

THE ANALYSIS OF FOOD PRICES IN FEB 2022 USING K-MEANS CLUSTERING METHOD



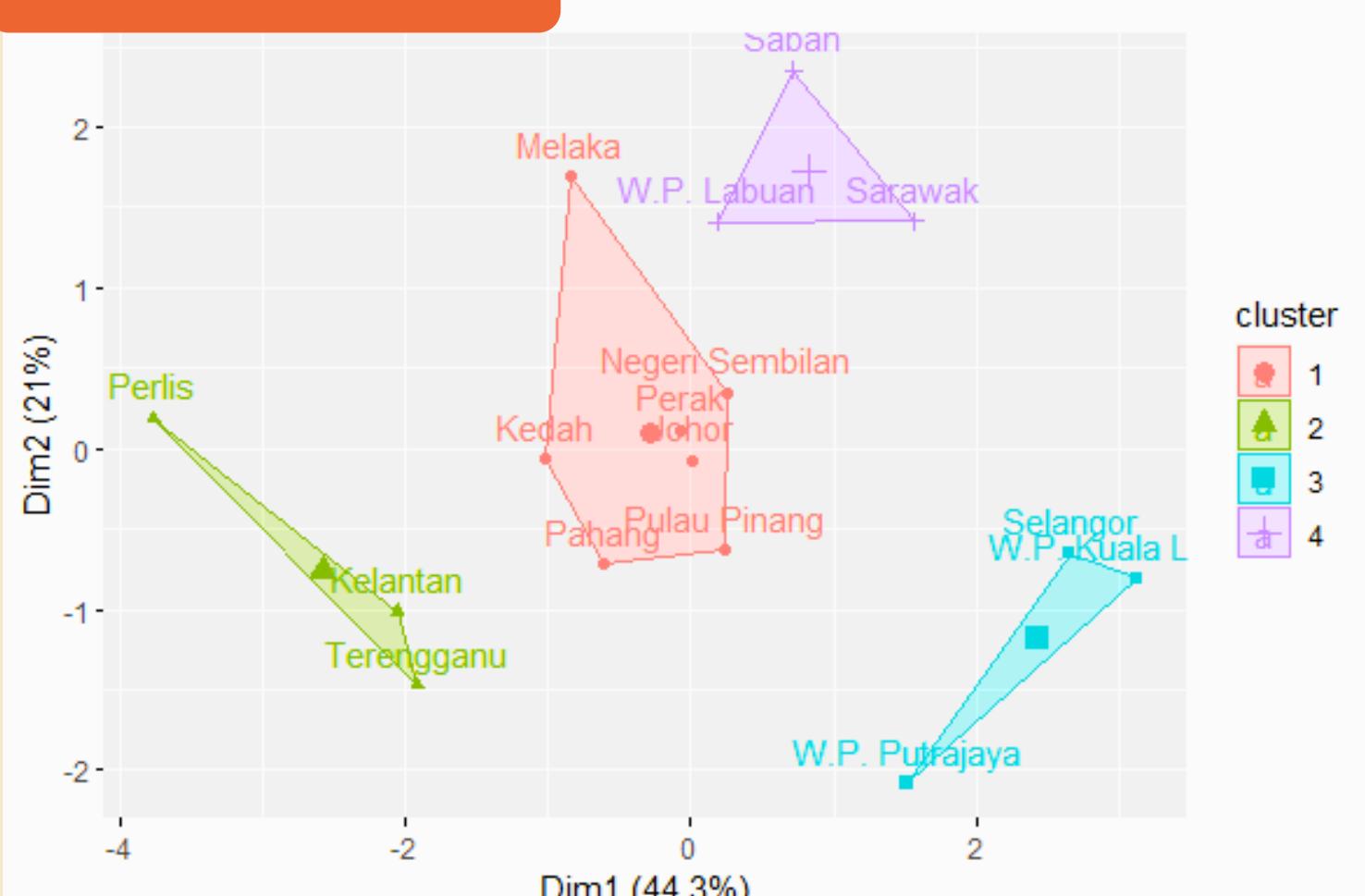
Nur Najla Nabila bt Azman (u2001004)
Muhammad Imran bin Mohd Isa (u2000717)
Chin Yee wei (U2103394)
Koo Hoong Khen (u2103676)
Pang Wilson (s2132422)

BACKGROUND OF DATA

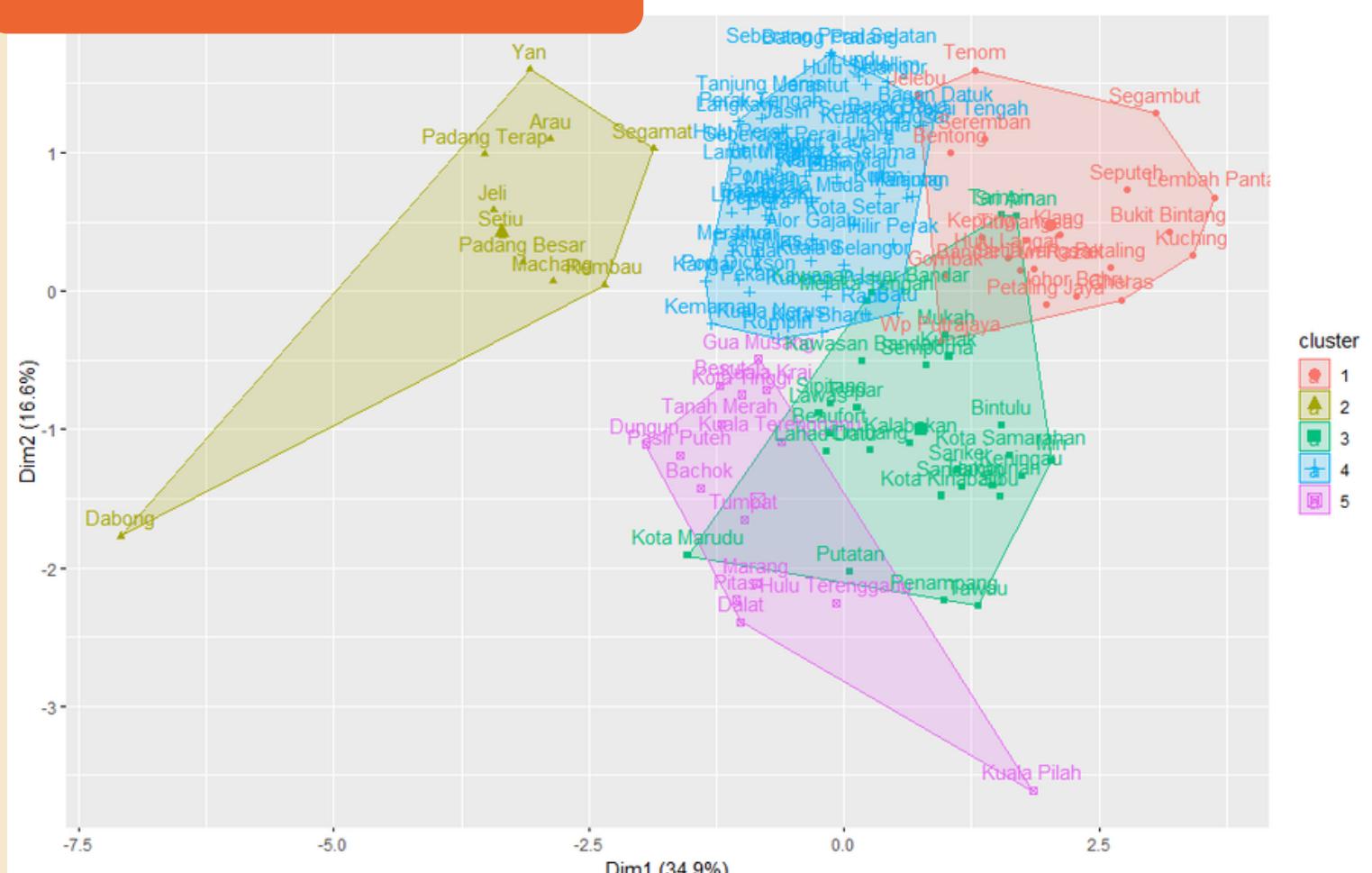
The data was retrieved from OpenDOSM website, consist over 100 millions food prices from the PriceCatcher mobile app



RESULTS BY STATE



RESULTS BY DISTRICT



HIGHLIGHTS IN EACH CLUSTER

Cluster	Packaged Goods	Dried Goods	Fresh Goods	Ready-to-Eat Food	Beverages	Cleaning Products	Milk and Baby Products
1	-0.350	0.006	-0.043	-0.868	-0.205	-0.108	-0.018
2	-0.996	-0.710	-1.003	0.326	1.524	-1.066	-1.378
3	0.023	-0.293	1.543	1.179	-0.750	1.483	1.022
4	1.789	0.988	-0.440	0.520	-0.297	-0.166	0.399

- Cluster 1 is the most moderate or average states amongst all as it has almost the average prices for most of the categories, despite their **cheapest ready-to-eat food**.
- Cluster 2 has the **lowest prices in almost all categories**, except the averagely-priced ready-to-eat food and **unexpectedly the most expensive beverages**.
- Cluster 3 has the **highest prices in essential needs categories** such as fresh goods, ready-to-eat food, cleaning products, milk and baby products, **the lowest beverages price**, and other categories being averagely-priced.
- Cluster 4 has **extremely expensive packaged and dried goods**, others are moderate.

EXPENSIVE



Cluster	Packaged Goods	Dried Goods	Fresh Goods	Ready-to-eat Food	Beverages	Cleaning Products	Milk and Baby Products
1	-0.010	0.566	1.446	0.349	-0.678	1.240	0.808
2	-1.485	-0.834	-0.951	-0.421	0.740	-1.770	-2.008
3	1.231	0.908	-0.452	0.450	-0.175	-0.174	0.411
4	-0.275	-0.414	-0.016	-0.639	-0.161	-0.036	-0.112
5	-0.305	-0.441	-0.490	1.253	1.362	-0.104	-0.156

- Cluster 1 has the **most expensive fresh goods, cleaning products and milk and baby products**, while having the **cheapest beverages**.
- Cluster 2 has the **lowest price in almost all categories**, except a higher price for **beverages**.
- Cluster 3 has the **most expensive packaged goods and dried goods**, while having a **lower than average price for fresh goods**.
- Cluster 4 has the **cheapest ready-to-eat food**, while **all other categories are priced lower than average**.
- Cluster 5 has the **highest price for ready-to-eat food and beverages**, with **all other categories having a below average price**.

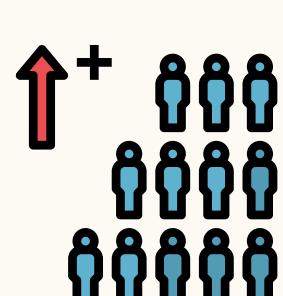
DISCUSSION



CLUSTER 1
Even in a high population and metropolitan cities, they have a below average price for Ready to eat food and beverages.



CLUSTER 2
A more rural state, making fishing, cultivating rice and fruits as their main economic activity resulting in low goods' and food price.

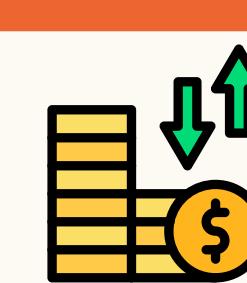


CLUSTER 3
Having the **highest population and urbanization growth** results to a higher food and essential goods prices due to higher demand for quality product.



CLUSTER 4
Price for packaged and dried goods is higher due to **long transportation distance**. The **cabotage law** that requires imported goods to be sent to West Malaysia beforehand also makes the transportation cost higher.

DISCUSSION



CLUSTER 1
Major cities experience **inflation pressure** such as high prices for fresh commodities, cleaning supplies, milk and infant products.



CLUSTER 2
Focus on agriculture, generally offers the **lowest prices across most categories** that contributes by agriculture self-sufficiency



CLUSTER 3
Mainly consists of East Malaysian districts because of the higher prices influence by **transportation cost**.



CLUSTER 4
Strikes a **pricing balance**, aligning with various economic activities and customer needs.



CLUSTER 5
Unique consumer demand shaping the **above average price for ready-to-eat and beverages**

CONCLUSION



ECONOMIC SECTORS

- States and districts that focused on **manufacturing and services** tend to have higher food prices.
- This is due to the manufacturing cost.
- Thus, rural area that focused on the **agricultural sectors** tend to have lower food prices.



POPULATION DENSITY

THE PRICING PATTERNS ACROSS THE CLUSTERS ARE INFLUENCED BY:

- Higher population density indicates higher demand for quality products.
- Thus, the states and districts that have high population density tend to have higher prices compared to the states and districts that have low population density.



REGIONAL FACTORS

- The **Cabotage Law** affect the food prices in East Malaysia like Sabah and Sarawak.
- Monsoon Season** that occur during this time period affect the food prices in Kelantan and Terengganu.