businesses) are omitted and not shown in this and subsequent charts.**

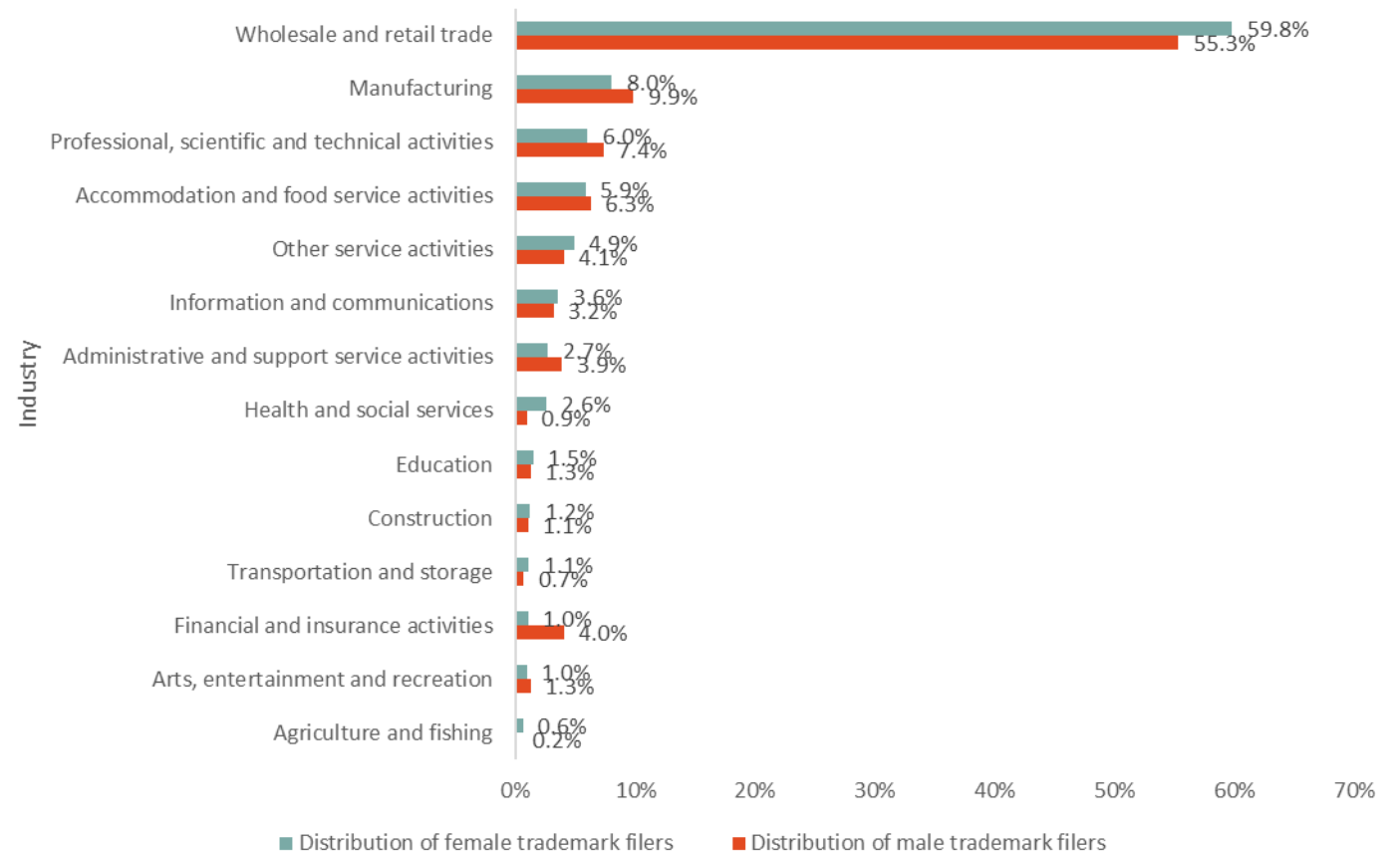
¹⁵ This trend is similar to a U.S. study (Williams-Baron, et al., 2018) where the top 5 sectors for women-owned firms are Healthcare and Social Assistance, Professional, Scientific, and Technical Services, Retail Trade, Accommodation and Food Services, and Other Services.

¹⁶ This is also similar to what Williams-Baron, et al. (2018) had found whereby the sector with the largest percentage point difference between men- and women-owned firms is Construction (2.8 times larger for men-owned firms).

Close to 60% of all trademarks filed by females are in the ‘Wholesale and Retail Trade’ sector

- The top 3 sectors with the **most number of female trademark filers** are Wholesale and Retail Trade, Manufacturing, and Professional, Scientific and Technical Activities. In the Wholesale and Retail Trade sector, female trademark filers represent close to 60% of the trademarks filed.
- The top 2 sectors with higher percentages of female filers than male filers are Wholesale and Retail Trade, and Health and Social Services.
- The sector Financial and Insurance Activities has higher percentage of male filers than female filers (**largest percentage point difference** - 4 times larger for male filers than female filers).

Figure 3: Distributions of Female and Male Trademark Filers by Industry (All Years¹⁷)



¹⁷ Due to a much smaller dataset, we used the full dataset of trademark filings by individuals and entrepreneurs from years 1939 – 2022 to analyse the various splits by industries, types of businesses, and products & services.

C. Shares of female trademark filers and entrepreneurs by industry and GDP sectors

Top 3 industries with largest shares of female trademark filers and entrepreneurs are 'Health and Social Services', 'Other Service Activities', and 'Education'

- The top 3 industries (**blue box**) for the female shares of **entrepreneurs** are Health and Social Services, Education, and Other Service Activities.¹⁸
- The top 3 industries (**orange box**) for the female shares of **trademark filers** are Health and Social Services, Other Service Activities, and Education.

¹⁸ For the U.S. study (Williams-Baron, et al., 2018, pp. 6), the top 3 sectors are Education Services, Healthcare and Social Assistance and Other Services.

Figure 4: Share of Female **Entrepreneurs** (Largest to Smallest, Left to Right)

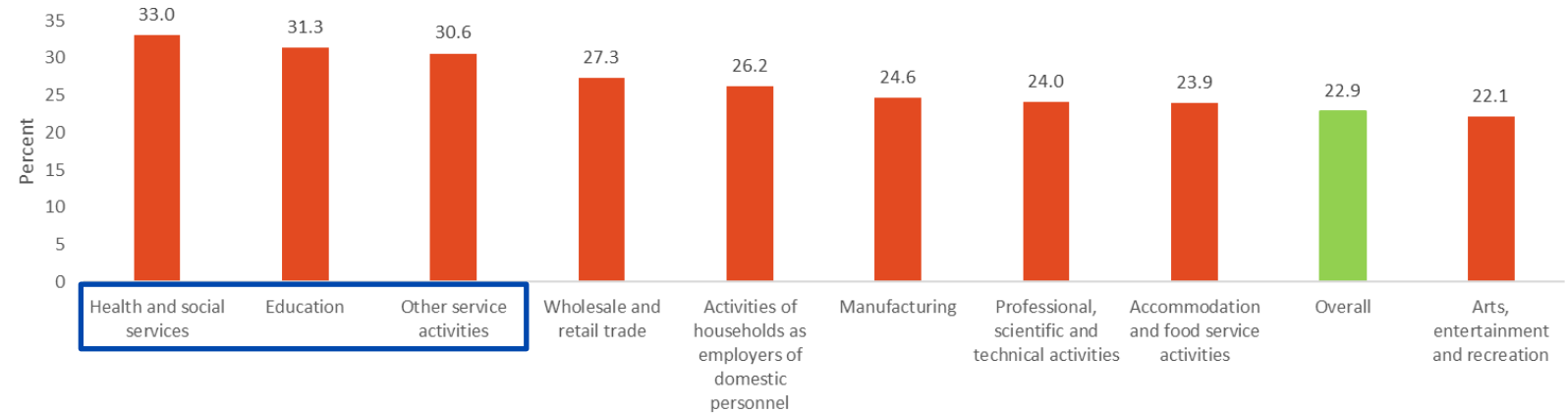
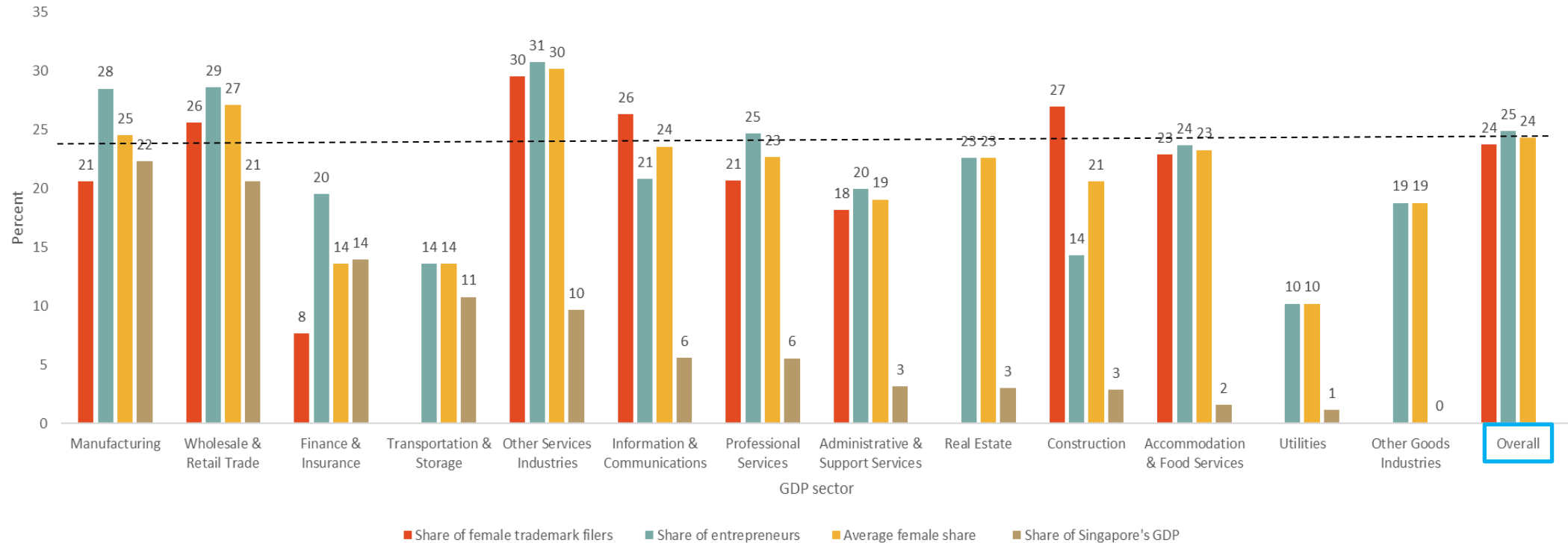


Figure 5: Share of Female **Trademark Filers** (Largest to Smallest, Left to Right)



Overall, the ‘Wholesale & Retail Trade’, ‘Manufacturing’ and ‘Other Services Industries’ sectors have the highest “Average Female Share”^{19,20,21}

Figure 6: Shares of Female Entrepreneurs and Trademark Filers by GDP Sector Ranked by GDP Share (Largest to Smallest, Left to Right)



- The 3 GDP sectors²² with higher than overall average female share (i.e., above the **black dotted line** and indicated by the **blue** box and **orange** bar) are Manufacturing, Wholesale & Retail Trade, and Other Services Industries.

¹⁹The **average female share** is given by the average of the shares of female entrepreneurs, female trademark filers.

²⁰The shares of female trademark filers for some sectors are omitted due to low count in numbers. The sectors excluded are Utilities, Real Estate, Other Goods Industries, and Transportation & Storage.

²¹The shares of the indicators are computed based on years 2018 – 2022 with the exception of female trademark filers (for all years).

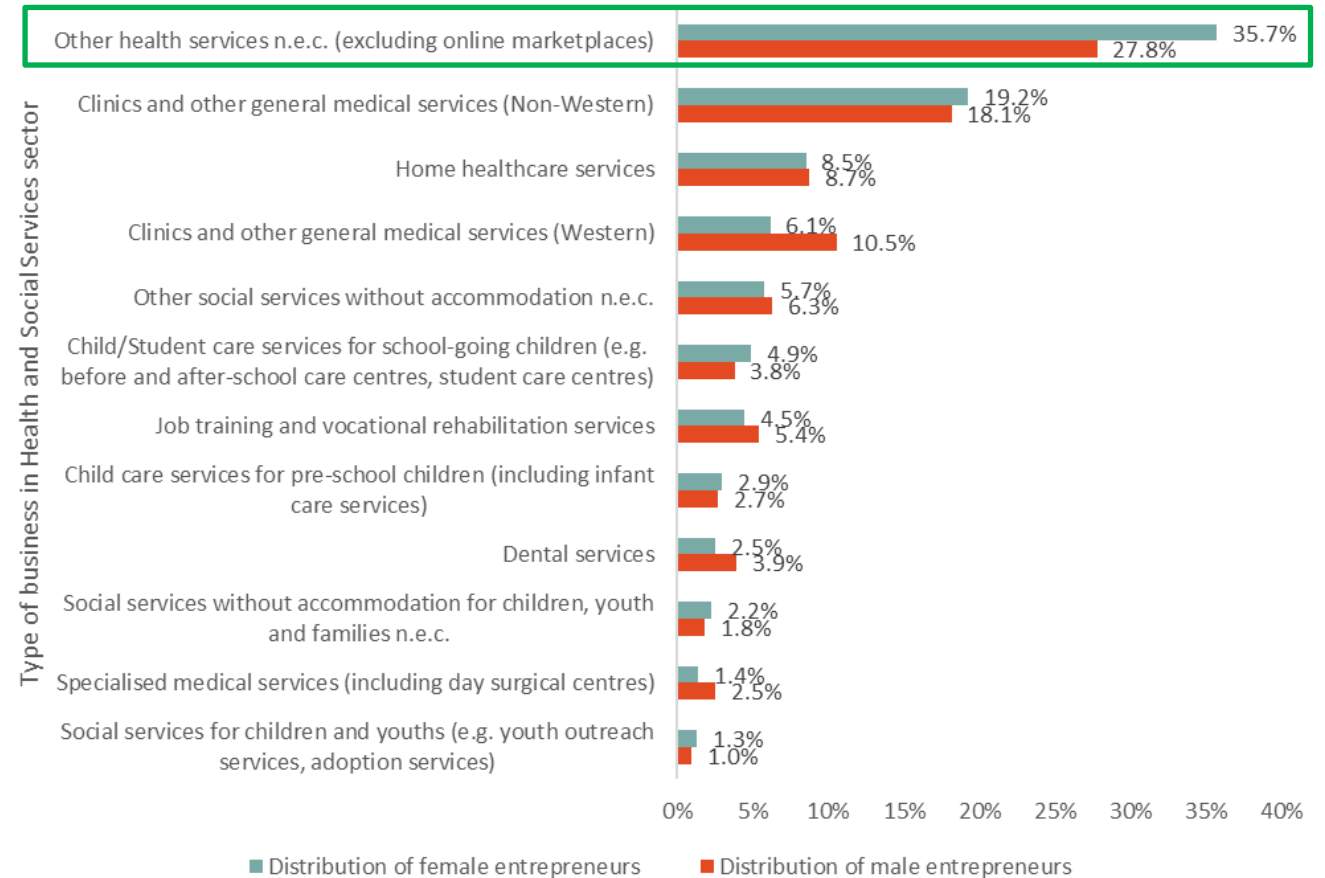
²²Calculation of the shares of the different GDP sectors contributing to the overall GDP of Singapore is based on year 2022's GDP figures and does not include taxes on products and ownership of dwellings.

D.1. Types of businesses owned by female entrepreneurs for the top 3 sectors in terms of female shares of trademark filers / entrepreneurs, namely – (I) Health and Other Social Services, (II) Education and (III) Other Service Activities

(I) In the “Health and Social Services” sector, the largest % point difference between females and male entrepreneurs is in ‘Other Health Services Not Elsewhere Classified’

- For the business with the highest percentage of females (**‘Other Health Services Not Elsewhere classified’**), it has the largest percentage point difference (7.9%) between female and male entrepreneurs (green box).
- This business type includes services such as fertility consultation, physiotherapy, dieting, rehabilitation, etc.

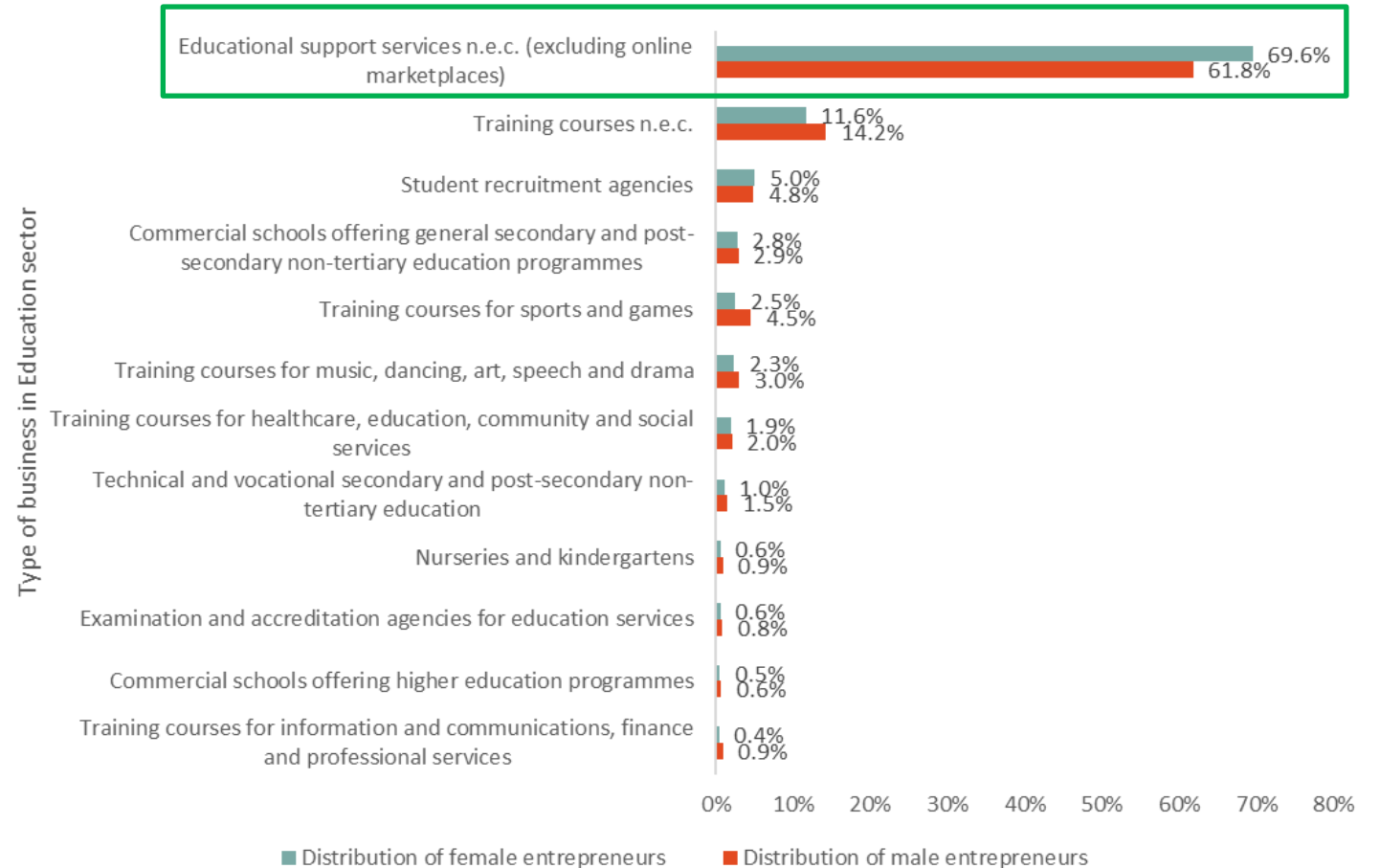
Figure 7: Distributions of Female and Male Entrepreneurs by Type of Business in Health and Social Services Sector



(II) In the “Education” sector, almost 70% of all females entrepreneurs are in ‘Educational Support Services Not Elsewhere Classified’

- A large percentage of female entrepreneurs in the Education sector own businesses under ‘**Education Support Services Not Elsewhere Classified**’ (green box).
- This business type comprises mainly of enrichment and tuition businesses.

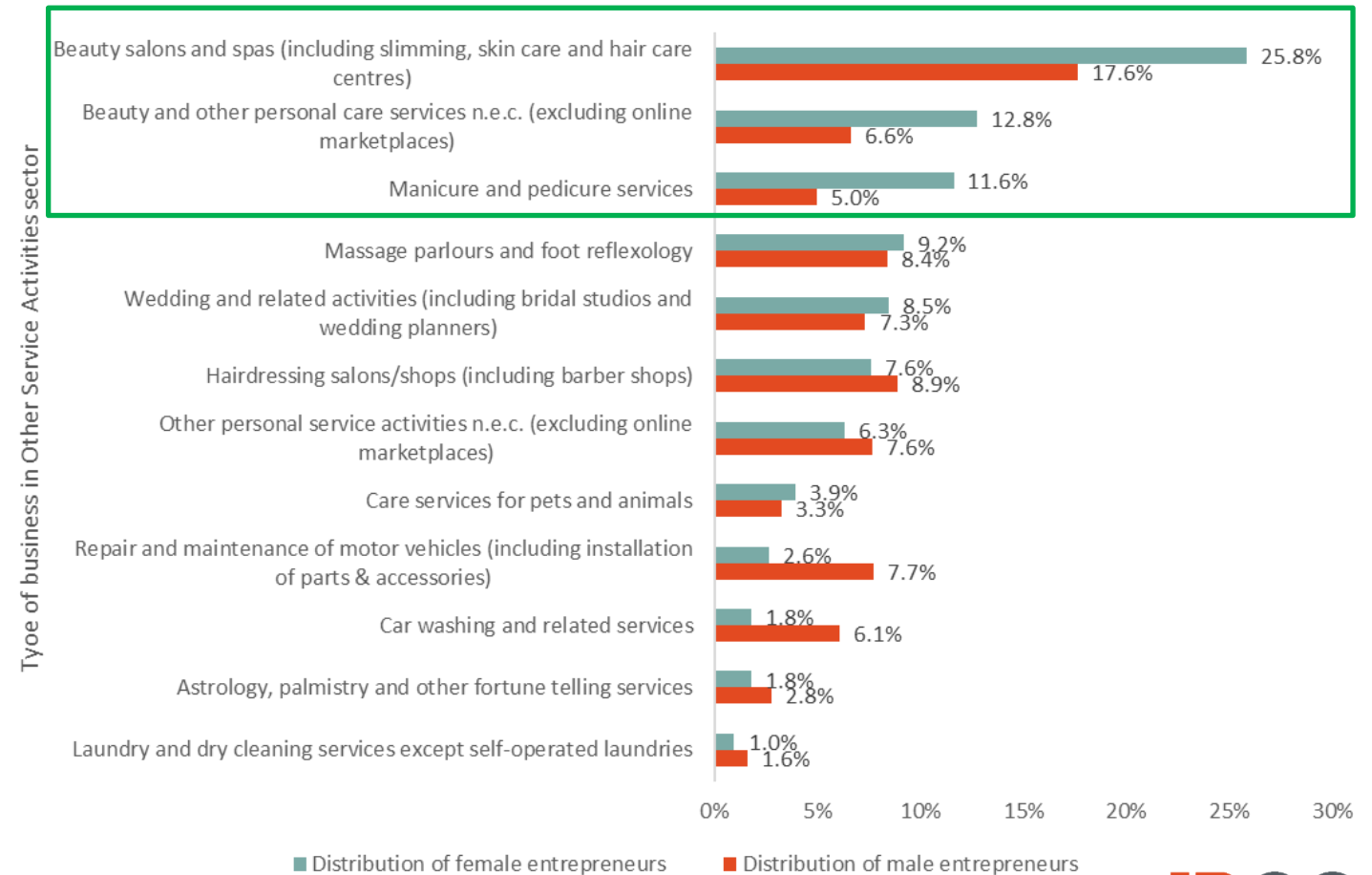
Figure 8: Distributions of Female and Male Entrepreneurs by Type of Business in Education Sector



(III) In the “Other Service Activities” sector, the top 3 types of businesses with most number of females are ‘beauty salons and spas’, ‘beauty and personal care’, and ‘manicure and pedicure services’

- The top 3 types of business (green box) with the most number of females are also the businesses with the largest percentage point differences between male and female entrepreneurs.

Figure 9: Distributions of Female and Male Entrepreneurs in **Other Service Activities Sector**

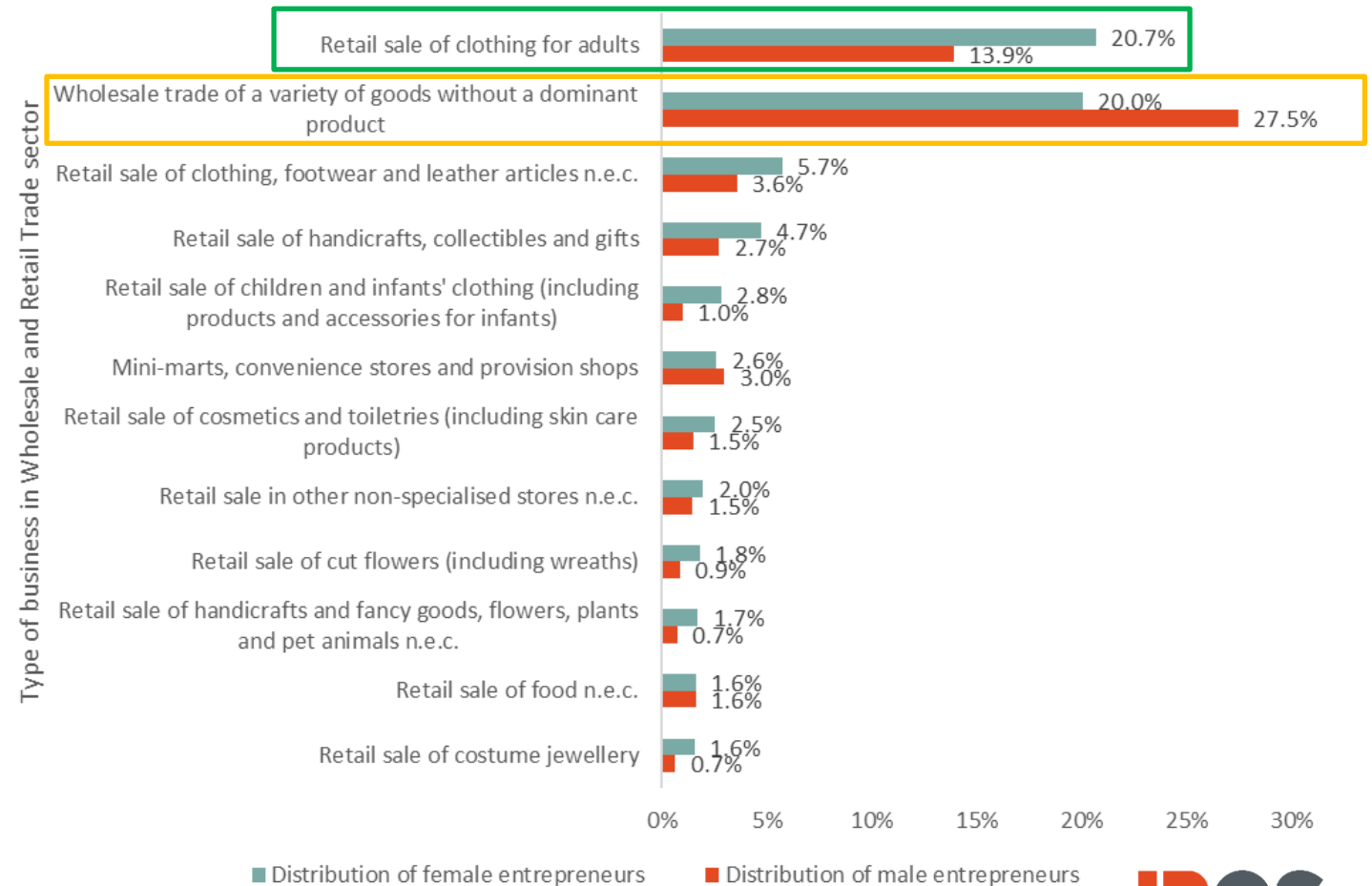


D.2. Types of businesses owned by female entrepreneurs for the top 2 GDP sectors, namely – (I) Wholesale & Retail Trade and (II) Manufacturing

(I) In the “Wholesale and Retail Trade” sector, the top business type with the most number female entrepreneurs is ‘Retail sale of clothing for adults’

- There is a large percentage point difference (6.8%) between female and male entrepreneurs (**higher for females**) for the retail clothing business for adults (**green** box).
- On the other hand, there is also a large percentage point difference (7.5%) between male and female entrepreneurs (**higher for males**) in the ‘wholesale of variety of goods without dominant products’ (**orange** box).

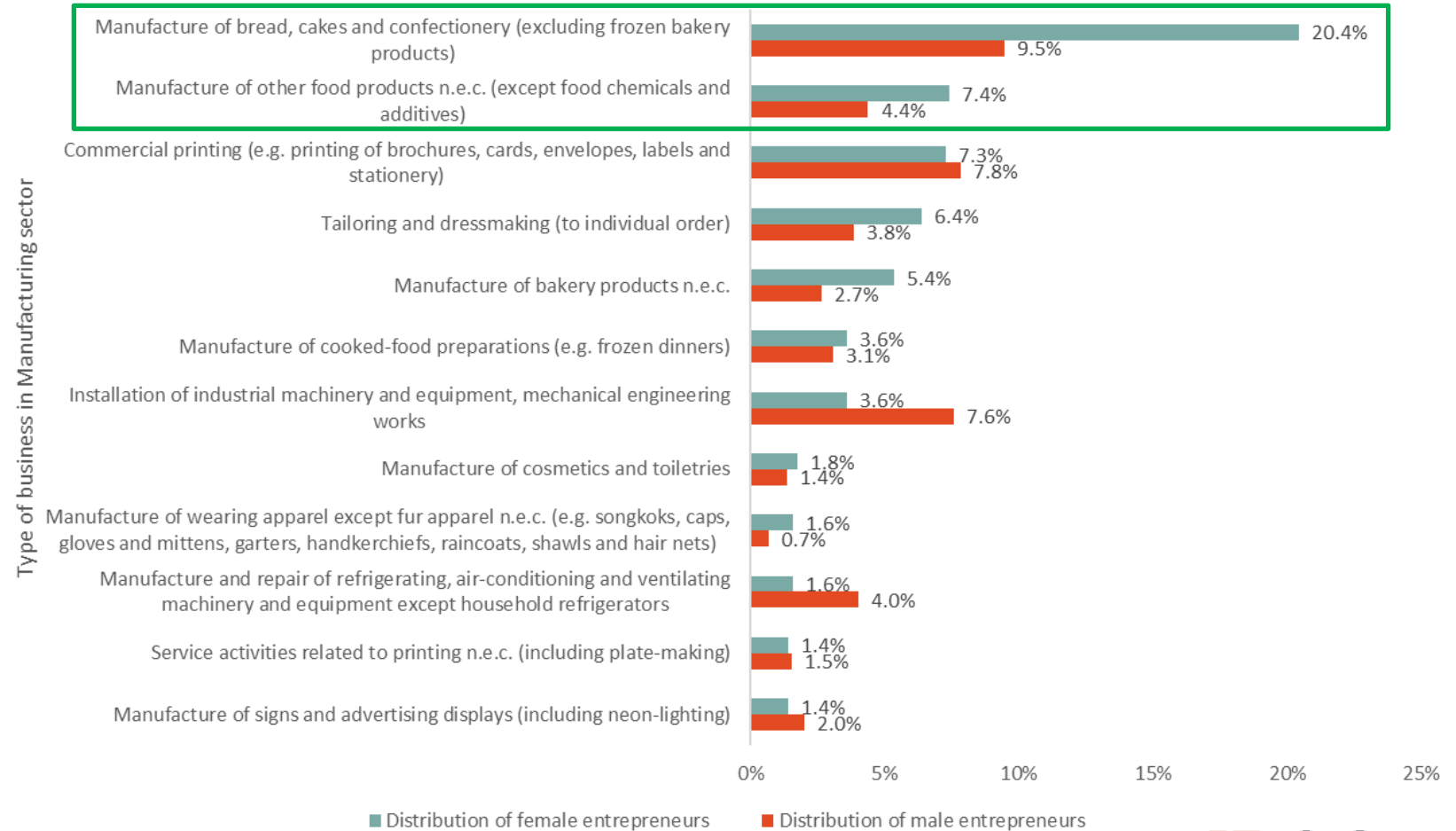
Figure 11: Distributions of Female and Male Entrepreneurs by Type of Business in **Wholesale and Retail Trade** Sector



(II) In the “Manufacturing” sector, the top 2 businesses with the most number of female entrepreneurs are food-related

- The largest percentage point difference (10.9%) between female and male entrepreneurs (**higher for females**) is in the manufacturing of bread, cakes and confectionary, which is the business with the most number of females (**green box**).

Figure 12: Distributions of Female and Male Entrepreneurs by Type of Business in Manufacturing Sector



Concluding remarks and key findings

- This study seeks to understand the landscape and trends of women entrepreneurship and trademark activity.

Specifically, this study

- Examined the distribution of local male and female entrepreneurs and trademark filers;
- Analysed the share of female entrepreneurs and trademark filers over time, by industries, by classes of trademarks filed, types of businesses owned, and Gross Domestic Product (GDP) sectors.

Key findings of this study

- The increasing women entrepreneurship activity over the years is reflected by the increasing women trademark filers (between 2016 and 2022, 17.9% to 24.9% for women entrepreneurs and 17.7% to 23.4% for women trademark filers).
- The top 3 sectors in terms of the shares of women entrepreneurs and trademark filers are the same (i.e., Health and Social Services, Other Service Activities, and Education), indicating the relevance of trademarks for women entrepreneurs doing business in these sectors.



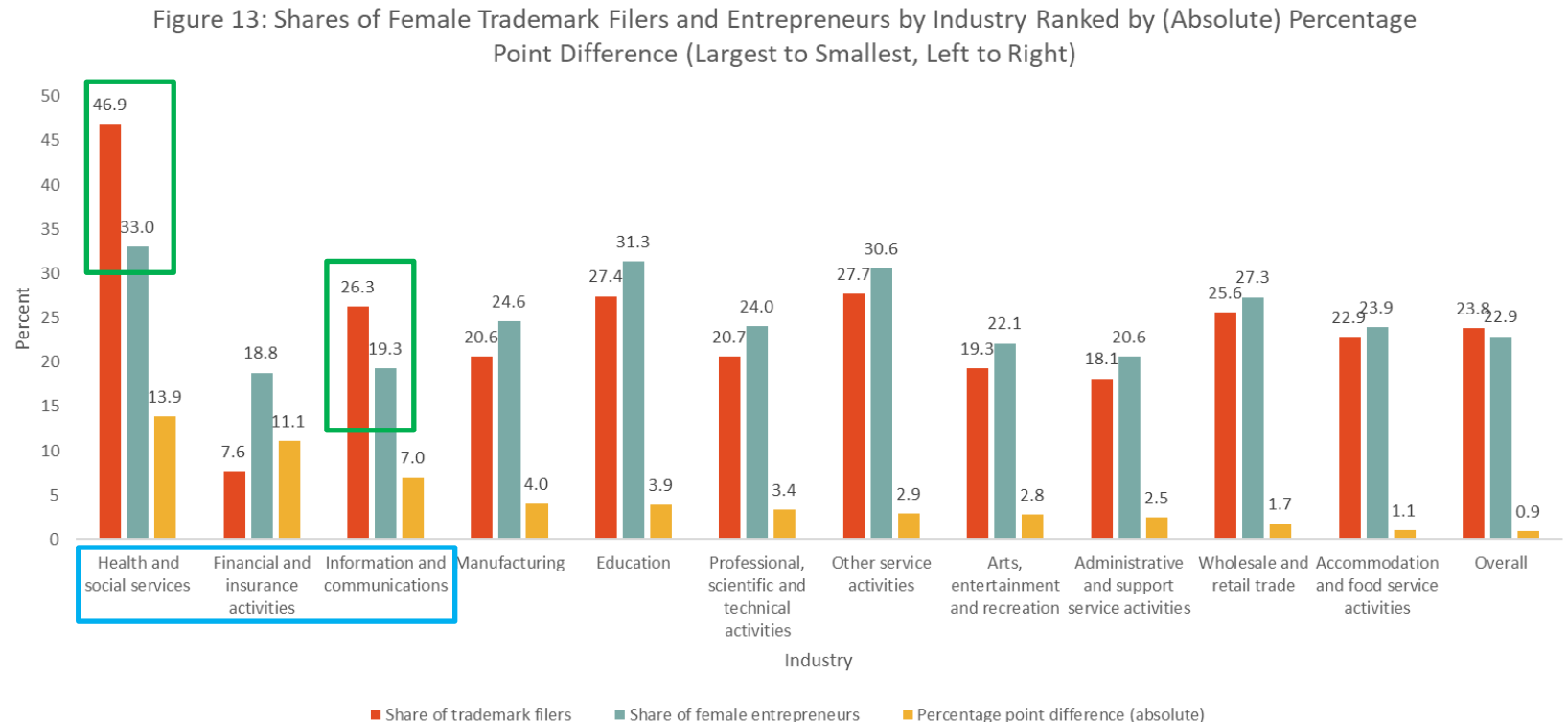
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THANK YOU

ANNEX – Other Charts, Background on Measuring Women's Entrepreneurship Activities (OECD Study), and References

Contrasting the shares of female entrepreneurs and trademark filers, there are higher shares of females entrepreneurs than female trademark filers for all industries except 'Health and Social Services' and 'Information and Communications'

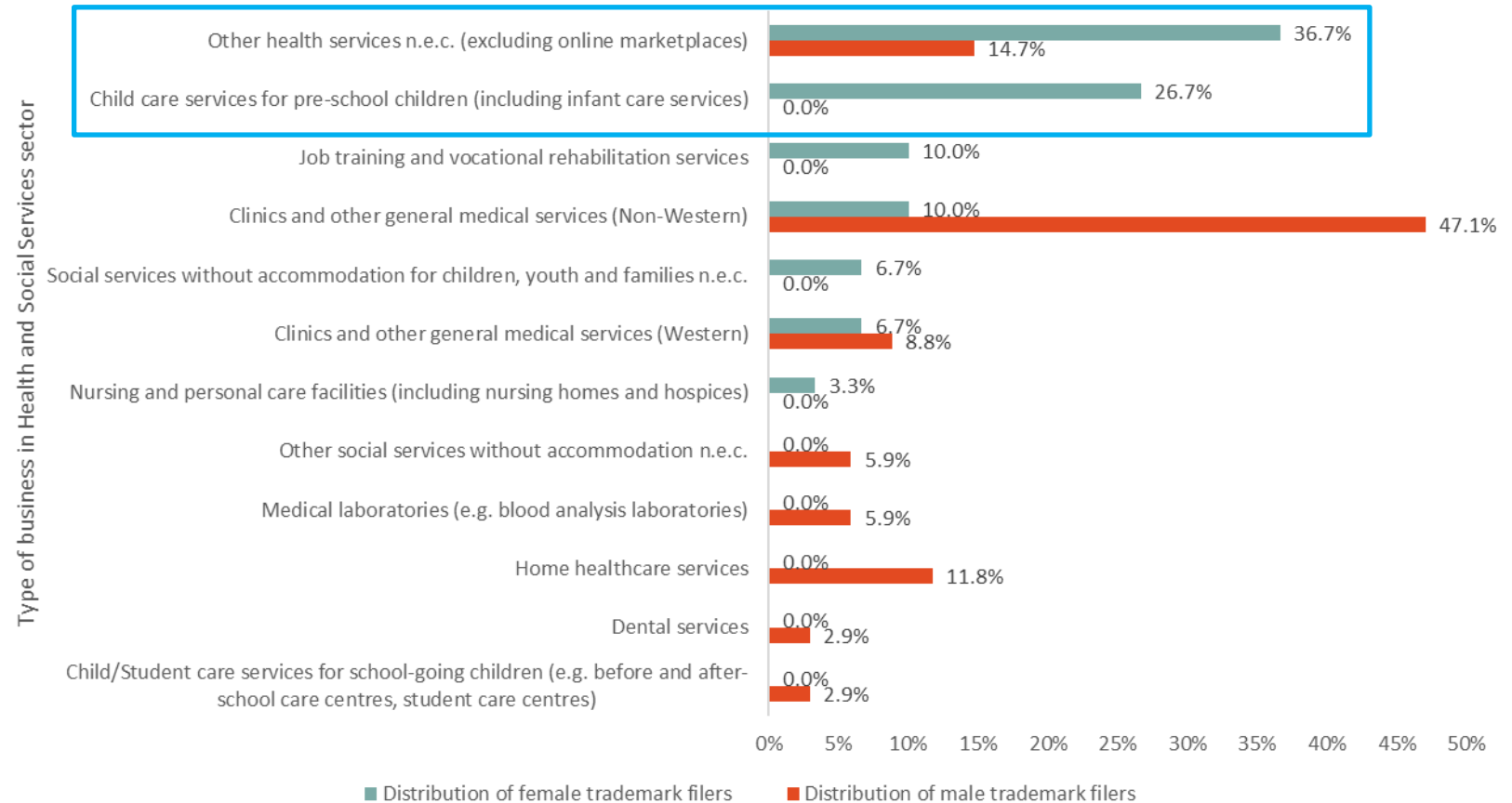
- The 3 industries with the largest **percentage point difference** between female entrepreneurs and trademark filers are Health and Social Services, Financial and Insurance Activities, and Information and Communications (**blue** box).
- The 2 sectors with higher percentage shares of female trademark filers than female entrepreneurs are Health and Social Services and Information and Communications (**green** boxes). Detailed breakdown of the **classes of trademarks** owned and filed and the **types of businesses** owned by them can be found in the next slides.



Types of businesses owned by female and male trademark filers in the Health and Social Services sector

- Types of female businesses in the Health and Social Services sector that filed trademarks are equally diverse compared to male businesses (7 types versus 8 for males) although they are concentrated in different types of businesses.
- A large share (63.4%; **blue box**) comes from Child Care Services for Pre-school Children (Including Infant Care Services) and Other Health Services Not Elsewhere Classified (e.g., **slimming, counselling, therapy, chiropractic, etc.**)

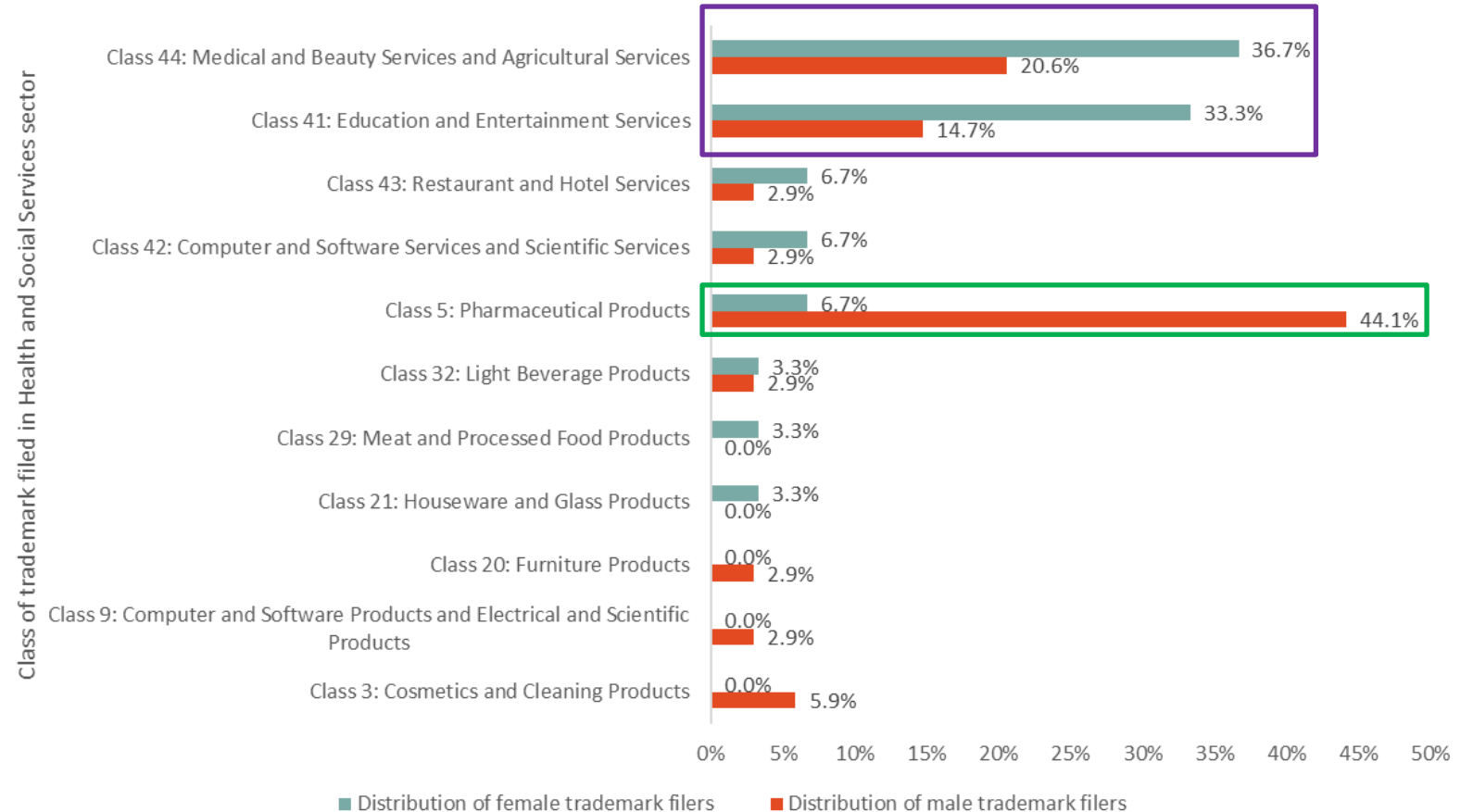
Figure 14: Distributions of Female and Male Trademark Filers by Type of Business in Health and Social Services Sector



Products and services offered and filed for trademarks by female and male trademark filers in the Health and Social Services Sector

- Types of female products and services offered and filed for trademarks in the Health and Social Services sector are almost equally diverse (8 products and services for females and 9 for males).
- A larger percentage for **Education and Entertainment Services** (33.3% for females versus 14.7% for males; **purple** box) and a smaller percentage for **Pharmaceutical Products** (6.7% for females versus 44.1% for males; **green** box).

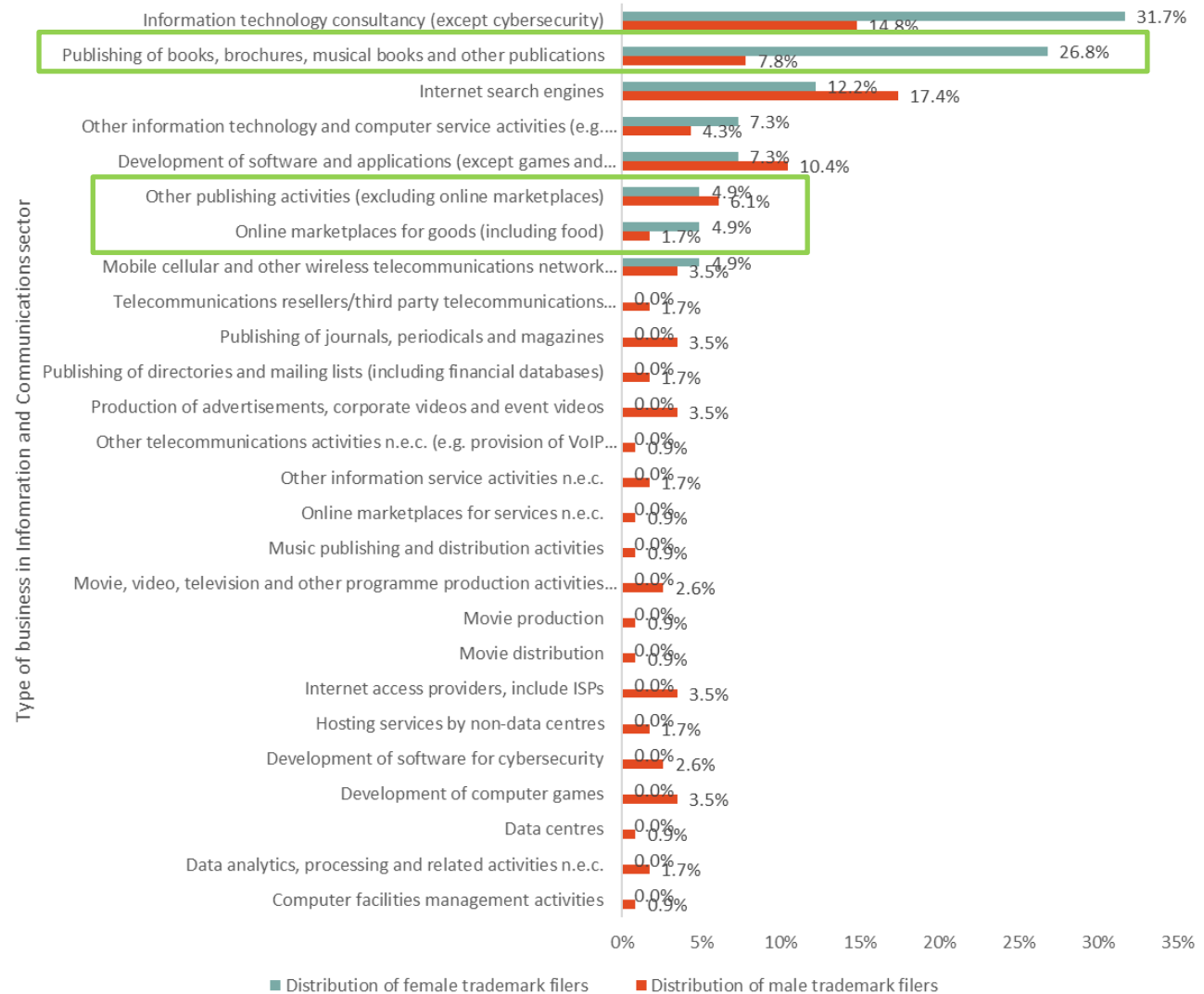
Figure 15: Distributions of Female and Male Trademark Filers by Products & Services Offered and Filed in Health and Social Services Sector



Types of businesses owned by female and male trademark filers in the Information and Communications sector

Figure 16: Distributions of Female and Male Trademark Filers by Type of Business in Information and Communications Sector

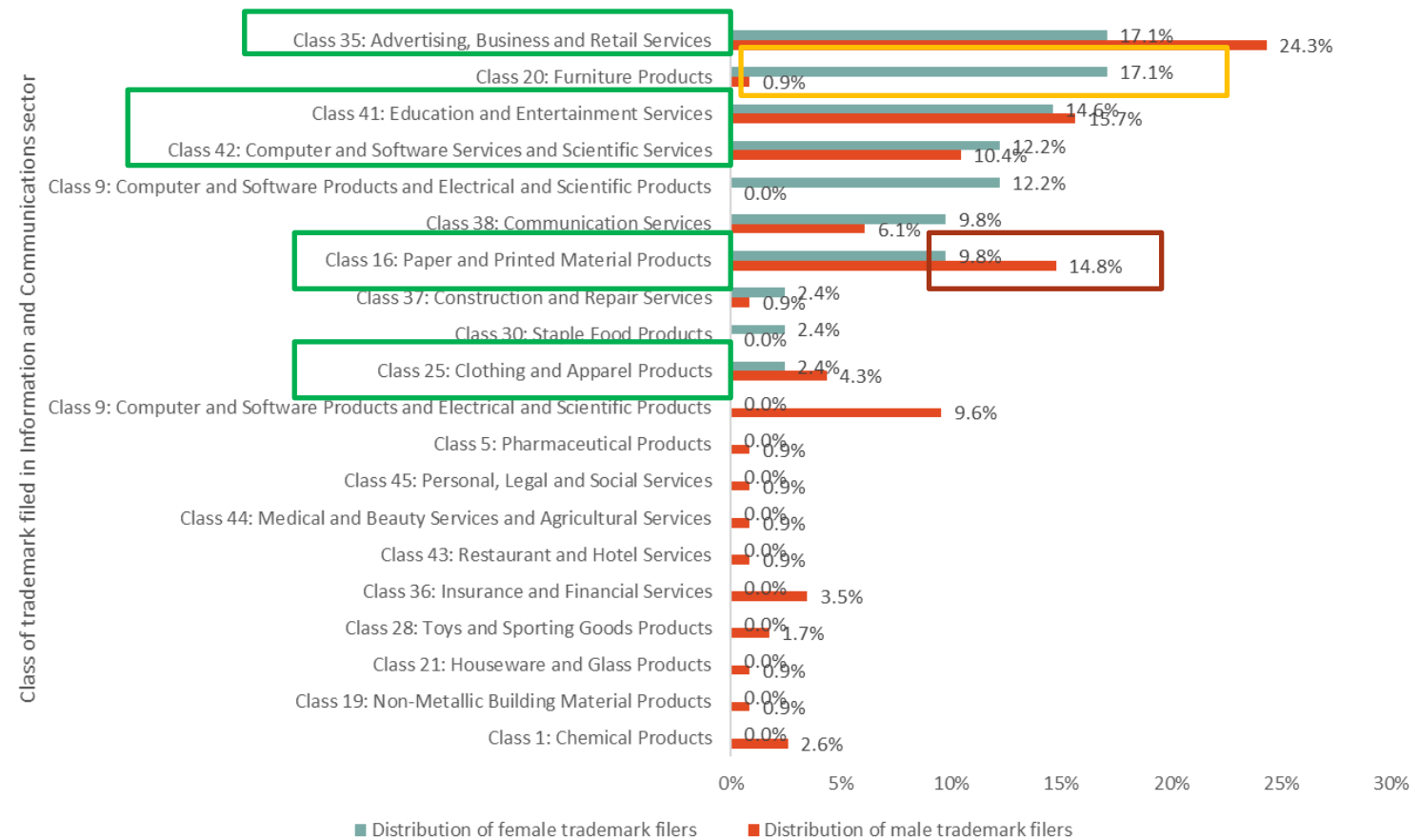
- Types of female businesses in the Information and Communication sector that filed trademarks are less diverse than males (8 types versus 26 for males).
- A larger percentage (36.6% for females versus 15.6% for males) of businesses are related to other sectors like **Education** (Publishing-related), and **Wholesale and Retail Trade** (Online marketplaces for goods (including food)) (green boxes).



Types of products and services offered and filed for trademarks by female and male trademark filers in the Information and Communications sector

- Types of female products and services offered and filed for trademarks in the Information and Communication sector are less diverse (10 products and services versus 18 for males) with a larger percentage for **Furniture Products** (17.1% for females versus 1% for males; **orange box**) and a smaller percentage for **Paper and Printed Material Products** (9.8% for females versus 14.8% for males; **red box**).
- In a study done for the U.S. (National Women's Business Council, 2012), the top five industries with the highest participation in **trademark activity** by women were Advertising and Business, Clothing, Education and Entertainment, Miscellaneous Services – Scientific and Technological Services and Design, and Paper Goods and Printed Matter (pp. 44), all of which are associated with the trademark classes in the **green boxes**.

Figure 17: Distribution of Female and Male Trademark Filers by Products & Services Offered and Filed in Information and Communications Sector



Background on Measuring Women's Entrepreneurship Activities (OECD Study, Halabisky, D., 2018, pp. 4)

Measuring women's entrepreneurship activities

- Self-employment is one of the measures used in economic analysis to proxy entrepreneurial activity. In labour force surveys, self-employed are defined as those persons who own and work in their own business, as employers or own-account workers, unless they are also in paid employment which is their main activity, in that case they are considered to be employees (<http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Self-employed>).
- In some countries, incorporated self-employed (owner/manager of incorporated businesses) are counted as employees rather than as self-employed (OECD, 2012).
- It is important to acknowledge that self-employment data does not capture the true extent of entrepreneurial activity, including that by women (FSB, 2016). Not all the self-employed are necessarily entrepreneurs. Many individuals who work as freelancers for only one client may report themselves to labour force surveys as self-employed rather than as employees although under some views working for a single client would not be considered as entrepreneurship.
- In addition, many self-employed may not be counted as such if they have another primary occupation (i.e. "hybrid entrepreneurs").
- One well-known entrepreneurship survey, conducted by a consortium of academic institutions and consulting companies, is the Global Entrepreneurship Monitor. This survey asks people about whether they have taken steps to launch a business, whether they own and operate a "new" business (i.e. up to 42 months old), whether they own an "established" business (i.e. more than 42 months old) or whether they have closed down a business. This can provide useful information about the gender gap in the proportion of women and men who are entrepreneurs.
- The OECD-Eurostat Entrepreneurship Indicators Programme, which aims at developing policy-relevant and internationally comparable measures of entrepreneurship and its determinants, has contributed to improve understanding on gender differences in entrepreneurship (OECD, 2012). The programme has shown that relevant evidence on women's entrepreneurship can be produced with indicators organised along three main axes: i) business demography indicators for women and men-owned enterprises; ii) characteristics of women and men entrepreneurs; and iii) determinants of women's entrepreneurship, also based on secondary data sources on the business and policy environment.

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