

The Efficiency of Local Government Inventory Procurement

(Study on The Government of East Nusa Tenggara Province)

*Fransiscus Nicodemus Naiola
Accounting
State Kupang Polytechnic
Kupang, Indonesia
fransiscus.naiola@pnk.ac.id

*Sri Endar Utami
Accounting
State Kupang Polytechnic
Kupang, Indonesia

*Pasifikus Mala Meko
Hospitality
State Kupang Polytechnic
Kupang, Indonesia

Abstract— The financial management of local governments related to inventory management that has not been effective and efficient, and the lack of methods to determine the optimal balance of supplies in the local government in Indonesia, encourages researchers to conduct further research in the East Nusa Tenggara, specifically the East Nusa Tenggara Provincial Tourism Office. The purpose of this study is to determine the optimal balance of ticket supplies at the Tourism office of east Nusa Tenggara province. The data source used is secondary data consisting of internal documents, external documents, and interviews. Secondary data is analyzed by the Economic Order Quantity (EOQ) method. From the results of the analysis, a comparison is made between the optimal balance and the real balance based on the balance results. Based on the results of the analysis of document data and interviews, it was found that the optimal balance of Goa Monyet ticket inventory amounted to Rp2,127,000 from the real balance value of Rp3,600,000 which showed an efficiency of 1,473,000.

Keywords— *Optimal balance, ticket inventory, EOQ, ROP*

I. INTRODUCTION

One of the changes that occurred after the reform event in Indonesia was regional autonomy. With this autonomy, the central government decentralizes much of its authority to the local government. One of them is a form of decentralization of financial management (Ritonga 2014) to finance the implementation of government affairs submitted and/or assigned to the region (Law 23/2014). The financial management of the country/region in Indonesia is supported by several regulations such as Law (UU) Number 17 of 2003, Law No. 1 of 2004, Law No. 33 of 2004, Government

Regulation (PP) Number 58 of 2005, and Law No. 23 of 2014. The regulations state that the central and local governments are obliged to manage finances in an orderly manner, complying with the provisions of the legislation, efficient, economical, effective, transparent, and responsible.

Healthy financial conditions will occur if the government can carry out its financial rights efficiently and effectively and can fulfill all financial obligations to stakeholders to achieve state goals which in turn will increase the financial independence of the government. The ability of the government to meet its financial obligations is demonstrated by the government's ability to meet short-term obligations (short-term solvency) and long-term liabilities (long-term solvency), the ability to cover its operational obligations (budget solvency), and the capacity of the government to supply services to the standards and qualities required and requested by the community (service solvency) (Wang et al. 2007; Ritonga 2014) and able to anticipate unexpected events in the future (financial flexibility).

The problem that is the focus in this research is the high current ratio that is suspected because it has not been effective and efficient management of lancer assets, one of which is inventory to the Regency / City Government so it is necessary to determine the optimal balance of inventory using methods that have been used in the private sector.

II. LITERATURE REVIEW

2.1 State of the art

State of the art this research is taken from several examples of previous research as a guide or example for research conducted today.

1. Zuntava (2017) tested The Optimal Balance Of Regional General Hospital Drug Supply with the EOQ method where the total savings in drug supply costs amounted to Rp31,055,305 from the total real drug supply cost of Rp75,162,858.

2. Khotimah (2009) conducted research aimed at lowering inventory values, increasing the cost of goods sold, ITOR, and the level of prescription services. The results of the analysis showed a decrease in inventory value by 24.40%, an increase in the price of goods by 38.34%, an increase in the value of ITOR by 50.89%, an increase in the level of prescription services by 5.79%, a decrease in the frequency of drug stockouts by 76.32%, a decrease in drug spending budget by 125.41% and an increase in profit by 44.17%.

Some of the above-mentioned studies show that the EOQ method can lower the value of inventory. The decrease in inventory value indicates efficiency in inventory management as well as savings in drug spending budgets.

2.2 Understanding Supplies

According to Rangkuti (2002), inventory is defined as an asset that includes company-owned goods such as materials provided in the company for the production process, as well as finished goods/products provided to meet the demand of consumers or subscriptions at all times. While in the Statement of Government Accounting Standards (PSAP) Number 5 on Inventory Accounting paragraph 4 mentions that inventory is a current asset in the form of goods or equipment intended to support government operational activities, and goods intended to be sold and/or submitted in the framework of service to the community.

2.3 Inventory Management

Inventory management is done to avoid conflicts of interest between functions in the entity such as financial functions, marketing functions, and operating functions (Sumayang, 2003). Interest in meeting the needs of safe services is often done by stocking supplies in large quantities. However, this can occur oversupply which will cause a lot of funds absorbed in the inventory so that it is not efficient. In addition, it can also cause high inventory costs such as storage costs and ordering of goods in question (Siagian, 2005).

2.4 Economic Order Quantity (EOQ)

The method of determining the optimal balance of inventory is a method that uses mathematical formulas that are adjusted to the type of inventory in an entity (Ristono, 2009). So for one entity's supply with another, it will be a different treatment. In addition, the criteria for inventory demand (*demand inventory*) will distinguish the use of methods of determining the amount of inventory.

Economic Order Quantity (EOQ) was developed by FW. Harris in 1915. But better known as EOQ Wilson because it is widely used in companies for efforts made by consultants named Wilson. EOQ is the oldest and relatively easy-to-use inventory determination technique in inventory management, so it is still widely used in companies for independent demand (Zulfikarijah, 2005).

2.5 Re-Order Point (ROP)

In addition to the number of units that must be ordered, an important part of inventory management policy is to know when inventory orders should be *made*. *Re-Order Point* (ROP) is the point in time at which a new order must be placed (Hansen and Mowen, 2013).

Components of ROP are *lead time* and the number of uses per day. In terms of demand uncertainty, ROP also pays attention to *safety stock* extra supplies that must be stored. Safety supplies are calculated through the multiplication of waiting times with the difference between the maximum usage rate and the average rate of use.

III. RESEARCH METHOD

The type of research used is qualitative descriptive research. Researchers use this type of descriptive research because it aims to collect, summarize, and interpret the data obtained, which is then reprocessed so that later it can produce a clear and thorough picture of inventory planning in local governments. This is in line with Creswell (2014) who explained that during the research process, researchers can collect public documents such as newspapers, papers, official reports, or private documents such as diaries, letters, and e-mails.

The document to be used consists of internal official documents in the form of Local Government Financial Statements (LKPD) fiscal year 2020. From the report will be obtained from the accounting and reporting section; reports and diaries related to supplies such as order documents, receipt and inspection of goods; *supplier data*; report on demand for goods to be obtained from the inventory manager; records and documents of local government expenses obtained from the treasurer of expenditure; and the payroll. In addition, this study is complemented by literature research conducted by reading and understanding all things related to information determining the optimal balance of inventory. The information comes from books, related regulations, previous research, and articles from national and international journals.

IV. DATA ANALYSIS

Data analysis will be done using descriptive data analysis with a comparative approach used to discuss the comparison of determining the optimal balance of local government inventories. The thing that is compared is related to how the efficiency of procurement of supplies with the EOQ method.

In general, the series of activities in conducting descriptive data analysis can be explained as follows.

1. The first step begins with the collection and checking of data. It's conducted to ensure the availability and adequacy of appropriate data with research topics.
2. The second step, determined the components of the booking fee and storage with due regard to the

- relevant costs, i.e. the costs it is variable to the number of supplies ordered and stored.
3. The third step, calculates the amount of the variable cost of the booking for each booking. Booking fee calculated by summing the cost phone, and administration.
 - a. Phone costs
The cost of the phone is calculated from the length of use of the phone for activities bookings multiplied by the local rate.
 - b. Administrative costs
Administrative costs are calculated from the number of sheets of paper and stamp duty used in one order multiplied by the price of paper and stamp duty.
 4. Step four, determining the amount of variable storage cost per item Supplies. The number of storage costs converted in percentage for each inventory item.
 5. Step five, determining the economical booking (EOQ). Calculation of EOQ indicates the optimal order amount for each inventory item.
 6. Step six, specify the Re OrderPoint (ROP) that is part of It is inseparable from EOQ. The determination of this ROP is intended to prevent a shortage of stock so that service activities are not annoyed.
 7. Step seven, determine the optimal balance of inventory by using the result of the number of EOQ orders and stock safety. Then make comparison between real balance with optimal balance.
 8. The eighth step, determine the total cost of inventory and make a comparison of total inventory costs of real balances and optimal balances.

In general, the series of activities in conducting descriptive data analysis can be explained as follows.

- a. Based on exposure from Handoko (2000) EOQ calculations can be done with the following formula:

$$EOQ = \sqrt{\frac{2SD}{H}}$$

Where:

S = order cost per order.

D = use of period materials.

H = storage cost per unit per year.

- b. Frequency of purchases
The frequency of bookings expressed by Deanta in Rifqi (2012) can be formulated as follows:

$$I = \frac{D}{EOQ}$$

Where:

I = frequency of purchases in one year

D = the number of raw material needs for one year

EOQ = number of purchases of materials once a message

- c. Safety Stock

For Safety Stock, the formula is used:

$$Safety\ Stock = (Maximum\ Usage - Average\ Usage) \times Lead\ Time$$

- d. Reorder Point based on Slamet exposure (2007) is formulated as follows:

$$e. Reorder\ Point = (LD \times AU) + SS$$

Where:

LD = Lead time or waiting time.

AU = Average unit or average usage during the unit waiting time.

SS = Safety stock or safety supplies

V. ANALYSIS AND DISCUSSION

Determination of Booking Fees and Storage Costs

1. The amount of booking fee depends on the frequency of bookings in one year. The component of booking fees that can be calculated in this study is administrative costs. The cost of the phone is not calculated because it uses a personal phone.

In Table 5.1 it can be seen that the amount of the booking fee for Goa Monyet tickets is obtained by multiplying the amount of paper needed for one booking 40 sheets multiplied by the price of paper per sheet Rp100. then coupled with the stamp price used which is Rp10,000. Therefore, the booking fee on table 4.5 is obtained at Rp10,400.

Table 1 Booking Fee

Booking Component	Fee	Account
Administration Costs		Required Paper Amount: 40 sheets
		Paper/sheet price: Rp100
		Stamp duty 1 piece: Rp10,000
		Administration Fee= Rp10,400

2. Storage costs in this study are costs incurred as a result of storage activities of inventory goods. The component of storage costs calculated in this study is capital costs.

The components of capital cost calculation are the bank's interest rate and the final inventory value. Bank interest rate data obtained from bank Indonesia website of 3.75% for 2021, the average calculation of the ticket inventory goa Monkey obtained 3,629,000. Then the average value is multiplied by the Bank's interest rate of 7.5%. For that, the cost of capital obtained a result of Rp136,087. The

following is outlined each cost generated to get the total storage cost

Table 2 Booking Fee

Booking Component	Fee	Account
Capital Costs		Bank interest this year 3.75%
		Average Ticket Inventory Rp3,629,000
		Capital Cost: Rp136,087

Determination of The Number of Economical Bookings (EOQ)

The formula for determining the optimum number of bookings according to Heizer and Render (2004) is as follows.

$$EOQ = \sqrt{\frac{2SD}{H}}$$

Where:

S = order cost per order.

D = use of period materials.

H = storage cost per unit per year.

Here is one example of EOQ calculations for Goa Monkey Ticket:

Table 3 EOQ Calculations

EOQ Component	Account
Need 1 year	450 units
booking fee	Rp10,400
storage costs	Rp112
number of bookings (Q)	289 units

The optimal number of bookings in one booking of Goa Monyet Ticket is as many as 289 units.

Determination of Re-order Point (ROP)

After determining the magnitude of EOQ, of course, you must also determine when the booking time should be made. This reflects that the EOQ method provides certainty regarding the time of booking. *Re-Order Point* (ROP). The ROP component used is *lead time*. Average daily needs and *safety stock*.

Table 4 ROP Calculations

ROP components	Account
Need for 1 year	450 units
The average amount of speed (D)	450/365 days= 1 unit
Lead Time (L)	30 days
maximum needs per day	450/30 days= 15 units
Safety stock (SS)	(15-1)x 30 = 420 units
ROP	(1x30)+420= 450 units

Based on these calculations. It can be explained that in *lead-time/* waiting time for 30 days with an average usage of 1 unit. Goa Monkey tickets can be rebooked when the remaining stock is 450 units.

Determination of Optimal Balance

The optimal balance of ticket inventory in this study showed the final balance of the ticket inventory resulting from the optimal order made. The optimal booking amount is calculated by the EOQ method.

Here is an example of calculating the optimal balance of supplies for Goa Monyet tickets:

Table 5 Calculation of optimal balance

Balance Calculation Component	Account
1-year ticket needs	450 units
Optimal order number (Q)	289 units
Initial Balance (SI)	450 units (same year)
Frequency of Purchase (F)	450/289 = 1 time
Unit Price (H)	3000
Safety Stock	420 units
Optimal balance of Ticket inventory	(Q x F)-(D-SI)+SS
	709 Units
Inventory optimal balance value	709x Rp3000
	Rp2,127,000
Real balance value	Rp3,600,000
Difference	Rp1,473,000

From the example of the calculation of ticket inventory above obtained the optimal balance value of Rp2,127,000. The optimal balance value shows a lower value compared to the real balance value of Rp3,600,000. The difference between real balance and optimal balance of Ticket inventory of Rp1,473,000.

This shows that real balances always experience excess stock so that the determination of the optimal balance of ticket inventory with the EOQ method can overcome the efficiency of Rp1,473,000.

VI. CONCLUSION

The result of determining the optimal balance using the EOQ method on The Government of East Nusa Tenggara Province, especially the Tourism Office, uses data Inventory Goods in 2020 and also interviews from relevant parties about the conditions in the field resulted in the number of economical bookings on which to produce optimal balances by maximizing the cost of ticket inventory.

The optimal balance of inventory determined by the EOQ method for 2020 obtained an optimal balance of Rp2,127,000 which shows efficiency of Rp1,473,000 from the real balance value of Rp3,600,000. The limitation in this study is that the data obtained is incomplete because the Tourism Office does not record in detail the supply of tickets ranging from the beginning of inventory demand to usage so that the author conducts interviews to be able to

obtain data. Future Work is: (1) The tourism office should be able to conduct inventory management well so that all records about inventory procurement until the use of supplies can be seen in a filtered manner. (2) Government inventory managers can use the EOQ method in determining the number of bookings, when to make an order, so that there will be an optimal inventory balance and minimize inventory costs.

REFERENCES

- [1] Handoko. T. Hani. 2000. *Dasar-dasar Manajemen Produksi dan Operasi*. Jilid II. Yogyakarta: BPFE-Karta.
- [2] Khotimah. 2009. Analisis persediaan barang dagang menggunakan metode eoq (economic order quantity) pada pt. Mulia prima sentosa. Skripsi. Medan: Fakultas Ekonomi dan Bisnis. Universitas Medan Area.
- [3] Ritonga. IT. 2014. *Analisis Laporan Keuangan Pemda*. Yogyakarta: Penerbit Lembaga Kajian Manajemen Pemerintahan Daerah bekerja sama dengan Pustaka Pelajar
- [4] Rangkuti. Freddy. 2007. *Manajemen Persediaan Aplikasi di Bidang Bisnis*. Jakarta: Rajawali Grafindo Persada.
- [5] Siagian. Yolanda M. 2005. *Aplikasi Suply Chain Management Dalam Dunia Bisnis*. Jakarta: Grasindo.
- [6] Wang. X. Dennis. L & Tu. YSJ 2007. "Measuring financial condition: A Study of US states" dalam *Public Budgeting & Finance*. Vol. 27. No.2. hlm.1-21. Public Financial Publication, Inc
- [7] Zulfikaridjah. Fien. 2005. *Manajemen Persediaan*. Malang: UMM Press. Creswell. JW 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th Edition. Sage Publications. California.
- [8] Zuntava. 2017. Penetapan Saldo Optimal Persediaan Obat Rumah Sakit Umum Daerah (Studi Pada Rsud Kota Yogyakarta). Thesis. Yogyakarta: Fakultas Ekonomika dan Bisnis. Universitas Gadjah Mada.