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## Impact of imported Indian buffalo meat on red meat supply and demand in South Kalimantan, Indonesia

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**Abstract.** Since 2016, the government introduced the domestic beef market to Indian buffalo meat (IBM). However, the impact of IBM on regional beef supply and demand has not been fully investigated. This study aimed to study the impact of IBM on the supply and demand of local beef in South Kalimantan (KalSel), Indonesia. Surveys were conducted with slaughterhouses, beef distributors, butchers, meatball makers, and resellers both at the supermarkets and wet markets. Secondary data were collected from Banjarmasin Quarantine Office and Livestock and Animal Health Service of Kalsel. Data indicated an increase of IBM imported into Kalsel, from 38-675 tonnes in 2017 and 2019. There was a decline of live cattle imported from inter-island, from 27,240 head in 2016 to only 12,788 head in 2019. Slaughtered cattle and beef production declined from 39,747 heads in 2016 to 31,058 heads in 2019 and 8,691 tons in 2016 to 6,791 tons in 2019. Butchers reported beef selling volume has been reduced by 50 -70% compared to 2016. This study showed IBM has had significant impacts on inter-island cattle supply, local beef production and beef demand in the wet market but has no impact on local beef price.

### 1. Introduction

Beef is important for Indonesia, especially for traditional cuisine and culture. Beef consumption in Indonesia was relatively low compared to meat consumption from fish and poultry [1]. Beef consumption per capita was estimated at 2.56 kg/cap/year [2]. Beef demand was expected to increase as the economy develops and the middle class grows [3]. However, Indonesia has been experiencing a deficit in beef supply that meets about 40% of national demand [4]. To fulfil the shortage of local beef supply, Indonesia regularly imports live and frozen beef from other countries, mainly Australia, New Zealand and the USA. In 2019, Indonesia imported 266,450 tons of beef that equal to USD 851.09 million [2].

Since 2016, the Government issued the importation policy of Indian Buffalo Meat (IBM) as an effort to reduce beef prices, making beef more affordable for ordinary Indonesians, and to diversify beef import sources [4]. As a result, import volume of IBM has been steadily increasing. This is very contrasting to decreases in the local buffalo population and meat production. Since 2016, the national buffalo population decreased by 16.3%, and buffalo meat production by as much as 22.3% [5].

Buffalo meat consumption was low, accounting for less than 5.11% of total red meat consumption [6]. Low buffalo meat demand was related to consumer perception of buffalo meat being less appealing than beef, such as darker color, stronger smell, and bigger or tougher fiber [7]. However, in several regions, buffalo meat is more popular than beef and is used extensively in their local cuisines, such as



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in West Sumatera, Central Java and South Kalimantan provinces. The high demand for IBM seems to suggest a change in consumer perception and therefore an increase in buffalo meat consumption in Indonesia. Therefore, it is important to determine the driving forces of IBM demand and its impacts on local beef supply and demand. This study was conducted in South Kalimantan province because it imports IBM while having a large buffalo population.

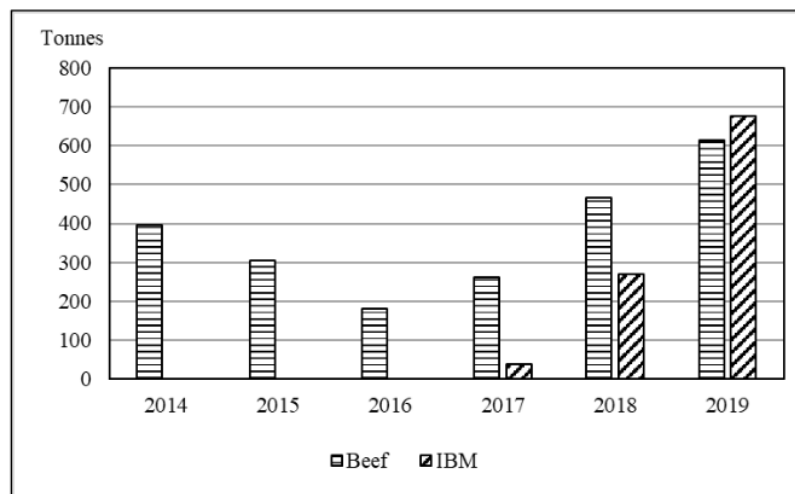
## 2. Method

This study was conducted through informant interviews, field and market visits, and analysis of secondary data. Interviews were carried out with key stakeholders including government officers, cattle traders, farmers, butchers, beef retailers and meatball makers. Secondary data were collected from livestock market, slaughterhouses, Livestock Service Office in the province and districts. Field and market visits were conducted from October 2019 to March 2020. Hence, this study describes the subject prior to the impact of Covid 19 pandemic on the beef market. Data were analyzed both descriptively and statistically.

## 3. Results and discussion

### 3.1. Imports of IBM and frozen beef into South Kalimantan

Indonesia has been importing frozen IBM since 2016 to provide a cheaper alternative to the more expensive Australian beef. It was started at 58,000 tons in 2016 and consistently increase to reach 94,000 tons in 2019. In South Kalimantan, the imported IBM increased from 38 tons in 2017 to 675 tons in 2019. The volume of IBM in 2019 has exceeded the volume of imported frozen beef into South Kalimantan (Figure 1). However, the volumes were expected to decrease by 13% since pandemic covid-19, namely only tons 80,000 tons in 2021 [8].



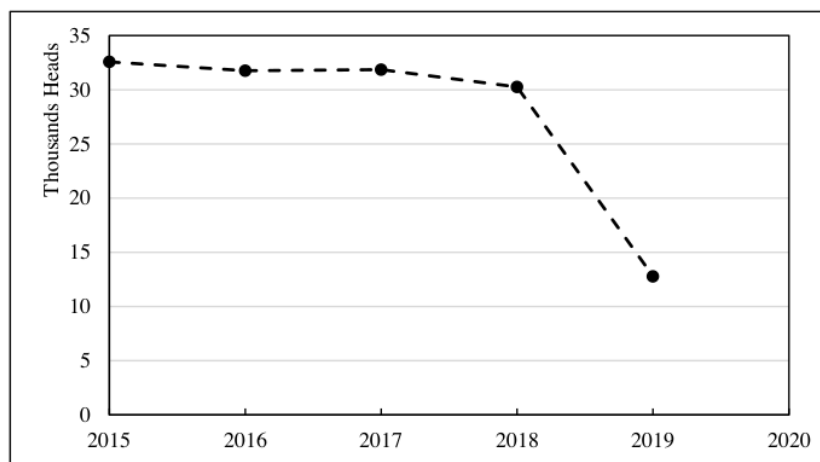
**Figure 1.** Imported frozen beef and IBM into South Kalimantan Province (Sources: Quarantine Office of Banjarmasin; BULOG of Banjarmasin; Livestock Service of South Kalimantan)

In South Kalimantan, IBM was distributed not exclusively by BULOG (a state-owned enterprise), but also by a Jakarta-based company that distributed IBM into South and East Kalimantan provinces (PT. Indo Boga Utama). Import permits for 40-60 tons /month were issued to PT Indo Boga Utama by the Livestock Service of South Kalimantan Province. IBM was sold in a 20 kg package to the resellers at the price of IDR 70,000-80,000/kg. It was reported there was a huge volume of IBM transported

illegally from East to South Kalimantan province. Meanwhile, BULOG was not regularly distributing IBM in this province. BULOG only intervene if the retail price surpassed IDR 120,000/kg for beef or IDR 80,000/kg for IBM. Our fieldwork revealed that IBM could be mixed with local beef, or even passed as fresh beef and sold at Rp.120,000-130,000/kg. Therefore, IBM competes directly with locally produced fresh beef, derived from both cattle and buffalo.

### 3.2. Inter-island cattle trading

The number of live cattle imported into South Kalimantan province has decreased since 2015. However, a sharp decline was found in 2019 because large increases in IBM import volumes in 2018 and 2019 (Figure 2). The decline is in agreement with our fieldwork results. Livestock traders in the livestock market confirmed that the number of cattle in the market has continuously decreased since 2017, from 500-700 heads to 100-150 heads in 2019. An inter-island cattle trader reported that the number of cattle imported from Kupang (in Nusa Tenggara Timur) dropped from 2,500 to 1,500 head/month.

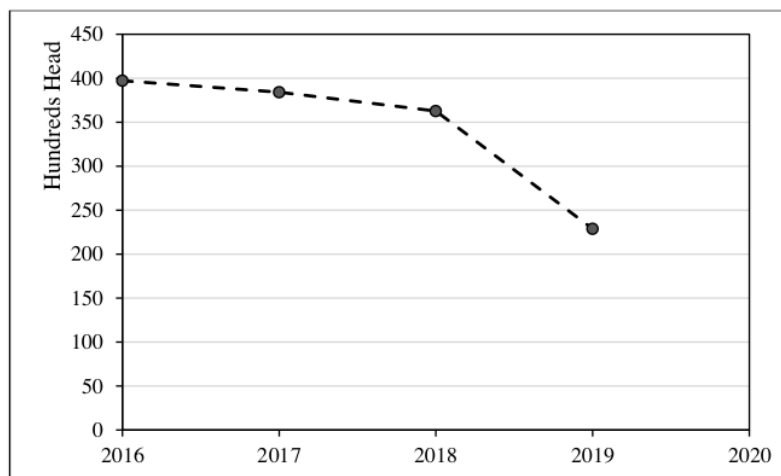


**Figure 2.** Live cattle imported from inter-island (Sources: Quarantine office of Banjarmasin; [5])

South Kalimantan is unable to meet local beef demand, the deficit was approximately 70% in 2017. Thus, it imports frozen beef and live cattle from other provinces such as East Java, South Sulawesi, Nusa Tenggara Timur and Nusa Tenggara Barat [9]. This study indicated cattle import has decreased further after IBM has entered the South Kalimantan market. Respondents in slaughterhouses said there was a decrease in demand for slaughter cattle that, in turn, resulted in the decrease in feeder cattle demand. Furthermore, it has impacted on live cattle price that dropped up to 2 million/head compare to the price before 2017. IACCB [10] claimed the IBM has a significant impact on local cattle prices. Relph [11] and Chang *et al.* [12] reported the demand for local cattle and lot-fed Australian cattle have been reduced by as much as 50% because of IBM imports.

### 3.3. Slaughtered cattle and buffalo

Data from slaughterhouses and Provincial Livestock Services show a similar impact of IBM on the number of slaughtered cattle and buffalo. That is, the number of slaughtered cattle has been slowly declining in recent years, but a sharp drop was found in 2019 (Figure 3). This is the case because most of the slaughtered cattle in South Kalimantan came from inter-island.



**Figure 3.** Slaughtered cattle and buffalo in South Kalimantan (Sources: Livestock Service of South Kalimantan; [5])

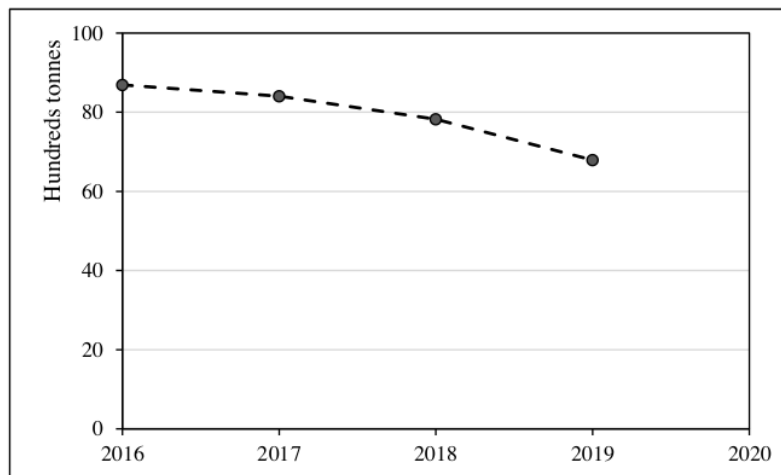
Although the declines in slaughtered number and interisland cattle trade are clear at the provincial level, not all butchers or slaughtermen are affected the same way. For example, no impact of IBM on slaughtered cattle demand was reported by H. Hariri (a butcher and owner of a private slaughterhouse) who regularly imported live cattle from East Java. He only imported exotic breed, such as Limousine, Simmental or their crossbred due to these breeds resulted in more profits than local breed. He also revealed that every butcher or slaughterman has regular buyers who ask for a special beef type or beef quality. Demand for his beef was not affected by IBM. His regular buyers only asked for the beef quality that produced by these exotic breeds. Unfortunately, most other butchers and beef resellers who traded mainly in local breeds were not in the same position.

#### 3.4. Local beef supply and demand

According to data published by Ditjen PKH [5] and Provincial Livestock Service, local red meat (beef and buffalo beef) supplies have declined since 2016. Similar to data of slaughtered cattle, a significant decrease in local beef production occurred in 2019 (Figure 4). This data was confirmed by our field work in the traditional markets. Butchers and beef resellers claimed a drop in selling volume of local beef, by between 40-70%, but mostly mentioned as much as 50%, compared to the beef selling volume before 2017. Hamdan *et al.* [9] argued that the declines in beef selling volume might be due to several reasons, such as competition from cheaper substitutes (e.g., fish, chicken meat, IBM, etc.) and a decline in household income (e.g. coal mine closures). In traditional markets of Banjarbaru, Martapura and Banjarmasin, the IBM was marketed between IDR 75,000 and 90,000/kg, while local beef was between IDR 110,000 and 130,000/kg.

Further explanation of the decline in local beef demand was caused by regular beef buyers switching from using local beef to IBM. Butchers and beef retailers said that the regular buyers are meatball makers, catering services and restaurants, which accounted for 50-70% of their selling volume. According to Agus and Widi [13], demand for meat from large restaurants, hotels, and catering and food industries is met by local production from smallholder farmers and feedlots (65%) and frozen meat imports (35%). Australian frozen beef is used mostly by medium to high-end restaurants in major cities, while local beef is largely used by households, catering services and restaurants, and meatball makers [4]. Our study indicated a switching of meatball makers from using local beef to IBM due to cheaper prices and more profit opportunities. Several meatball makers reported that the quality of IBM is similar to local beef in terms of color, tenderness and meat fiber. It also explained why many meat retailers were

mixing local beef with IBM to gain more profits. Similarly, in the modern market, IBM was labelled as “beef for *rendang*” at IDR 85,000-90,000/kg where it had high demand especially in Ramadhan month that reached 4 tons/month compared to only 2 tons/month in regular months.



**Figure 4.** Local beef production (cattle and buffalo) in South Kalimantan Province (Sources: Livestock Service of South Kalimantan Province; [5])

Butchers and beef retailers stated that since 2017 local beef price had been fluctuated at IDR 90,000 to 130,000/kg. Thus, local beef price was not affected by IBM existent in the beef market. As IBM mainly used for meatball making and mixed with local beef, cheaper price of IBM was very appreciated by meatball maker and beef retailers who take many profits from IBM. However, importation of IBM might be a good policy to certain household, which familiar in using buffalo meat for their cuisine, by providing an affordable red meat.

#### 4. Conclusion

Since 2016, the Indonesian government opened up the domestic beef market to IBM. This study aimed to study the impact of IBM on the supply and demand of local beef in South Kalimantan—a major buffalo producer. We found that IBM imports has had a negative impact on demand for local beef in terms of reductions in inter-island trade, slaughtered number and local beef production. Although demand for local beef has been declining gradually in recent years due to its high prices, large volumes of IBM imports in 2018 and 2019 have prompted a significant drop in 2019. It happened as main beef users, meatball makers and restaurants, switching from local beef to IBM because IBM is not only much cheaper but also a good substitute in terms of quality. Local beef therefore lost out mainly for being uncompetitive. The implication is the government and the industry alike need to be better prepared for any drastic policy changes. Thus, imported IBM had no effects on beef price instead of declining local live cattle price.

#### Acknowledgements

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