



The Application of Forecasting for Policy Formulation

Kornelis Bali Mema^(✉), Suryadi Suryadi, and Fadillah Putra

Faculty of Administrative Sciences, Brawijaya University, Malang, Indonesia
kornelis@student.ub.ac.id

Abstract. This study aims to understand the policy formulation process in economic growth development based on forecasting by using strategies based on predictions, projections, and conjectures in forecasting methods. Research data were taken from secondary sources in the form of statistical data, several reports, and journal fibers. The results of this study are the development policy formulation process uses forecasting, namely by using the principles of projection, prediction, or conjecture by carrying out four stages; the first is problem identification, which is the identification of existing problems based on poverty data in Indonesia. The prediction is how the economy will improve. The second stage, namely agenda setting, is a future plan that has been adjusted based on predictions and is guided by the theories of experts and based on the strategies adopted to improve economic growth. The third problem formulation policy produces problem formulation policies that are prepared for future training. The selection of strategies based on the theories of experts and successful statements of factual data about economic growth. The last stage is the policy design is made based on a strategy that is well structured in accordance with the planning that has been done. Guided by theories about the growth of economic development, from several experts and the results of previous studies have been able to make better policies and can solve problems in general in order to increase development growth.

Keywords: Policy Formulation · Forecasting · Growth Development

1 Introduction

Developments in technology and information lead to competition in fulfilling the wants and needs of individuals and organizations. This causes various impacts for economic growth in Indonesia. In fact, developing economic growth is tied to government policies responding to digital acceleration related to regional development. Policy is a concept put forward by someone to solve a problem, forming the basis of plans in solving problems in government, work and a certain environment that creates an “action” that becomes a reference towards achieving that goal. The policy-making process is agenda-making, policy formulation, policy implementation, and outcome assessment [1].

According to Fischer, the public clearly represents important stakeholders in the policy process. Public policy determines the line there are many general policies that must be adopted by public organizations to address community issues, public policy

is also used to determine scope of problems faced by public organizations. Scope of public problems is all problems involving several or many people [2]. In order to the formulation of policy decisions must be true to the interests of the community [3]. Public policy is an action or decision taken by the government in certain fields in regional development, especially eradicating poverty. One of the main things in determining economic development in an area is the number of poverty levels [4]. In this case one important point is that policymakers must consider all indicators that are the source of the problem, so that the resulting policies can be right on target and solve problems properly [5].

Economic Growth in Indonesia is characterized by the welfare of the community, which is marked by the poverty rate of the community starting to decline every year as in Fig. 1.

The Central Statistics Agency (BPS) released the poverty rate in Indonesia from 2011 to 2020 [6]. The various poverty rates from 2011 experienced a decline of 4 percent is until 2014. The situation is getting better so that the poverty rate drops again and stays stable until 2018. Until the pandemic Covid 19 occurs, and this pandemic associated global healthcare crisis [7]. Indonesian society will increase until 2020. The number of poor people in Indonesia as of September 2021 is 26.50 million people or 9.71%. This realization fell by 1.04 million people against March 2021 and decreased by 1.05 million people against September 2020 the poverty line as of September 2021, amounting to IDR 486.168 per capita per month, increased by 2.89% compared to the previous month. In solving the problem of developing the country’s economy, it is necessary to formulate the best policy, one of which is the forecasting method.

Radin’s stated that policy formulation It is important to reveal the many meanings they have and take it to the processes and framing they use. In making a policy, the first thing that needs to be prioritized is formulating a problem that becomes a reference for policy formulation. Then the results will greatly determine the quality and success of a policy. Therefore, it is necessary to be more careful than policymakers when they formulate this public policy [8]. It must also be remembered that the formulation of a good public policy is public policy formulation oriented to implementation and evaluation. Better policy formulation based on planning and future considerations or called

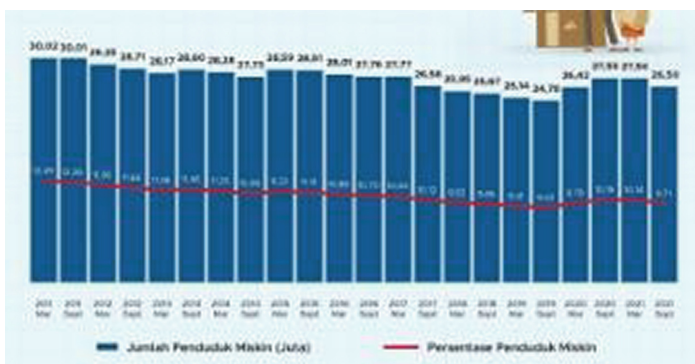


Fig. 1. Graph of poverty percentage 2011–2021.

forecasting. Forecasting obtained from the analysis of data available from time to time [9].

Forecasting is an estimate of the level of demand that is expected for a product or service in a certain period of time in the future will come. Forecasting is an integral part of decision making management. Thus, the planning process This is done by testing various directions of achievement and assessing the various uncertainties that exist, measuring our ability (capacity) to achieve them and then choosing the best directions and steps. to achieve it. Plans can be informal plans or formal plans [10]. According to Makridakis, the function of forecasting is as a basis for planning, such as capacity planning, budgeting, production and inventory planning etc. Quality forecasting results are largely determined by the implementation of the preparation [11].

During the twentieth century, the issues facing policymakers have become increasingly complex [12]. Several researchers have conducted research related to forecasting analysis on policy. The previous research is as follows:

The first is by Silalahi, The results show that this model is the best model for data forecasting with an R- Squared value of 98%, the Mean Square Error is 7,705,5800,000 Meaning The SARIMA model is very good at predicting poverty data in West Java Province [9]. The second is by Khusainova [13], the results of the study show that the improvement of regional development mechanisms and the fortune-telling technique to achieve it has been characterized as one of the most important problems in the local economy. Then Qin Li, shows the results show that forecasting human resources using the method labor/population ratio, is well predictable. Results show that we must make great efforts to innovate in the mode of training of health workers, improve staff enthusiasm, and adequately control the hospital expansion [14].

Some of these previous studies lacked the methods and principles of forecasting that actually had to be applied. With the right principles, the forecasting method will be more accurate. In this research, the forecasting method is used guided by the general policy formulation process and integrated with a qualitative forecasting approach, namely prediction. By stating the differences and weaknesses and strengths, the researcher aims to show the element of novelty in this study. The gap between this research and previous research is that this research focuses more on how important forecasting methods are used for general policy making in order to solve problems that exist in society. Therefore, this research can provide the best solution on how to formulate general policies in developing economic growth using the forecasting method. This research has goal in knowing the process of formulating development policies using forecasting (projection, prediction, conjecture).

2 Research Methods

This study uses a qualitative method with a descriptive approach. The researcher explains that the forecasting method is useful for making general policies related to economic development. Researchers collect data from literature studies in the form of articles, journals, statistical documents, and encyclopedias to obtain primary and secondary data. Primary data from the Indonesian Central Statistics Agency in 2022 related to the percentage of poverty and the rise and fall of food costs, as well as data on social status.

With the principle of forecasting, data is analyzed based on objectivity or values based on extrapolation based on past trends, assuming that the future has the same pattern as the future. Then with the prediction stage, researchers refer to forecasts based on theoretical assumptions related to data and issues of Indonesian economic growth. Then the conjecture stage is a prediction based on the experts' judgment about society's future situation.

3 Results and Discussion

The process of formulating development policies using forecasting (projection, prediction, conjecture) goes through four stages, namely as follows:

3.1 Problem Identification

Problem identification or problem identification is to do identification and understanding of the problem as well as mapping the problem by observe and recognize any changes that occur both in the environment internal and external environment [15]. One of the examples of economic problems in Indonesia is the problem of poverty. According to BPS [6] poverty is an economic inability to meet basic food and non-food needs as measured by the poverty line. Indonesia has poor people who have an average spending per capita per month below the Poverty Line.

Based on the identification above, the use of a good forecasting method is a condition for giving good decisions too. The need for forecasting increases with management's efforts to reduce uncertainty or business risk in an increasingly complex and dynamic (always changing) environment. Future economic predictions are often adjusted to previous problems so that solutions are found and anticipated to prevent problems from reappearing. An agenda is sometimes rejected or accepted by the community, but an agenda with social planning and goals must still be realized in order to solve general problems. This is the step of conjecture forecasting that tries to refers the condition of an expert's opinion in a decision, as suggested by Van Ittersum and Sterk, the acceptance of models is contingent on a social process of learning that takes time [16].

3.2 Agenda Setting

Agenda setting is generally used to describe content that the public considers necessary when an action is taken. Agenda is as a general agreement about the existence of a public problem. That needs to be of common concern and according to the government's hands to solve it. The formulation of the policy agenda begins with a problem that arises in society [15].

In the forecasting process, an arranged agenda means determining what you want to achieve in the future and determine the steps needed to achieve it. Forecasting techniques assume that something based on the same cause that happened in the past, will continue in the future. The Government Work Plan (RKP) (2021), has a goal in developing Indonesia's economic development, namely the focus on implementing plans related to local wisdom with the aim of overcoming the country's poverty problem. This coordination meeting was held as an initial step for synergy in community empowerment programs aimed at increasing income in the community.

Table 1. The prices of basic commodities.

Food need	Price
Rice	0.86
Chicken	2.48
Meat	2.64
Sugar	0.88
Cayenne	2.43
Paper	58.82
Red chili	48.13
Chicken eggs	9.24

3.3 Policy Problem Formulation

The formulation of public policy problems, this is the focus of the research and problems data, while qualitative forecasting is only used when the amount of historical data is limited. This forecasting should use a benchmark for forecasting errors. If possible, calculate forecasting rather than forecasting demand. There are many factors that cause poverty such as low education level, limited employment opportunities, and family life burden, laziness at work, and limited natural resources and capital. One of the poverty reduction strategies that is important in addition to reducing the burden of expenditure is to increase income such as increasing access to capital, improving product quality and marketing. In this case, for example, the government is trying to suppress the prices of basic commodities so that the problem of poverty is slightly reduced.

Nationally the retail prices of most basic commodities decreased, among others, rice, chicken meat, granulated sugar, cayenne pepper, red chili, and Chicken Eggs (Table 1). However, there are also some commodities that experienced price increases between beef, sweetened condensed milk, cooking oil, wheat flour, and mackerel. Based on the results of Treasury research, it shows that the main consideration is the selection of models and strategies in solving problems of economic development. it relates to policies based on social interest in the seven objectives of the UK Treasury [17].

3.4 Policy Design

Designing public policies, based on problems 4 policies that have been formulated (formal problems) then look for solutions in the form of: what public policies need to be taken. Short-term forecasts contain less uncertainty (more accurate) than long-term forecasting, because in the long term short, conditions that affect demand tend to be constant or grow slowly. One of the strategies for strengthening the community empowerment program is to update the Integrated Social Welfare Data (DTKS) from the local government level, to the district level, to the village level. With this data, it will be easier for the government to intervene with empowerment programs in each Ministry/Agency. The important thing analysis the highest priority is indicators that characterize the financial

Table 2. The social status and occupation data of the community.

Main job status	Percentage of working population based on main employment status		
	2019	2020	2021
Own effort	26,41	19,87	23,18
Trying based on non-permanent workers	18,62	21,84	18,99
Effort based on workers	3,52	3,34	2,35
Workers/employee/employment	26,67	19,89	23,97
Free work as farm	4,92	6,69	5,52
Free work as not farm	4,03	3,59	6,22
Nonpayment family work	15,83	24,79	19,77
Amount	100.00	100.00	100.00

situation in the economy and separately groups of economic entities such as households, small and medium enterprises, entrepreneurial sector and population. The following Table 2 is the social status and occupation data of the community.

Once social and employment status has been clarified, aid programs can be targeted and help reduce poverty levels in the community. The socio-economic forecasting is based on the following principles; scientific validity, systematic, alternativeness, adequacy and purposiveness. According to Ubur, the process approach to eradicating poverty consists of: of two things, namely the active involvement of the poor in assessment, planning, implementation and design of “projects” as temporary activities to use the available budget in assisting the community [18].

3.5 Research Contribution

This research will be more useful if the results of this study used for a proposed improvement, so that subsequent studies can be better and can improve everything about public policy. Government policies are often the main reference in government development, especially the economy. The results of this study discuss the process of good policy formulation with the forecasting method, therefore the selection of methods and strategies in policy making must be careful and right on target, namely according to the interests of the community.

4 Conclusion

The development policy formulation process uses forecasting, namely by using the principles of projection, prediction or conjecture by carrying out four stages; The first is problem identification, which is the identification of existing problems based on poverty data in Indonesia. Then it is projected to solve future problems. The prediction is how

the economy will improve. The second stage, namely agenda setting, is a future plan that has been adjusted based on predictions and is guided by the theories of experts and based on the strategies adopted to improve economic growth. The third problem formulation policy produces problem formulation policies that are prepared for future training. The selection of strategies based on the theories of experts and successful statements of factual data about economic growth. The last stage is the policy design is made based on a strategy that is well structured in accordance with the planning that has been done. Guided by theories about the growth of economic development, from several experts and the results of previous studies have been able to make better policies and can solve problems in general in order to increase development growth.

References

1. Süsser, D.: Model-based policymaking or policy-based modelling? How energy models and energy policy interact. *Energy Research & Social Science* 7(5), 101984 (2021).
2. Fischer, A. R. H.: Expert involvement in policy development: A systematic review of current practice. *Science and Public Policy* 4(1), 332–343 (2014).
3. Kampen, J. K., Tamás, P. Should I take this seriously? A simple checklist for calling bullshit on policy supporting research. *Quality and Quantity* 48(3), 1–11 (2014).
4. Claro, S., Paunesku, D., Dweck, C. S.: Growth mindset tempers the effects of poverty on academic achievement. *Proceedings of the National Academy of Sciences of the United States of America* 113(31), 8664–8668 (2016).
5. Botterill, L., Hindmoor, A.: Turtles all the way down: Bounded rationality in an evidence-based age. *Policy Studies* 33(5), 367–379 (2012).
6. Central Statistics Agency (BPS) of the Republic of Indonesia: Population. Online doc, Jakarta (2021).
7. Nikolopoulos, K.: Forecasting and planning during a pandemic: COVID-19 growth rates, supply chain disruptions, and governmental decisions. *European Journal of Operational Research* 290, 99–115 (2021).
8. Radin, B.: *Beyond Machiavelli*. Georgetown University Press, Washington, DC (2013).
9. Silalahi, D. K.: Forecasting of Poverty Data Using Seasonal ARIMA Modeling in West Java Province. *JTAM (Jurnal Teori Dan Aplikasi Matematika)* 4(1), 76–86 (2020).
10. Rendayu Jonda Neisyafitri: The Use of Intervention Approach in Individual and Aggregate Forecasting Methods for Burger Patties: A Case in Indonesia. *AGRARIS: Journal of Agribusiness and Rural Development Research* 8(1), 20–33 (2022).
11. Makridakis: *Forecasting Methods and Applications*. Erlangga, Jakarta (1999).
12. Kolkman, D. A.: How to build models for government: criteria driving model acceptance in policymaking. *Policy Sci* 49, 489–504 (2016).
13. Khusainova, S. V.: A Regional System to Forecast the Social- Economic Development: The Case of the RF Regions. *European Research Studies Journal*. XXI(1) (2018).
14. Li, Q.: Research on Discrete Dynamic Forecasting Model of Government Human Resources. *E3S Web of Conferences* 214, 02011 (2020).
15. Vasin, M. S., Gamidullaeva, A. L., Rostovskaya, K.: The Challenge of Social Innovation: Approaches and Key Mechanisms of Development. *European Research Studies Journal* 20(2), 25–45 (2017).
16. Van Ittersum, M. K., Sterk, B.: Computerized models: tools for assessing the future of complex systems? *The Tools of Policy Formulation: Actors, Capacities, Venues and Effects* (2015).

17. Treasury, H. M.: Review of quality assurance of Government analytical models: Final Report. Gov.Uk, March (2013).
18. Ubur, H.: Poverty Reduction Efforts Through a Process Approach (Case Study of the Wudi Community of East Nusa Tenggara), Faculty of Economics Atma Jaya University, Jakarta (2012).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

