Abstract

Whilst a dataset that only covers two years does not provide sufficient information to determine any structural changes in cargo flows, it does provide some perspective as to the current structure of liquid bulk commodity flows through the ports of South Africa. Although liquid bulk is fairly fixed in the structure and flows of cargo due to the geographic locations of refineries and larger storage capacities, the same methodology might be applied to other cargo types to ensure a continued monitoring of data reliability.

The similarities found between the NPA dataset and the compiled dataset from Customs indicate that there is a certain level of comfort in the reliability of the data with discrepancies easily explained or as a result of the methodology used. The report therefore concludes that the administrative integrity of the data collection in this sector is sufficient.

Highlights of conclusions

1. The SARS customs data reflects within acceptable margins the overall cargo movements recorded by the NPA for the 2011 and 2012 years.

2. The structure of the volume flow through the port sector largely reflects the geographic structure of South Africa’s refining capacity
3. Discrepancies on a port level may be ascribed to reporting process differences as the overall volumes indicates that the NPA and the South African revenue Service largely recorded similar cargo movements through the sector.

**Purpose of the study**

4. The purpose of this report is to investigate administrative integrity in the data collection by authorities in fulfillment of the monitoring role of the Regulator. In this instance the focus was the liquid fuels sector, and the data of the National Ports Authority (NPA) and the South African Revenue Service (SARS) were used.

5. Cargo dues contribute the bulk of the revenue the National Ports Authority raise through tariffs, with total cargo dues expected to contribute 60 per cent in 2013/14 with liquid bulk contributing 5 per cent thereof or a total of 9 per cent of all cargo dues. Periodic audits of the cargo traffic moving through the ports system is paramount to the Regulators effective implementation of its mandate and has in addition to making sure that the books balance also serve a number of other purposes:

6. Studies of this nature, especially when repeated, highlights structural changes in the cargo basket composition with possible implications for the setting of tariffs.

7. It serves to link the relevant data collection agencies, namely NPA and the South African revenue Service (SARS) in this regard and should highlight any discrepancies that may occur-mostly without the relevant parties being aware-i.e. under- or over collection on customs or cargo dues or the incorrect allocation of cargo traffic to different ports or customs regional offices.

8. It provides an overview of the cargo traffic flows through the Port system and the structure of cargo flows through specific ports.


Background

9. The South African liquid fuels market is highly interlinked with the international oil market. Through SASOL South Africa has a well developed synthetic fuel industry, but it only accounts for approximately 30% of South Africa’s demand for petroleum products (Research Channel, 2009:3). South Africa has to import the bulk of its crude oil requirements, making it the country’s single-largest import item, and thus the object of this study.

10. South Africa has the second largest crude oil refining capacity in Africa second only to Egypt with plans to increase domestic refining capacity. Saudi Arabia and Iran have been the major crude oil suppliers to South Africa, in recent times making up approximately 68% of imports. However Nigeria and Angola have increasingly become important sources of crude oil.

11. In addition, South Africa’s unique geographical position makes it an important transport corridor for oil tanker shipments on global routes. In 2011, flows around the Cape of Good Hope accounted for approximately 11% of all seaborne traded oil, or 6% of oil traded worldwide. According to APEX Tanker Data, approximately 5 million bbl/d of seaborne traded oil moved across the Cape of Good Hope in both directions in 2012.

12. The importance of the trade in liquid fuels to the South African economy cannot be overestimated and a study conducted by the Department of Minerals and Energy (DME) (2007:17) showed that if no liquid fuels were available, the economy would lose approximately R925 million per day in GDP (2005 prices) and provides direct and indirect employment to more than 100 000 people.

13. Regulated by the department of Energy, the import of refined products is restricted to special cases based on recommendations by the Department of Energy to the International Trade Commission in respect of the importation and exportation of crude
oil, petroleum products and blending components where local producers cannot meet demand and as such it is subject to state control to promote local refinery utilisation. When overproduction occurs, export permits are required and generally granted, provided that both South Africa's and other Southern African Customs Union members' requirements are met as South Africa is also the main supplier of liquid fuels to Botswana, Namibia, Lesotho and Swaziland. Interestingly, more diesel than petrol is exported, owing to the balance of supply and demand of petrol and diesel relative to refinery configurations.

14. In order to assess the flow of cargo in the liquid fuels sector through the South African ports the liquid fuels data from the NPA was compared to the Customs data on imports and exports. These sources should reflect similar quantities and where discrepancies occur, the foregone cargo dues (in the instance where SARS numbers exceed NPA’s) or foregone import duties or Vat (when NPA numbers exceed those provided by customs) provides an indication to the cost to the economy of the administrative misalignments.
Methodology

15. The major petroleum products that are sold in South Africa are petrol; diesel; jet fuel; illuminating, paraffin; fuel oil; bitumen, and liquid petroleum gas (LPG). These products are all imported to some extent and form the bulk of the liquid bulk cargo traffic flow through the South African port system.

16. The South African revenue service records customs data by using the internationally used Harmonised System (HS) an international system for classifying goods in international trade and for specifying the tariffs on those goods. Liquid fuel products are recorded mainly in chapter 27 of the Harmonised System (MINERAL FUELS, MINERAL OILS AND PRODUCTS OF THEIR DISTILLATION; BITUMINOUS SUBSTANCES; MINERAL WAXES), as published in schedule 1 of the Customs and Excise Act of 1964. In order to find an approximate match between the data sets of the NPA and SARS, the SARS data was limited to the following tariff lines:

17. 2709 Petroleum oils and oils obtained from bituminous minerals, crude

18. 27.10 Petroleum oils and oils obtained from bituminous minerals (excluding crude); preparations not elsewhere specified or included, containing by mass 70 per cent or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils: Light oils and preparations (including aviation fuel and petrol)

19. 2711.1 Liquefied: Petroleum gases and other gaseous hydrocarbons

20. The NPA classify liquid bulk as: liquid bulk Commodity Imports Exports

- Ammonium & products thereof
- Anhydrous ammonia
- Animal / vegetable oils / fats & products thereof
- Caustic soda
21. It is thus obvious that the classification used in the HS code and applicable to the SARS data set does not entirely match that of the NPA as the NPA includes a number of products that are not included in the chosen HS codes as part of this study. While petroleum fuels and other liquid fuels make up the bulk of the import basket in the liquid bulk category, some liquids will be omitted. This is however necessary as a significant amount of liquids that may be recorded as liquid bulk, if delivered as such may also enter or leave the port system through the container or break bulk terminals and as such will not be included in the liquid bulk number. It is therefore safe to assume that the SARS total, for the purposes of this study, will always be underestimated and should in reality be greater than indicated. This is an important assumption in this context.

22. In analysing the data a comparison between the two datasets were required. While volumes are recorded the NPA, customs record weight, a conversion from tons to kiloliters was required. The general conversion used to convert kilograms to liters is 0.85 kg per liter. This was implemented across the whole sample and will explain small discrepancies in the differentials between the two data sets.
Overview of the results

23. Liquid bulk cargo is mostly imported through the South African port system with imports of liquid bulk making up 88 per cent of total cargo through put in 2011 and 92 per cent in 2012. The corresponding customs data reflects a similar picture with imports in 2011 recording 87% of the total edging up to 89 per cent in 2012.
24. The NPA recorded imports of 27.04 million kilolitres (kl) in 2011 and 29.9 million kilolitres in 2012. Exports totaling 3.6 million and 2.6 million kilolitres respectively resulted in total liquid bulk throughput of 30.6 and 32.5 million kl for 2011 and 2012 respectively.

25. SARS recorded slightly different but still similar volumes for the period with differentials totaling 452 397 kl and 803 749 differential between the data recorded by the NPA and that of SARS collected by customs in 2011 and 2012 respectively. These differentials may be due to a number of reasons including the basic assumptions underlying the SARS data aggregation as well as the conversion rates used. Overall the discrepancies are not significant and easily explained.

26. Other discrepancies on a port level may also be explained through different reporting processes within customs as opposed to the port specific reporting by the NPA. There is a large under recording by the SARS in Saldanha is offset by a higher recording in the Port of Cape Town for 2012, and 80% of the 2011 discrepancy. According to customs data 23% of all liquid fuels were reported in Cape Town, whilst the NPA recorded 5% of
all imports and exports in Cape Town and 16% in Saldanha. A similar pattern emerged in 2011.

**Figure 2: Comparison of NPA and Customs data (2012 - % of total)**

**Figure 3: Comparison of NPA and Customs data (2011-% of total)**
27. The structure of the volume throughput of the in figure 2 and 3 above reflects the geographical location of the countries refinery capacity with all refineries either located at Durban (SAPREF, ENREF), Cape Town (CALREF) or Mosselbay in the case of the PetroSA GTL refinery or linked to these ports by pipeline.

Conclusion

Whilst a dataset that only covers two years does not provide sufficient information to determine any structural changes in cargo flows, it does provide some perspective as to the current structure of liquid bulk commodity flows through the ports of South Africa. Although liquid bulk is fairly fixed in the structure and flows of cargo due to the geographic locations of refineries and larger storage capacities, the same methodology might be applied to other cargo types to ensure a continued monitoring of data reliability.

The similarities between the NPA dataset and the compiled dataset from Customs indicate that there is a certain level of comfort in the reliability of the data with discrepancies easily explained or as a result of the methodology used.

In short the main conclusions of the study are:

1. The SARS customs data reflects within acceptable margins the overall cargo movements recorded by the NPA for the 2011 and 2012 years.
2. The structure of the volume flow through the port sector largely reflects the geographic structure of South Africa’s refining capacity
3. Discrepancies on a port level may be ascribed to reporting process differences as the overall volumes indicates that the NPA and the South African revenue Service largely recorded similar cargo movements through the sector thus establishing administrative integrity in this context.
Sources:


SARS Customs data

South African Customs Act 1964, *schedule 1*

NPA Port Level data received by the Ports Regulator as part of the 2013/14 tariff application process