



Huong Ly
Nguyen

VISUAL ANALYTICS OF AUSTRALIA'S INTERNATIONAL TRADE

Table of Contents

<i>I.</i>	<i>Executive Summary.....</i>	1
<i>II.</i>	<i>Data Preparation.....</i>	2
1.	The Statistical Pattern (Percentage).....	2
2.	The Analytical Pattern (Ratio Change).....	2
<i>III.</i>	<i>All Main Categories.....</i>	3
<i>IV.</i>	<i>Dashboard.....</i>	8
<i>V.</i>	<i>Storyboard.....</i>	13
<i>VI.</i>	<i>Summary of Advantages.....</i>	18
1.	Dashboard.....	18
2.	Storyboard.....	19
<i>VII.</i>	<i>Conclusion.....</i>	20
<i>VIII.</i>	<i>Reference list.....</i>	21

I. Executive Summary

For the Australian economy, international trade plays an important role in creating jobs and contributing to the country's prosperity as the country tends to import and export wide range of goods and services annually (Department of Foreign Affairs and Trade, n.d.). Specifically, According to World Bank (2022), the Trading section is reported to take up 40% of Australia's GDP in 2021. In this report, the Australia International Trade dataset by the Australian Bureau of Statistics (ABS) will be explored, visualised, and further analysed. The dataset is the record of Australia's import and export data from 1988 to 2021 with 10 main categories and 67 sub-categories. All data is shown in million Australian dollars (A\$ Millions). The 10 primary categories in the dataset are:

0. *Food and live animals*
1. *Beverages and tobacco*
2. *Crude materials, inedible, except fuels*
3. *Mineral fuels, lubricants, and related materials*
4. *Animal and vegetable oils, fats, waxes*
5. *Chemicals and related products, nes*
6. *Manufactured goods classified chiefly by material*
7. *Machinery and transport equipment*
8. *Miscellaneous manufactured articles*
9. *Commodities and transactions not classified elsewhere in the SITC*

In this report, the first category, *Category 0. Food and live animals* will be the focused category to deeper evaluate

The following findings were drawn from visualisation and analysis of Australia's international trade:

- Australia has a well-balanced in international trade
- Australia's total import value increased by 778% from 1988 to 2021
- Australia's total export value increased by 1081% from 1988 to 2021

- The peak in imports in 2003 was the result of: The duty-quota free for least-developed countries and Timor Leste, the Singapore-Australia Free Trade Agreement, Reduction in tariff
- The peak in exports in 2014 was caused by: Free Trade Agreement with China and Korea, and the economic partnership with Japan
- “Machinery and transport equipment” takes the largest part in Australia’s import
- “Animal and vegetable oils, fats and waxes” remained low throughout period for both import and export
- Largest export category is “Crude materials and mineral fuels”
- Meat and cereal are two dominant category in “Food and live animals”
- The sugar industry fail and is one of the lowest in both export and import

II. Data Preparation

Data preparation is a crucial part before analysing the data as it will ensure that the data presented is meaningful and ready for the latter steps. From a large number of data in the raw dataset, it is challenging to observe any existing trends, thus two new pattern sheet was created to solve the problem. The two new patterns are the Percentage showing the proportion of each category to the total (The Statistical Pattern) and the Ratio Change throughout the years (The Analytical Pattern).

1. The Statistical Pattern (Percentage)

This part will find every year's proportion of each category and subcategories to the total in both imports and export data.

$$\text{Percentage} = \frac{\text{Import/Export Categories/Subcategories}}{\text{Import/Export Total}} \times 100\%$$

Similarly, the formula was applied to calculate the proportion of each subcategory in category 0. *Food and live animals* for both import and export for further analysis.

$$\text{Percentage} = \frac{\text{Import/Export Subcategories}_{(\text{Food and live animals})}}{\text{Import/Export Total Category}_{(\text{Food and live animals})}} \times 100\%$$

2. The Analytical Pattern (Ratio Change)

On the other hand, The Analytical Pattern is the measurement of yearly change for a particular category and subcategory. The ratio change is calculated by dividing the data of the category/

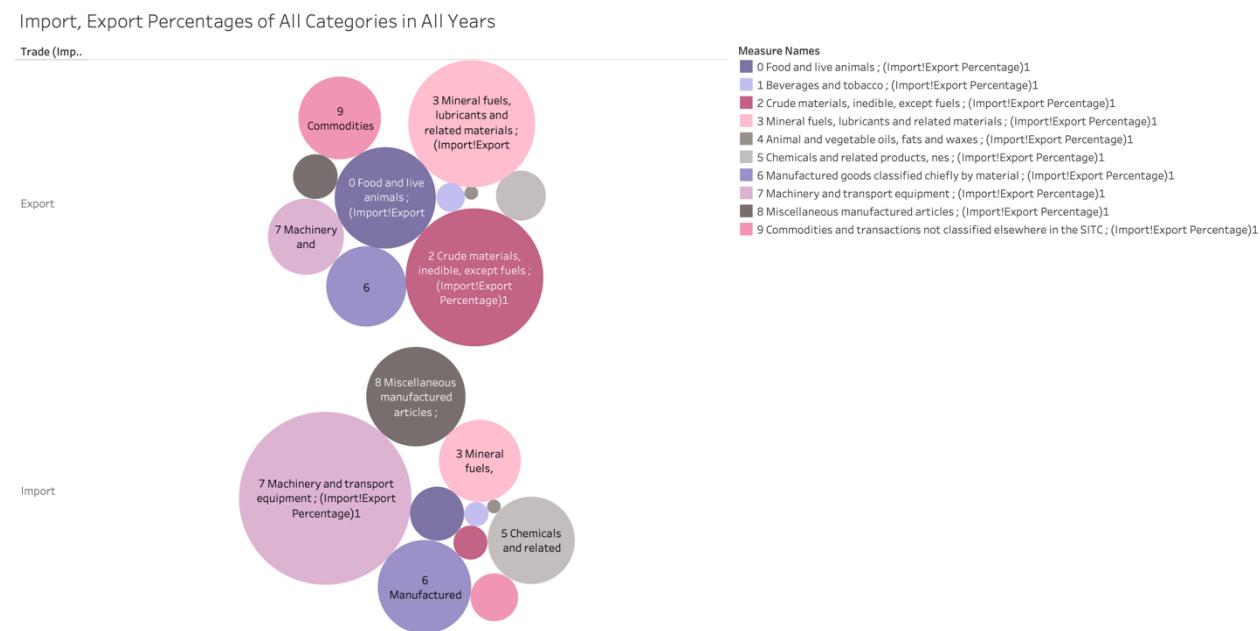
subcategory of the chosen year by the figure of the previous year. Notably, since there is no available data for the year previous 1988, thus, the ratio changes in 1988 are assigned as 100%.

$$\text{Ratio Change} = \frac{d_y}{d_{y-1}} \times 100\%$$

Where symbolises data and y stands for the years (y=1988, 1989,...,2021)

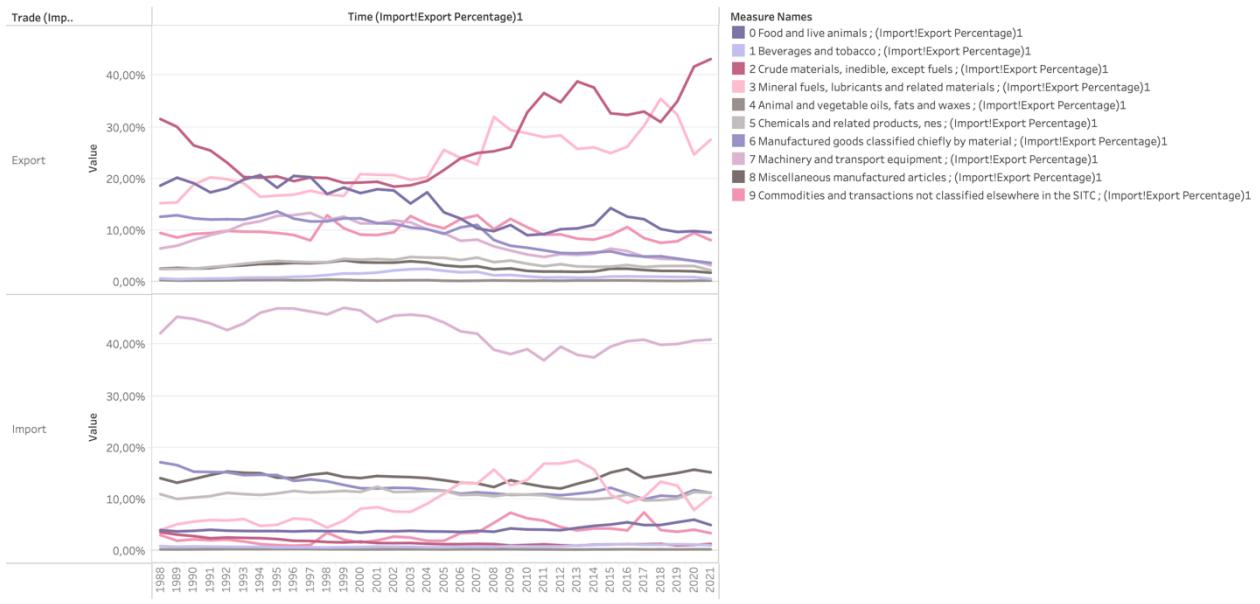
III. All Main Categories

Firstly, the bubble chart for the Import and Export percentages of all categories in all years was made to demonstrate an overview of Australia's strong/ weak categories. The bubble chart uses the different colours and sizes of the bubbles to illustrate each category and its percentage over the whole import/ export data.

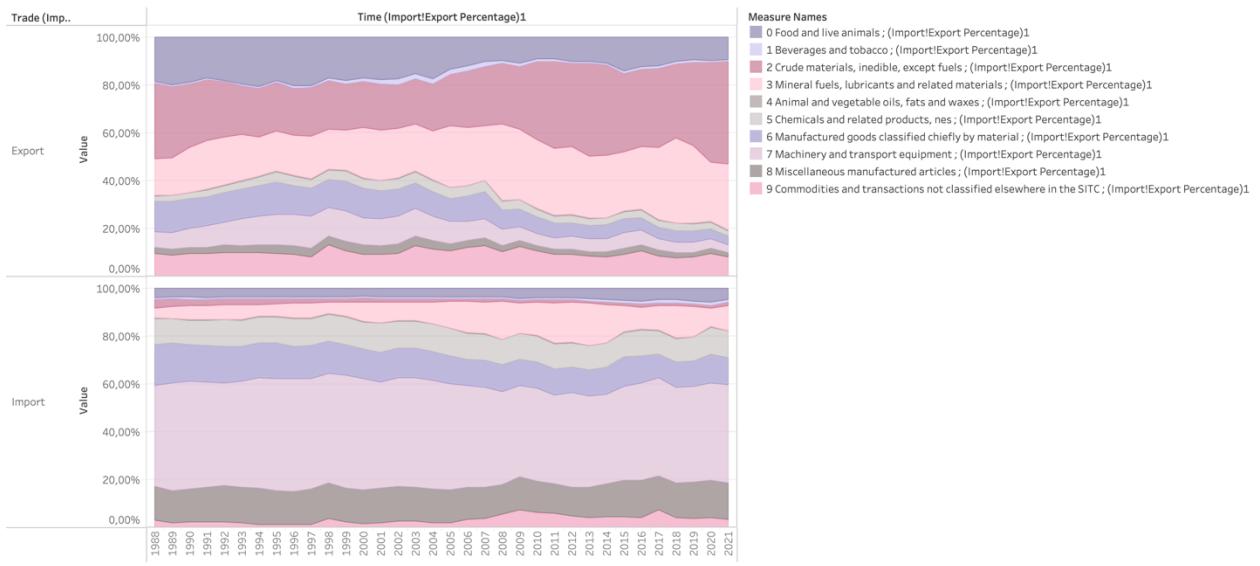


It is clearly shown that from 1988 to 2021, “Crude materials, inedible, except fuels” take up the most significant proportion of Australia’s export while “Animal and vegetable oils, fats and waxes” only appear as a tiny dot, indicating it only takes a small percentage in Australia’s Export. On the other hand, regarding imports, “Machinery and transport equipment” has obviously been the most significant part of the country’s imports throughout the years. Meanwhile, similarly to the Export, the “Animal and vegetable oils, fats and waxes” can hardly be seen on the chart showing that Australia is neither importing nor exporting much of this category. The same information can also be found in the line charts and area chart below.

10 categories percentage using line chart



10 categories percentage using area chart



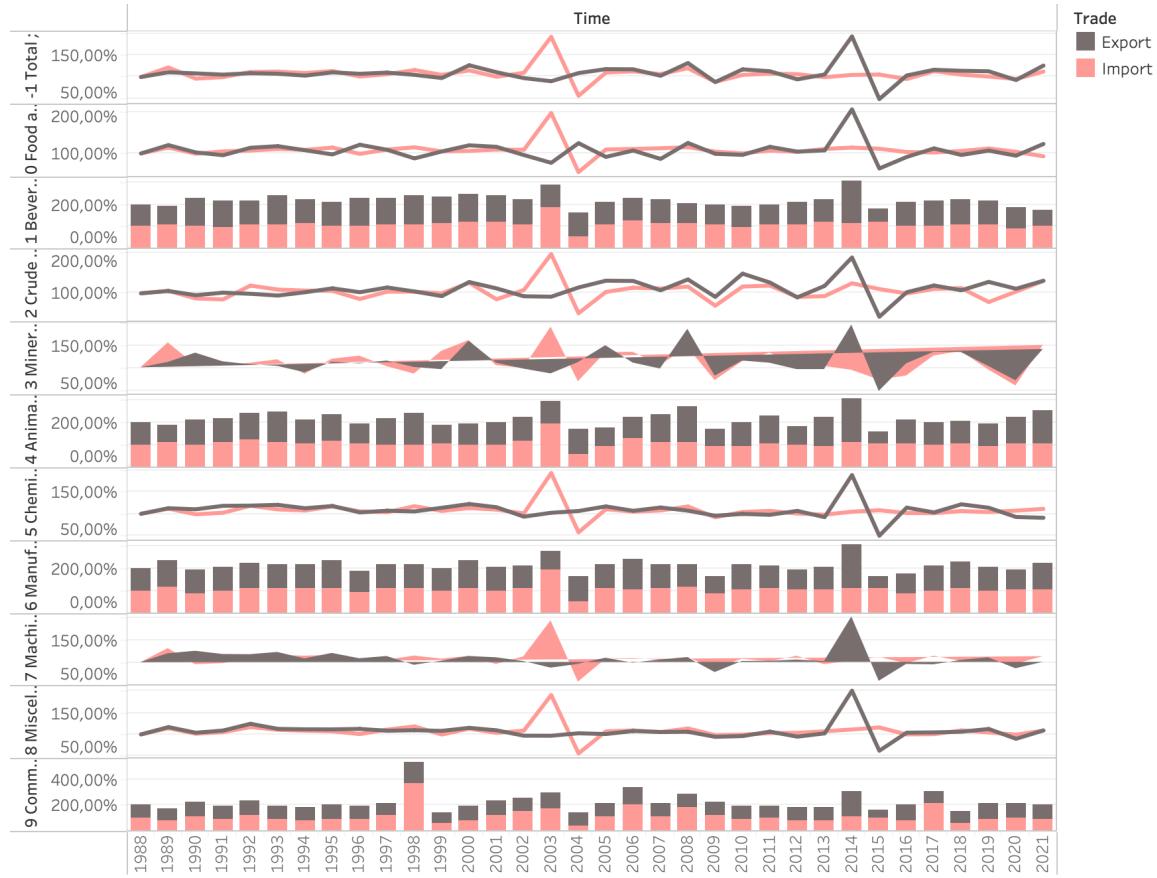
Looking at the line chart and area chart for Australia's exports, it can be seen that the category "Crude materials. Inedible, except fuels", despite having a massive slump in the 90s, still dominates Australia's total exports. The reason for the slump in this category is due to the steel industry depression affecting Iron ore, Japan's financial recession, and excess of supply in Wool markets leading to adverse influences for Australia's "Crude materials. Inedible, except fuels" export (ABS, n.d.). After that, the sharp increase in the 2000s is due to a tightening in the balance of supply and demand; wool prices increase, in addition to the lower value of the

Australian dollar (ABS, n.d). Additionally, the “Mineral fuels, lubricants and related materials” category has been increasing steadily throughout the period, reaching its peak in 2018 at 35.49% of the total export. However, the category witnessed a significant decrease of more than 10% in two years from 2018. The reason behind this fall is the rise in the supply of thermal and coking coal worldwide and the decrease in global demand (ABS, 2019). Furthermore, the category “Food and live animals” saw a decreasing trend throughout the years, especially in 2004, due to the significant dropped in fresh beef prices (ABS, 2004). Additionally, the fall in the proportion of “Food and live animals” can also be affected by the strong growth of “Crude materials. Inedible, except fuels” and “Mineral fuels, lubricants and related materials” categories. Besides the top 3 categories in export, the four smallest categories: “Chemicals and related products, nes”, “Beverages and tobacco”, “Animal and vegetable oils, fats, waxes”, and “Miscellaneous manufactured articles” have remained stably low in all years with each category having less than 5% of the total export.

Regarding Australia’s imports, it is apparent that “Machinery and transport equipment” is the largest category, with around 40% of the total import value. Specifically, everything from computers and generators to centrifugal pumps is imported by Australians; these imports are essential "capital" products that enable Australians to produce other goods (ICE cargo, 2020). The researchers have disclosed that Australia produces the fewest manufactured goods per capita in the OECD, as it produces roughly two-thirds as much as it uses and is overly dependent on the export of food and non-value-added raw materials (Pupazzoni, 2020). For the same reason of lacking manufacturing capacity, Australia’s second most imported category is “Miscellaneous manufactured articles” at around 15% and remained relatively stable in all years. Additionally, the category “Mineral fuels, lubricants, and related materials” has risen since Australia relies 90% upon foreign petroleum. The country is planning to be 100% reliant on imported petroleum in 2030 as local production has declined (Richardson, 2018). Interestingly, the category “Animal and vegetable oils, fat and waxes” is accounting the most miniature proportion of around 0.2% in both import and export, which indicate that Australia is not doing trade for this category and mostly self-produced and consumed.

In addition, to have a more profound knowledge of Australia's trade in 33 years, the visualisations analysing the analytical pattern of all main categories will be used.

Yearly changes for 10 main categories - The Analytical Pattern

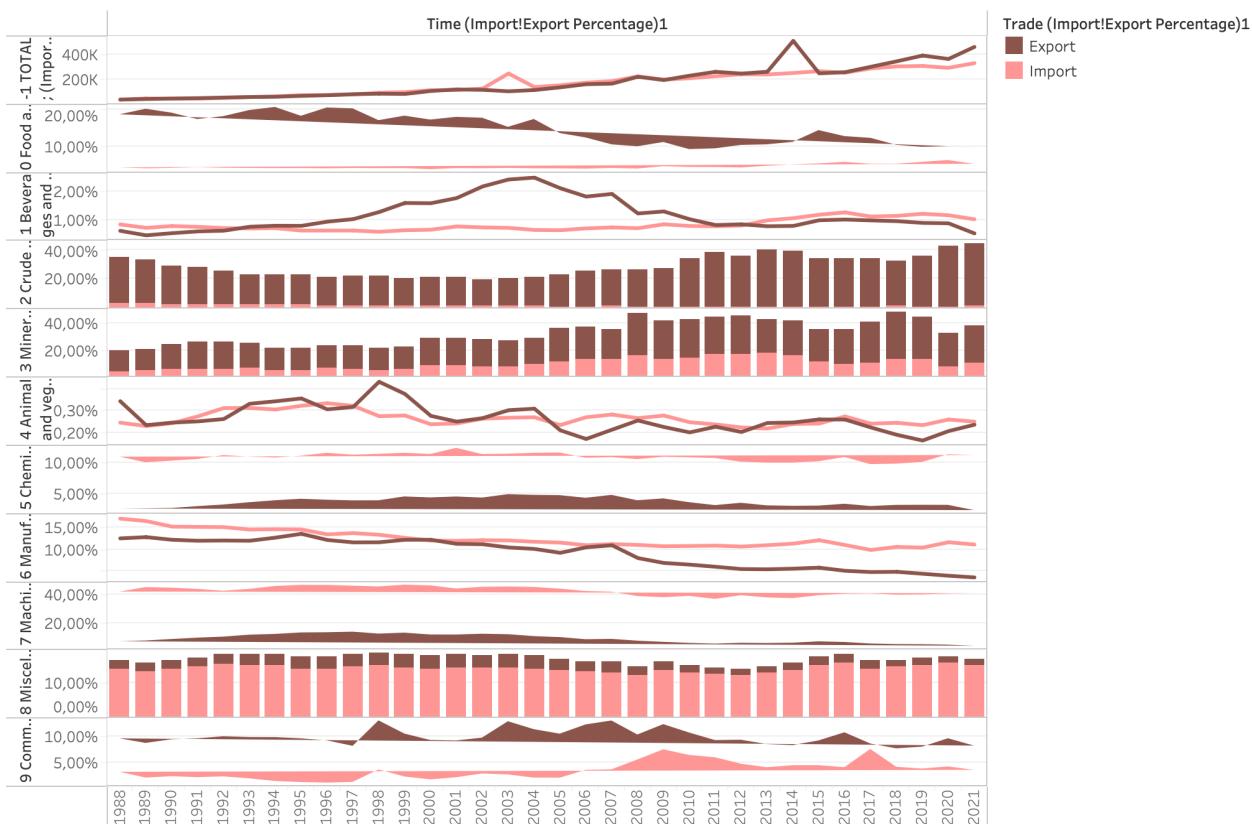


In this figure, the analytical patterns of all main categories' imports and export through time are visualised and compared. Using the combination of line charts, bar charts and polygon charts, it would be easier for the reader to compare the differences in the growth ratio of each category and spot notable trends. It can be seen that every category witnessed fluctuations in their growth within 33 years. There are two noticeable years that have witnessed spike points in Import and Export for most of the categories, which are 2003 and 2014, respectively. Regarding the spike in 2003 in imports, according to the Department of Foreign Affairs and Trade (n.d.), three main reasons are contributing to this growth. Firstly, in 2003, Australia granted duty and quota-free for all the products imported from least-developed countries and Timor-Leste. Moreover, in the same year, the Singapore-Australia Free Trade Agreement has come into effect, increasing the import level of Australia. Lastly, due to the reduction in Australia's tariff, there is a spike in automotive imports.

On the other hand, the export spike in 2014 is due to the signing of agreements with Australia's largest, second-largest, and fourth-largest trading partners, China, Korea, and Japan, respectively. Specifically, the agreements are the free trade agreement for China and Korea and the economic partnership agreement with Japan (DFAT, n.d.).

Interestingly, unlike the pattern of most categories, the "Commodities and transactions not classified elsewhere in the SITC" category has its biggest growth in import in 1998 of 367% in one year in which the subcategory "Gold, non-monetary (excl. gold ores and concentrates)" is the main contribution with an increase of \$2378M from 1997 to 1998. As an explanation for the huge import, it is stated that Australia has been importing gold since 19970-98 to refine and re-export to other countries and in 1998, Australia has shipped 503,000 kg of gold, five times the quantity found at the peak of Victoria's gold rush in 1856, and this has sparked a new gold rush throughout the country (Andrew, n.d.).

Statistical Patterns for All categories



The next visualisation is examining the statistical pattern of import and export of all categories through the time series. Similar to the previous chart, this chart also chooses suitable line charts,

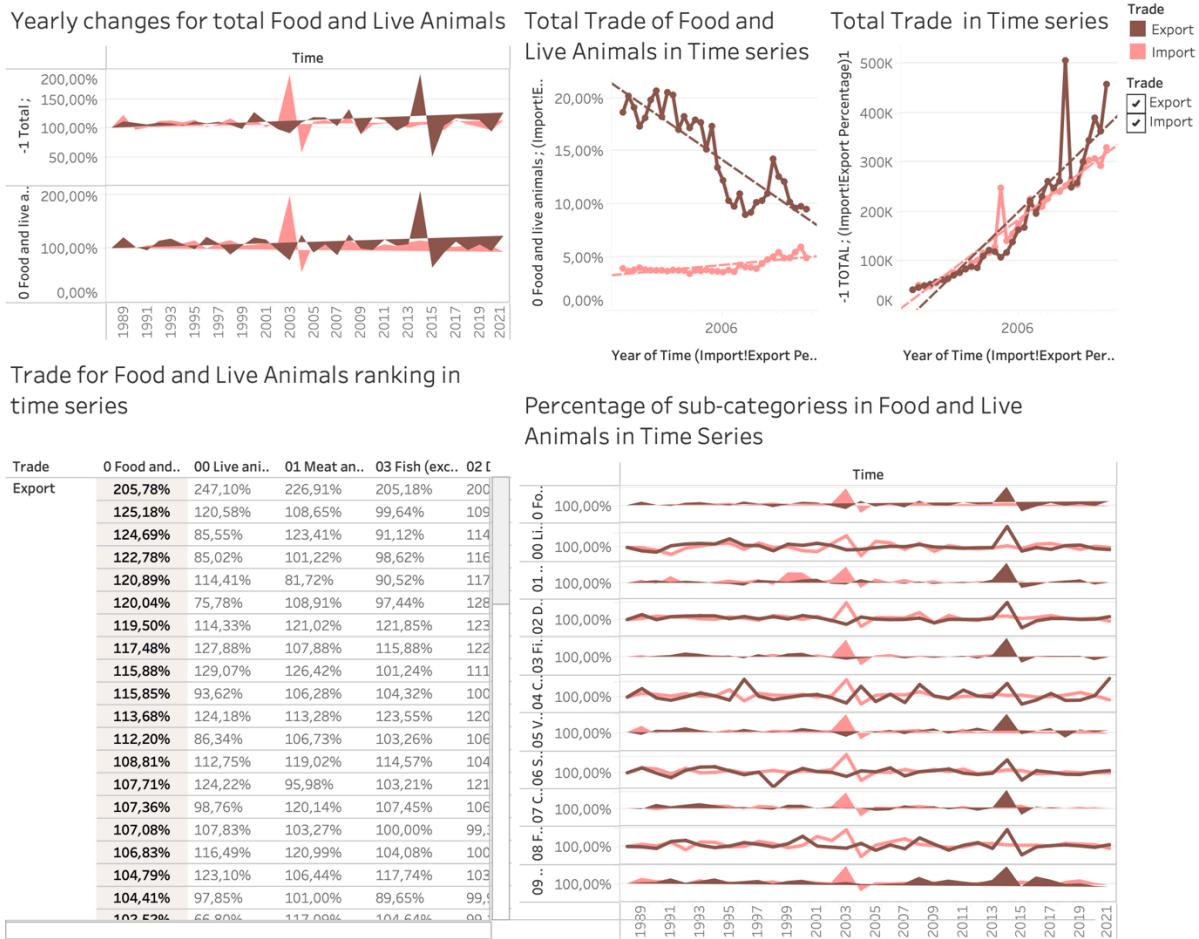
bar charts and polygon charts to apply to emphasise the significant trend of the data. Notably, the first line chart is representing the total export and import values, thus the unit for the vertical axis is in million dollars, unlike the other charts. For the first chart, besides the two spikes that were explained above, it can be seen that the gap between the two lines is relatively small which indicates Australia's trade is quite balanced between import and export. Interestingly, for most of the categories, there are huge gaps between export and import percentage indicating that the country concentrates on producing what they are good at to consume and export then import the other categories.

IV. Dashboard

There was an old saying that the Australian economy “rode on the sheep’s back”, it is because, in the 20th century, agriculture has been accounted for the country’s output and take up 70-80% of Australian export, and until now, agriculture still plays a crucial part in the Australian economy (Productivity Commission, 2005). Specifically, agriculture includes the cultivation and breeding of livestock and crops being used to improve people’s life (Jacobs, n.d.). In order to have a closer look at how Australia’s agriculture trading has changed over the last few decades, the dashboards are made to show the data of the category 0: “Food and live animals” and its 10 subcategories:

- 00. Live animals
- 01. Meat and meat preparations
- 02. Dairy products and birds’ eggs
- 03. Fish, crustaceans, molluscs and aquatic invertebrates and preparations
- 04. Cereals and cereal preparations
- 05. Vegetables and fruit
- 06. Sugars, sugar preparations and honey
- 07. Coffee, tea, cocoa, spices, and manufacturers thereof
- 08. Feeding stuff for animals
- 09. Miscellaneous edible products and preparation

Dashboard 1: Changes in Australia's Trade of "Food and Live Animals" throughout the years



In this dashboard, five worksheets have been combined so that it would be easier for readers to compare and have an overview understanding of the category's trade.

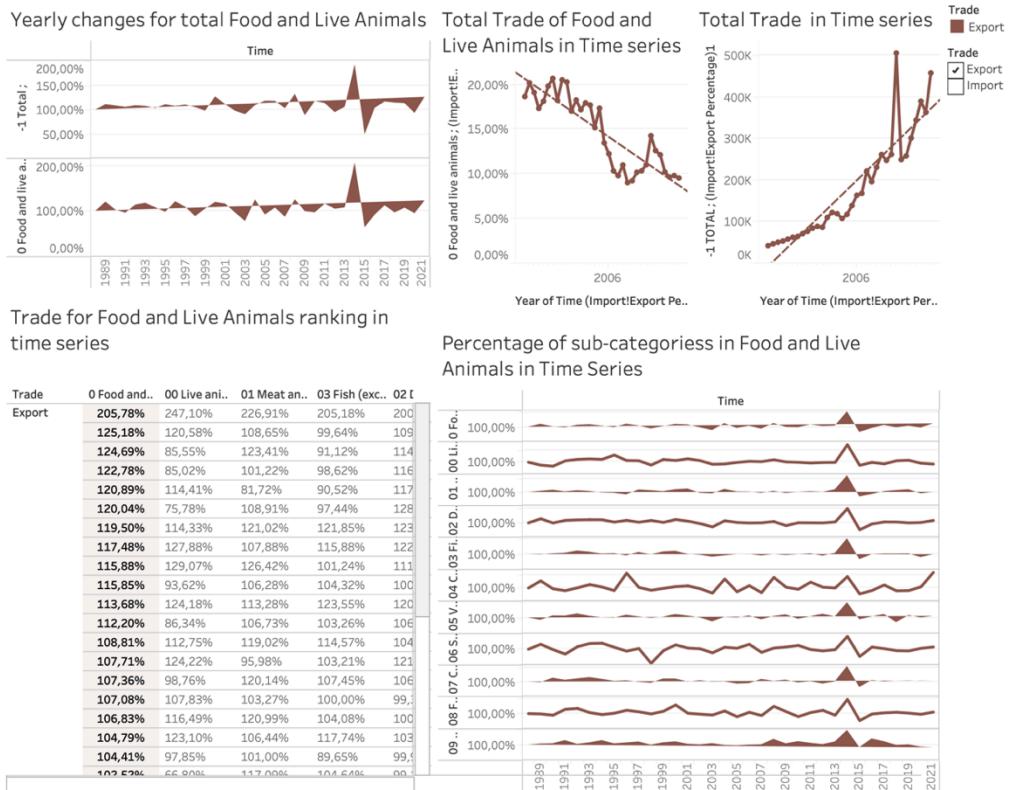
Firstly, looking at the chart in the top left corner is two polygon charts showing the yearly changes in the trade of the total and "Food and Live Animals" category. It can be seen that the two graphs look relatively similar, especially in two periods from 2003-2005 and 2014-2017. In 2003, the import changes dramatically for both the total and "Food and live animals" and the same thing happen for export in 2014. These two peak points could be seen in more detail with the data table below indicating the year with the most percentage changes by sorting the table in descending order. Specifically, for export values of "Food and live animals", the most significant change is 205,78% which is almost double the second largest change of 125,18% indicating there

are phenomenal changes in 2014. On the other hand, for “Food and live animals” imports, the largest changes happened in 2003 with 197,01% change in one year.

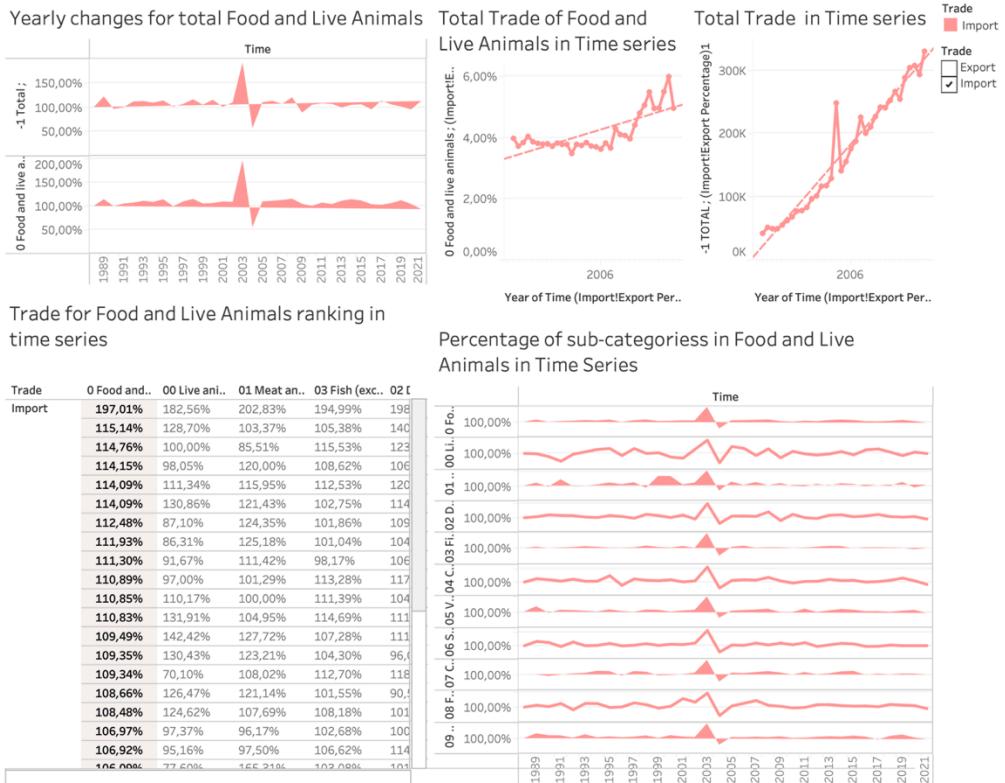
Looking at the line charts on the top right of the dashboard, one is the total trade values and the other is trade values for the “Food and live animals” category, both are in time series. It is evident that even though the trade of the total rises tremendously over time, the proportion of “Food and live animals” export has a downward trend, and the import has remained stable and relatively low. It could be explained as Australia has exported more of other categories, making the proportion of “Food and live animals” decrease. Besides, comparing the line chart of total values and the chart of all subcategories in “Food and Live Animals” in the time series below, it can be seen that they have very similar patterns throughout the years. Generally, almost when the total has its peak or sink points in import of export, the same happened for all of the subcategories.

Additionally, an interactive filter was added to the dashboard so that it is easier for the audience to observe the import or export data distinctly as below

Dashboard 1: Changes in Australia's Trade of "Food and Live Animals" throughout the years

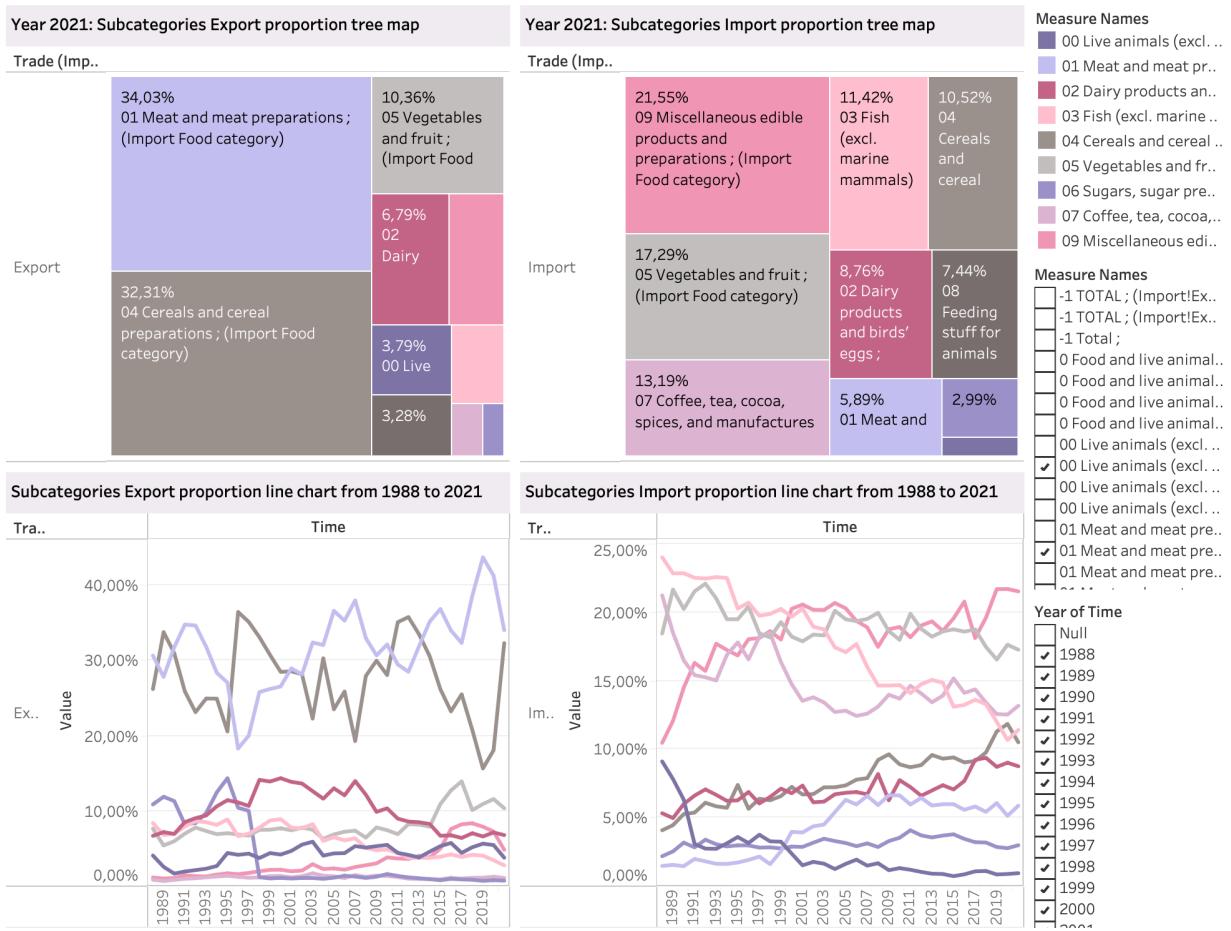


Dashboard 1: Changes in Australia's Trade of "Food and Live Animals" throughout the years



Taking a deeper look at each subcategory in the "Food and live animals" category, the second dashboard containing four charts was made. The dashboard includes two tree maps showing the proportion of each subcategory to the whole category for both import and export and line charts visualising the trends of each subcategory in time series.

Dashboard 2: Changes and trends in 10 subcategories of Food and Live Animals



Regarding the export of these subcategories, meat and cereals have been the two dominants in Australia's "Food and live animals" category and they switch up the largest position throughout the years. The two subcategories have witnessed many fluctuations within 33 years, interestingly, in 2019, there is a huge gap between meat and cereal when meat reached its peak and cereal slumped to the lowest proportion ever. However, in 2021, the cereal has recovered and rocketed to 32.31% which is nearly equal to meat at 34.03% out of the total. Moreover, sugars started in 1988 as the third largest category of Australia, however, since 1995, the proportion began to fall and never rise again, until now, this subcategory has the lowest proportion among others.

On the other hand, the import section of "Food and Live animals" also contains some interesting patterns to be discovered. In the beginning, the subcategory "Fish, crustaceans, molluscs and aquatic invertebrates and preparations" started strong with the highest percentage in the category, but in 33 years, it has been declining continually then in 2021, the subcategory only takes up

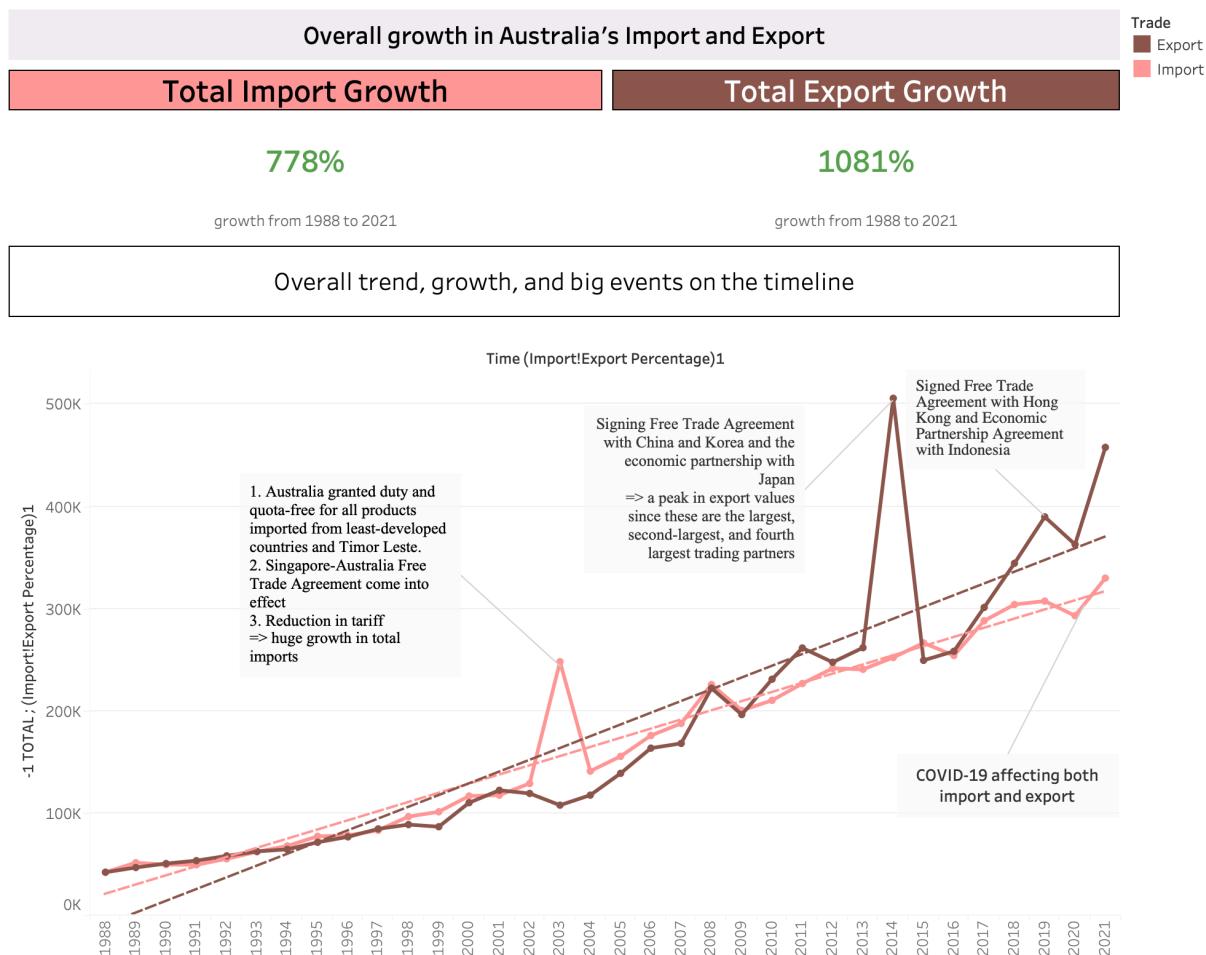
around 10% of the total import values. Interestingly, in 1988, Australia's import of the subcategory "Miscellaneous edible products and preparations" only take up 10.48% of the total "Food and live animals" but it has increased steadily, reaching 21,72% and has become the largest imported subcategory in 2021 of the "Food and live animals" category.

Moreover, in this dashboard, there is a filter that allows the audience to choose the year they want to take a closer look at. Also, the subcategories filter let the audience pick which subcategory to show in the line charts. Furthermore, the hover highlight was also added so that when pointing at particular subcategories, the dashboard will highlight that subcategory in all charts.

V. Storyboard

A Tableau storyboard is a collection of worksheets or dashboards that collaboratively tell the audience a story or share content. A story point is a name given to each worksheet or dashboard in a storyboard. The following storyboard has a total of five-story points, each of which will be analysed.

Australia has a steady growth in export and import throughout the period	The Spike in Import and Export	The fall in export of "Food and Live Animals" category	The "Food and Live Animals" Import changes and trends	The "Food and Live Animals" Export changes..
--	--------------------------------	--	---	--



As shown in the above figure, the first story point is a dashboard including textboxes and a line chart about Australia's growth of all categories. The textboxes were made to emphasise the growth of Australia's imports and exports throughout the period. Specifically, Australia's total import value has grown by 778% and the total export value has increased by 1081% from 1988 to 2021. These increments could also be observed in the line chart along with the added annotations to show the outstanding trends and events with the explanations. This method has given the audiences more insights and understanding into Australia's trade through time and how events have affected import and export values. For instance, four notable points in the graphs were added with explanations such as the reduced import tariffs, free trade agreements, and COVID-19 that have huge impacts on Australia's international trade.

Australia has a steady growth in export and import throughout the period

The Spike in Import and Export

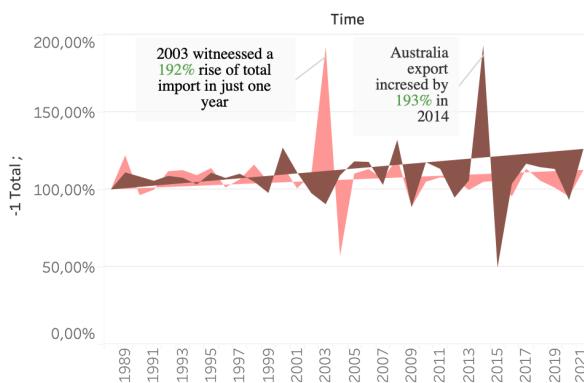
The fall in export of "Food and Live Animals" category

The "Food and Live Animals" Import changes and trends

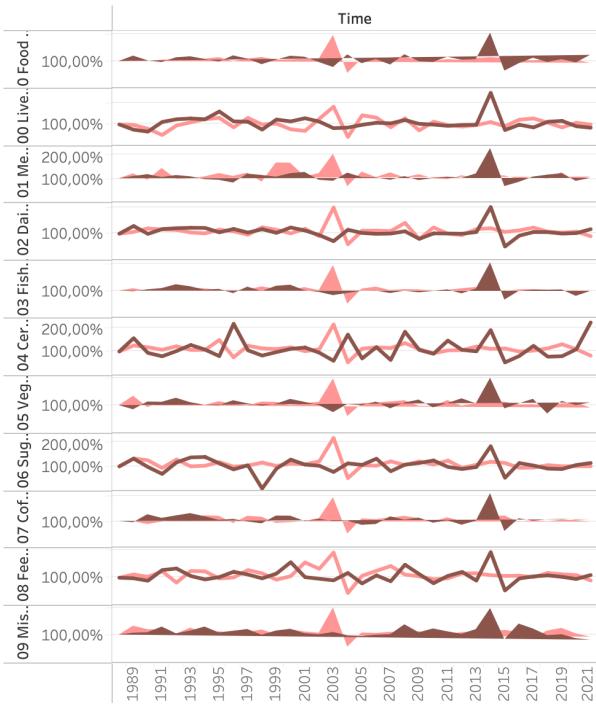
The "Food and Live Animals" Export changes..

The Spike in Import and Export

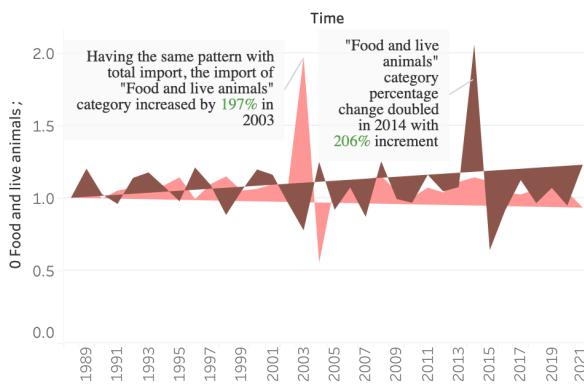
Yearly changes for total



Percentage of sub-categoriess in Food and Live Animals in Time Series



Yearly changes for Food and Live Animals (2)



In this story point, it has compared the overall trend of Australia with the chosen category "Food and Live Animals" as well as the subcategories in it. Evidently, the events that happened in 2003 and 2014 have affected the category "Food and live animals" and its subcategories as the yearly changes of all categories witnessed the same patterns as the Total had.

Story 3

Australia has a steady growth in export and import throughout the ..

The Spike in Import and Export

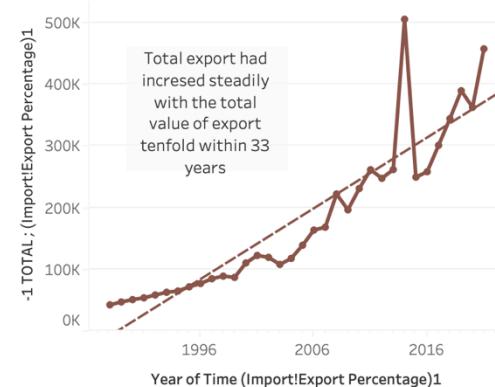
The fall in export of "Food and Live Animals" category

The "Food and Live Animals" Import changes and trends

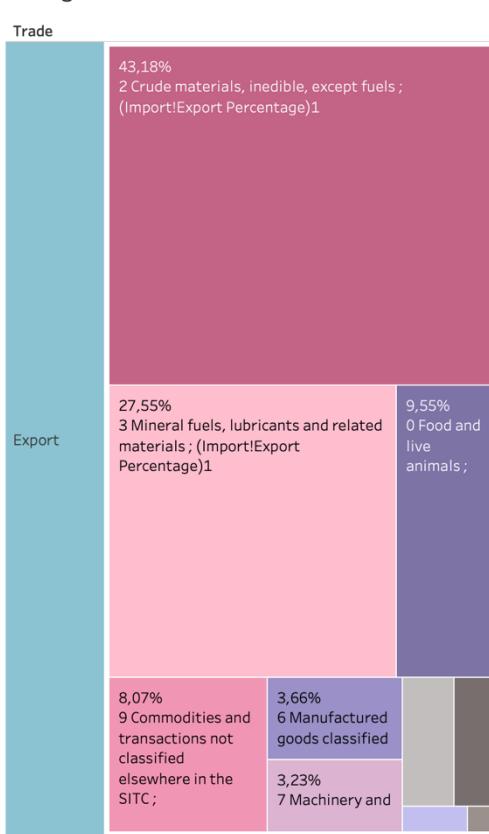
The "Food and Live Animals" Export changes and trends

The fall in export of "Food and Live Animals" category

Total Export in Time series



Australia's proportion of Export by categories



Year of Time
2021

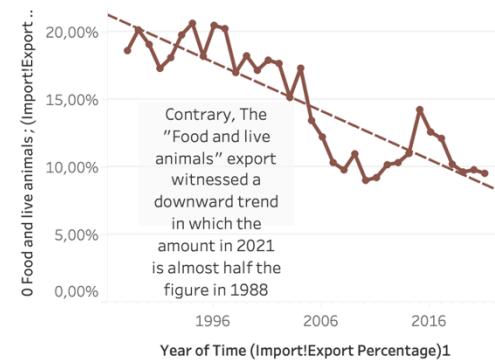
Trade
 Export
 Import

Measure Names
 0 Food and live anima..
 1 Beverages and toba..
 2 Crude materials, in..
 3 Mineral fuels, lubric..
 4 Animal and vegetab..
 5 Chemicals and relat..
 6 Manufactured good..
 7 Machinery and tran..
 8 Miscellaneous man..
 9 Commodities and tr..

Trade
 Export

Measure Names
 -1 TOTAL ; (Import!Ex..
 -1 TOTAL ; (Import!Ex..
 -1 Total ;
 0 Food and live animal..
 00 Live animals (excl. ..
 01 Meat and meat pre..
 01 Meat and meat pre..
 01 Meat and meat pre..
 01 Meat and meat pre..

Total Export of Food and Live Animals in Time series

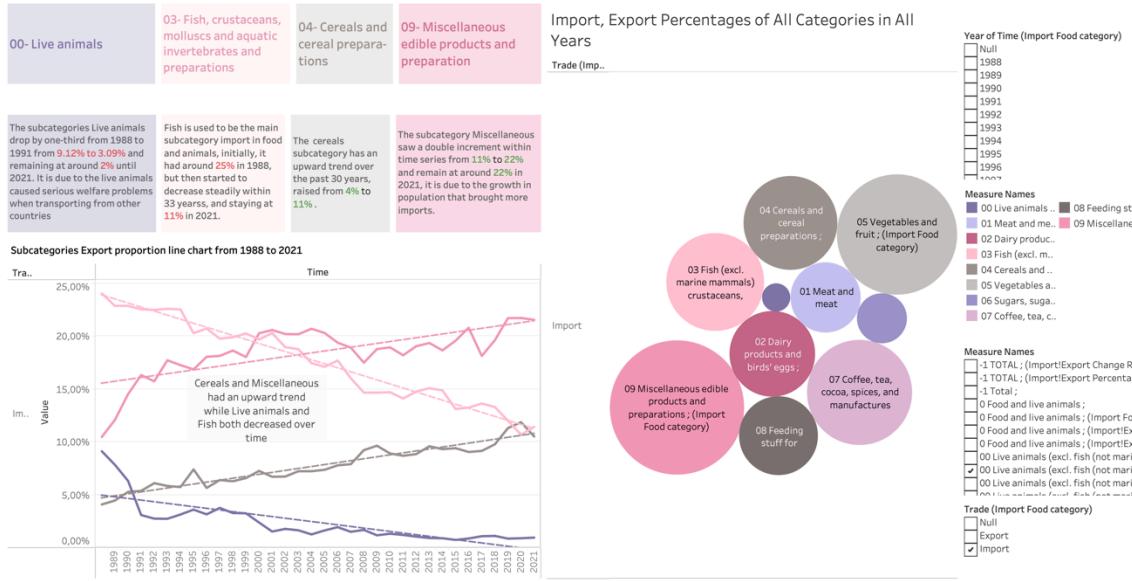


Thirdly, contrary to the increase in total export, the export of the "Food and live animals" category saw a downward trend. This shows that throughout the period, Australia has been less focused on the "Food and live animals" category and shifted to others. However, looking at the tree map, it can be seen that the category is still in the top 3 proportion of Australian export in 2021 with 9.55%, one-fourth the amount of the largest category. Also, the highlight action was added to the chart with a hover action so that when pointing to a part of the chart, it will be focused giving more interactions with the audience.

Australia has a steady growth in export and import throughout the period	The Spike in Import and Export	The fall in export of "Food and Live Animals" category	The "Food and Live Animals" Import changes and trends	The "Food and Live Animals" Export changes and trends
--	--------------------------------	--	---	---

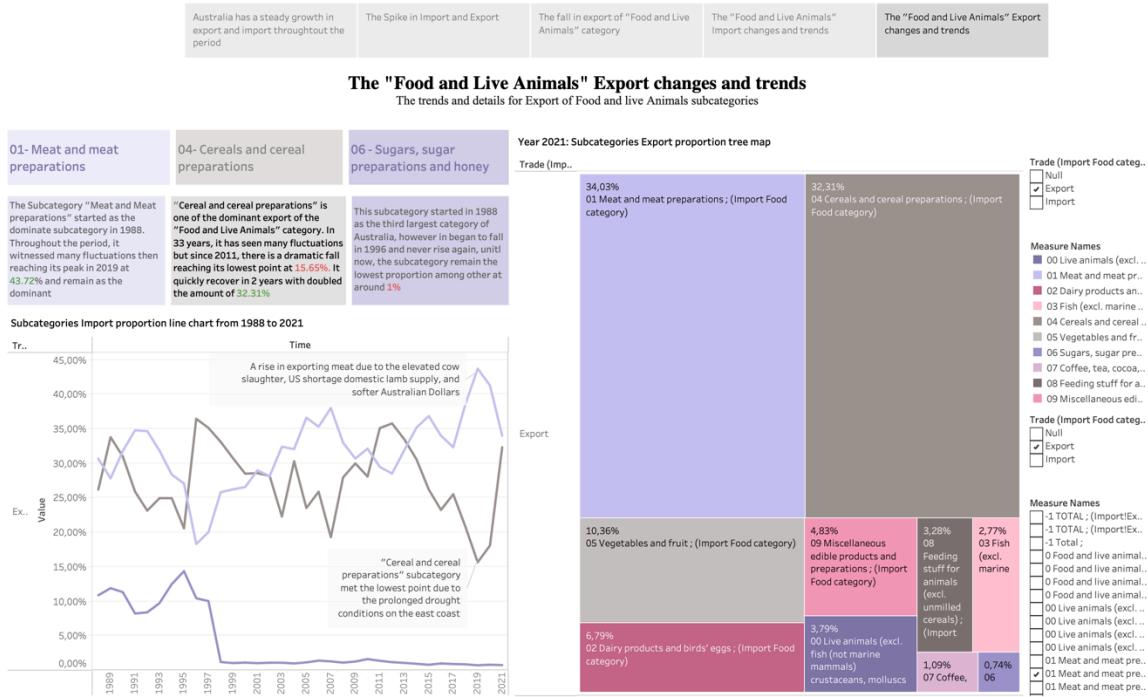
The "Food and Live Animals" Import changes and trends

The trends and details for Import of "Food and live Animals" subcategories



In this story point, the changes in the percentage of significant subcategories in the import are examined. The added textboxes have further analysed the movement of four significant subcategories in “Food and Live Animals”. Additionally, the rise in imported “Miscellaneous edible products and preparation” could be explained by the increasing number of international immigrants and students from worldwide (Australian Bureau of Statistics, 2021). Besides, the year filter of the bubble chart was added so that the viewer can observe how subcategories import proportion changed over time

Story 3



Lastly, this story point concentrates on the changes in the subcategories' export proportion. Firstly, the "meat and meat preparations" has been a dominate subcategory in this category, it has seen many fluctuations among the period. Especially in 2019, the subcategory reached its peak at 43.72% due to the elevated cow slaughter, US shortage of domestic lamb supply, and softer Australian Dollar (Meat & Livestock Australia, 2019). Moreover, the second-largest subcategory – "Cereals and cereal preparations" also saw a dramatic decrease and met its lowest point in 2019 at only 15.65% due to the prolonged drought conditions on the east coast of Australia. In the next two years, when the droughts ended, this subcategory quickly recovered and doubled the figure in 2019 to 32.31% (ACCC, 2021). On the other hand, the export of sugar started strong but then witnessed a sudden fall in 1996 and it has never risen again, until now, the subcategory remained the lowest proportion among all subcategories at around 1%. The reason this happened is because of the sugar industry has gone through a lot of changes within that period (ACCC, 2021).

VI. Summary of Advantages

1. Dashboard

Multiple spreadsheets are gathered into a single platform using a dashboard. This effective visualisation tool generates a number of benefits. The viewer is first given a comprehensive review of all charts in order to provide insightful patterns. The viewers can easily observe from the first dashboard that all figures follow a similar pattern, with imports reaching a peak in 2003 and exports reached their peak in 2014. The audience may visualise historical trends in the export proportion and import rate for each subcategory at the same time on the second dashboard. Additionally, based on the demands, a dashboard may also be customised which is likely to effectively communicate the data and provide insights, its design and widgets would be customised in a hierarchical structure. The dashboard also encourages the viewers to quickly compare charts and derive insightful data. It is observable to highlight that the critical importance of "food and live animals" in total exports has decreased over the years by contrasting the upward trend in total exports with the declining trend in the proportion of export in "food and live animals" within time-series data. Last but not least, the dashboard provides a large number of interactive features and the presence of all-inclusive does not imply that there are not any specifics. The audience may narrow down and sort the information in accordance with their requirements utilising engaging slider and filter in the first and second dashboards, providing them with the opportunity to learn more by making the choice of the statistics that interests them. For instance, by narrowing the selection to sub-category 08 in the dashboard, it is simple to spot a sharp decline in the import of feeding stuff for animals between 2003 and 2004.

2. Storyboard

A storyboard elevates visualisation tools for the dataset by delivering information to the viewer in a unique and captivating approach and effective data visualisation is simply one aspect of it. Additionally, it involves presenting statistics in the form of a gripping story that is supported by important results drawn from the information. The storyboard's main advantage over other data visualisation methods is that, while trends, patterns, and change points are likely to be indicated by other information visualisation tools, they are unable to fully explain why something occurred. In contrast, the storyboard has a distinct benefit in that it may illustrate informative patterns and, through a narrative explain the causes of the trends and transition points. The

audience may observe from the annotated line chart in the first storyline point that Australia granted duty and quota-free for all products imported from countries having poor growth performance and Timor Leste, as well as the reduction in tariff with an effect from Singapore-Australia Free Trade Agreement, leads to critically enormous growth in total imports in 2003. Besides that, the record export spike in 2014 was caused by the signing of free trade agreements (FTAs) with China, Korea, and economic partnership with Japan because these nations are in the top four of the largest trading partners. Moreover, the observer could be more interested and capable to retain the knowledge if insights are delivered through engaging and fascinating stories. Additionally, the reader may switch between the narrative points using the navigational indicator since each major storyline provides its own distinct and condensed tale description in the navigator on the top of the storyboard. The most important details are highlighted in the narrative captions to ensure that reader may easily understand the most important details. In addition, it is also essential to emphasise that the motion charts enable observers to examine the entire history of how the structure of imports and exports in Australia has evolved over the years. The narrative board is likely to become more interactive and entertaining as a result.

VII. Conclusion

To conclude, through the time series charts, interactive charts, dashboards, and storyboards, the international trade of Australia has been revealed, analysed deeply and drawn out some crucial points:

- Australia's total import value increased by 778% from 1988 to 2021
- Australia's total export value increased by 1081% from 1988 to 2021
- The peak in imports in 2003 was the result of The duty-quota free for least-developed countries and Timor Leste, the Singapore-Australia Free Trade Agreement, the Reduction in tariff
- The peak in exports in 2014 was caused by: Free Trade Agreement with China and Korea, and the economic partnership with Japan
- “Machinery and transport equipment” takes the largest part in Australia’s import
- “Animal and vegetable oils, fats and waxes” remained low throughout the period for both import and export

- The largest export category is “Crude materials and mineral fuels”
- Meat and cereal are two dominant categories in “Food and live animals”
- The sugar industry fails and is one of the lowest in both export and import

VIII. Reference list

Andrew, J.A. (n.d.). *Australian's trade performance 1990-91 to 2010-11*. Department of Foreign Affairs and Trade

<https://www.dfat.gov.au/sites/default/files/australias-trade-performance-1990-91-2010-11.pdf>.

Australian Bureau of Statistic. (2004). *International Trade Price Indexes, Australia*.
<https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/6457.0Main+Features1Jun%202004?OpenDocument>.

Australian Bureau of Statistic. (2019). *International Trade in Goods and Services, Australia*.
<https://www.abs.gov.au/statistics/economy/international-trade/international-trade-goods-and-services-australia/dec-2019>.

Australian Bureau of Statistic. (n.d.). *Major Commodities Traded by Australia, 1991 to 2000*.
[https://www.abs.gov.au/ausstats/abs@.nsf/b4005c38619c665aca25709000203b8d/53c75a489ded8bf2ca2569f8007f5af0/\\$FILE/ATT8K6IX/feature1_1.pdf](https://www.abs.gov.au/ausstats/abs@.nsf/b4005c38619c665aca25709000203b8d/53c75a489ded8bf2ca2569f8007f5af0/$FILE/ATT8K6IX/feature1_1.pdf).

Australian Competition & Consumer Commission. (2021). *Bulk grain ports monitoring report*.
<https://www.accc.gov.au/system/files/Bulk%20grain%20ports%20monitoring%20report%202019-20.pdf>.

Department of Foreign Affairs and Trade. (n.d.). *Trade and Investment*.
<https://www.dfat.gov.au/trade/trade-and-investment>.

Department of Foreign Affairs and Trade. (n.d.). *Welcome*.
<https://www.dfat.gov.au/publications/minisite/tradethroughtimegovau/site/index.html>.

ICE cargo. (2020). *Australia's Top 10 Imports and Exports: Where Does Your Industry Sit?*.
<https://www.icecargo.com.au/top-10-imports-exports/>.

Meat & Livestock Australia. (2019). Elevated start to 2019 Australia red meat exports.
<https://www.mla.com.au/news-and-events/industry-news/elevated-start-to-2019-australian-red-meat-exports/>.

Jacob, K. (n.d.). *Agriculture in Australia: an overview*. Grad Australia.
<https://gradaustralia.com.au/career-planning/agriculture-in-australia-an-overview>.

Productivity Commission. (2005). *Trends in Australian Agriculture*.

<https://www.pc.gov.au/research/completed/agriculture/agriculture.pdf>