Community Perception of Cigarette Consumption Control Policy: A Case Study of Bogor Municipality, West Java

Heikal Muhammad Zakaria Hakim[1*)]; Arif Fadilla[2]

[1*),2]Faculty of Economics, Universitas Singaperbangsa Karawang

A R T I C L E   I N F O

A B S T R A C T

The implementation of cigarette consumption policies that have been provided out by the Bogor Municipality Government for a long time has not significantly decreased the smoking prevalence of the community. Hence, an evaluation of the policy's implementation is needed, one of which is through understanding related to public perceptions. The research purpose was to examine the factors that affect the perception of the community of Bogor Municipality in the implementation of cigarette control policies. The research methods used the logistic regression model in the form of a logit model, with the sampling method had the shape of quota sampling and snowball sampling distributed through six subdistricts. The results showed that the variables of years' school and gender were factors that significantly affect the community perception of the Bogor Municipality in the policy implementation. Among other items, the Bogor Municipality Government must introduce law enforcement consistently, sufficient budgets and human resources, as well as strong representative and intense socialization.

Persepsi Masyarakat terhadap Kebijakan Pengendalian Konsumsi Rokok: Studi Kasus Kota Bogor, Jawa Barat

A B S T R A K

Penerapan kebijakan konsumsi rokok yang telah lama dicanangkan oleh Pemerintah Kota Bogor ternyata tidak menurunkan angka kejadian merokok di masyarakat secara signifikan. Oleh karena itu, diperlukan evaluasi atas implementasi kebijakan tersebut, salah satunya melalui pemahaman terkait persepsi masyarakat. Tujuan penelitian untuk mengetahui faktor-faktor yang mempengaruhi persepsi masyarakat Kota Bogor dalam pelaksanaan kebijakan pengendalian rokok. Metode penelitian yang digunakan adalah model regresi logistik berupa model logit, dengan metode pengambilan sampel berupa quota sampling dan snowball sampling yang tersebar di enam kecamatan. Hasil penelitian menunjukkan bahwa variabel lama sekolah dan jenis kelamin merupakan faktor yang berpengaruh secara signifikan terhadap persepsi masyarakat Kota Bogor dalam implementasi kebijakan. Antara lain, Pemerintah Kota Bogor harus memperkenalkan penegakan hukum secara konsisten, anggaran dan sumber daya manusia yang memadai, serta keterwakilan yang kuat dan sosialisasi yang intens.

INTRODUCTION

Ensuring healthy lives and promoting well-being for all people and all ages is the third goal of the 2030 Agenda for Sustainable Development. One of the targets that the goal aims to achieve by 2030 is to significantly reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination. Cigarette consumption is a crucial issue in the health sector that threatens the achievement of the third goal of Indonesia's development agenda.

Cigarette consumption in this country has come to an alarming situation (Sutrisno & Djannah, 2020; Sugiharti & Sukartini, 2016; Mardhiati et al., 2016; Zulaeha, 2015). According to a survey from the World Health Organization (WHO) in 2008, Indonesia was the third largest smoker in the world (4.8%), led by China (30%) and India (11.2%). Another source, according to the Tobacco Atlas, notes that cigarette consumption in Indonesia increased from 182 billion sticks in 1998 to 260.8 billion cigarettes in 2009 (Kementerian Kesehatan, 2012; Suryawati et al., 2012; Renaldi, 2014; Almizi & Hermawati, 2018; Asmaunizar, 2018; Suprihanti et al., 2018; Supriadi & Rusyiana, 2018; Sarosa & Purwanti, 2019; Rachmat, 2010; Wandita, 2020).

According to Balitbangkes (2019a), West Java was the fourth highest-ranking province in Indonesia with a proportion of age people ≥ 10 years who smoke at 27.1% every day. The proportion was significantly lower than the regions of Lampung, Bengkulu and Gorontalo, 28.1%, 27.8% and 27.4% respectively. It was above the national average of 24.3 %. West Java was also the province with the highest rank proportion of smokers among the regions on the Island of Java.

In the scope of the province of West Java, Balitbangkes (2013) recorded that the Bogor Municipality had the highest proportion of age people ≥ 10 years who smoked at 32% every day in 2012. The rate was above Cianjur and Ciamis Regencies, respectively 31.5% and 30.9%. The prevalence of smoking in Bogor Municipality rose very rapidly (more than 7% in 6 years) compared to 2007, which was still about 24.3%. While it had started to decrease recently, the prevalence of smoking among the population of Bogor Municipality in 2018 was still high at 27.8%, above the proportion of West Java Province and the national at 27.1% and 24.3%, respectively (Balitbangkes, 2019b). It was ironic because the Bogor Municipality Government had adopted a policy to regulate cigarette consumption related to the issue of the Regional Regulation Number 12 of 2009 concerning No Smoking Areas. The Bogor Municipality was one of the regencies and municipalities in West Java that has the earliest local cigarette control regulations and has become a pilot for the introduction of this policy for other regions in Indonesia (Ratnawaty & Hartini, 2017).

However, the high prevalence of smoking in Bogor Municipality seems to have failed to meet the anticipated conditions. That showed that the implementation of the policy had not been completely successful. For this reason, It required knowledge to understand community perceptions of implementing the policy to control cigarette consumption by the Bogor Municipality Government. The research aimed to examine the factors that affect the community perception of the Bogor Municipality in the implementation of cigarette control policies.

Several previous studies addressed the assessment of control policies for regulating cigarette consumption in the Bogor Municipality. Setiawan, et al. (2017) discussed the evaluation of the policy implementation base on a case study at the State of Senior High Schools in the Bogor Municipality. The results of the study indicated that while all school representatives understand local laws well, there was still a lack of continuity in supervision. One caused a lack of human resources. Meanwhile, the results of research by Maulana & Krianto (2012) reported that the implementation of a non-smoking area in the municipality of Bogor was still inadequate. It was due to lack of intensive socialization, lack of control over cigarette merchants and ads, and lack of oversight and compliance. Ratnawaty & Hartini (2017) presented the challenges facing the implementation of the Regional Regulation on Non-Smoking Areas in the Bogor Municipality, in particular the lack of community discipline. Therefore, it needed outstanding commitment, honesty, and the same enthusiasm from all stakeholders, as well as consideration of penalties for the violators.

METHODS

Time and location of the research

The research was carried out in September 2020 and was based in the Bogor Municipality, West Java. Administratively, Bogor Municipality consists of six sub-districts, such as West Bogor, Central Bogor, South Bogor, North Bogor, East Bogor, and Tanah Sareal Sub-districts, with a total area of 11,850 hectares. The total population of the Bogor Municipality in 2019 was 1,048,610, with a population density of 8,849 per km^2 (BPS, 2020).

Data collected

The research used primary data in the form of preliminary data derived from the results of the distribution of questionnaires to respondents. The sampling method applied for non-probability sampling with the quota and snowball sampling. Determination of the number of samples followed Roscoe (1975) that the acceptable sample size in research is between 30 and 500 samples. Furthermore, the number of samples for multiple regression analysis is at least tenfold the number of variables studied, including the dependent variable (Sugiyono, 2012). Secondary data collected as supporting data to help enrich the discussion of the research, that obtained from the Ministry of Health, the Central Bureau of Statistics, and so on.

Econometric model specification

To analyze the factors that affect community perceptions of the implementation of cigarette control policies, it applied an econometric analysis approach in the form of a logistic model. The reason for using the model was that the form of data used to estimate the data were categorical for both dependent and independent variables. The specification of the logistics model developed as follows.

$$\ln\left(\frac{Y}{1-Y}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Note:
Y is the possibility that the respondent had stated that the implementation of cigarette control policies in the municipality of Bogor is successful.
X_1 is the status of the respondent in cigarette consumption (categorical data)

X_2 is the years' school that the respondent achieved (continuous data)

X_3 is the obedience of the respondent to the religious norms of cigarette consumption (categorical data)

X_4 is the age of the respondent (continuous data)

X_5 is the gender of the respondent (categorical data)

X_6 is the time of respondent had lived in the Bogor Municipality (continuous data)

The creation of the above model is based on the model established by Mangunsong (2006) and Afifi (2011) that, in general, community perceptions were affected, among others, by social factors and religiosity. The variables listed as social factors in the above model were cigarette consumption status, years' school, age, gender and time of stay. Meanwhile, the religiosity element was expressed in the adherence of the respondent to the religious norms of cigarette consumption.

The influence of the respondent's status on the implementation of the cigarette control policy can be directly felt and restricts the smoking behavior of the respondent, especially in public places. While, the years' school variable may be a predictor of the respondent's critical attitude towards the government's implementation of public policies, including guidelines for regulating cigarette use. The age of the respondents may have an effect on the perception of implementing the above-mentioned procedures, since, in line with the growing age, the risk of smoking in the health sector is also higher, so that people are increasingly demanding a healthier environment, including free from exposure to cigarette smoke. Gender differences can influence respondents' attitudes, as women usually do not smoke and often suffer as passive smokers, which endangers their health, requiring the implementation of the policy. The time of stay of the respondents in the Bogor Municipality will affect the perception of the implementation of the policy in line with the argument that the longer the respondent stays, the greater their sense of belonging to the municipality, thus requiring a better life comfort, one of which is apart from the risk of increased risk

to health. Similar to the years' school variable, the variable of respondent adherence to religious norms in smoking cigarettes can also promote the critical attitude of the respondent in implementing the policy, especially the perspective of understanding spiritual teachings.

Before analyzing, the primary data obtained through the questionnaire must be checked for accuracy (testing goodness of data), such as through looking at the reliability and validity of the data (Nasution & Usman, 2008). The methods used in the research used the reliability and validity of the data, which applied Cronbach's Alpha and Factor Analysis methods, respectively.

RESULTS AND DISCUSSION

Characteristics of the respondent

The number of respondents collected was 83, spread across six sub-districts in Bogor Municipality region. The majority of respondents came from the Central of Bogor Sub-district (33.7%), given that this area is the center of economic and social activity for the citizens of Bogor Municipality, which is closely linked to the implementation of cigarette control policies. Most of the respondents were men (66.3 %) who are typically committed smokers. The majority of respondents were 21 to 30 years (31.3%), suggesting that the respondents were of productive age. The education level of the respondents was mainly high school and academy/bachelor and higher (91.6 %). The majority of respondents work as private workers/employees (42.2%) and had individual daily expenditures between Rp 50,000.00 to Rp 100,000.00 (66.2%). It indicated that the majority of respondents were drawn from the middle-class population group. Bank Indonesia (2013) described this population group as having consumption of between US$ 2 to US$ 20 per person per day. Furthermore, almost 90 % of respondents have resided in Bogor Municipality for more than five years (Table 1).

Table 1
Characteristics of respondents at the research location (N=83)

Variables	Criteria	Number	%
Residence	West Bogor Sub-district	24	28,9
	East Bogor Sub-district	2	2,4
	North Bogor Sub-district	16	19,3
	South Bogor Sub-district	10	12,1
	Central Bogor Sub-district	28	33,7
	Tanah Sareal Sub-district	3	3,6
Gender	Men	55	66,3
	Female	28	33,7
Age	16 – 20 years old	24	28,9
	21 – 30 years old	26	31,3
	31 – 40 years old	14	16,9
	41 – 50 years old	12	14,5
	51 – 60 years old	6	7,2
	> 60 years old	1	1,2
Education	Did not graduate and graduated from Elementary School	1	1,2
	Did not graduate and graduated from Junior High School	6	7,2
	Did not graduate and graduated from Senior High School	47	56,6
	College/graduate and above	29	35,0
Profession	Student/colleger	17	20,5
	Teacher/lecturer	3	3,6
	Government employees	3	3,6

	Private workers/employees	35	42,2
	Entrepreneur	17	20,5
	Taking care of household	2	2,4
	Others	6	7,2
Lived time in Bogor Municipality	< 6 years	9	10,8
	6 – 10 years	11	13,3
	11 – 20 years	17	20,5
	21 – 30 years	22	26,5
	31 – 40 years	13	15,7
	> 40 years	11	13,2
Individual expenditure every day	< Rp 50,000.00	14	16,9
	Rp 50,000.00 – Rp 100,000.00	55	66,2
	> Rp 100,000.00	14	16,9

Source: survey results

Testing the accuracy of the data

The results of the reliability data test used to estimate the logistic model of Cronbach's Alpha value of 0.485. While the r-value of the table at a significant level of 1 % with a total of 83 respondents of 0.286. Thus, the value of Cronbach's Alpha was always greater than the value of the r-table so that the data was reliable or accurate and consistent. Besides, the results of the data validity test suggested that the measurement was accurate. The value of the Measures of Sampling Adequacy (MSA) for different variables were above the value of the r-table at the same level significance and the amount of data of 0.286. The questionnaire, therefore, provided reliable and valid data such that the data could be used for further analysis.

Model estimation and interpretation

Before estimating the logistic regression model, it was important to pick a model between the probit and the logit based on the conditions of the data obtained. The results of the model selection indicated that the logit model was specified as the logistic regression model to be used. It argued that the results of the normality test, which stated that the data collected was not normally distributed (the probability value of 0% so that it was significant at a 5% error level).

The results of the logit model estimation in Table 2 showed that the R^2_{MCF} was 0.241, which meant that the model could explain the variance in respondents' perceptions of 24%. Moreover, the statistical LR value was 15.659, with the probability of LR statistic was less than 0.05. It indicated that the independent variables could explain the model together.

The independent variables that affect community perception in the implementation of cigarette policies in the Bogor Municipality were not all significant. The insignificant variables were such as the status of the respondent in cigarette consumption, the adherence of the respondent to the religious norms in cigarette consumption, the age of the respondent, and time the respondent lived in the Bogor Municipality. It meant that the above variables did not have a statistically significant impact on community perceptions in the implementation of cigarette policies in the Bogor Municipality.

The variables that indicated a significant relationship were years' school and gender. The coefficient and odds-ratio values of the years' school variable were -0.321 and 0.725, respectively. The result showed that respondents who had education one year more had a probability to state that implementation of the policy was successful at 0.725 times than the respondents who had education one year less, ceteris paribus. The interpretation of the above results was that the chance of respondents who had higher education tends to be less if compared to the respondents who had less education that stated the implementation of the cigarette policy in Bogor Municipality was effective. In other words, the higher the respondent's intellectual level, the respondents tended to assess that the cigarette consumption policy had not been completely effective. Increasing community welfare had implications for the higher standard of public education, thus fostering a critical attitude society (Nopiana & Maulana, 2017), one of which concerned public policies implemented in a region (Mahpudin, 2020). The critical attitude of the respondents primarily related to the presence of smoking activities in the public facilities, such as shopping malls, places of worship, restaurants, even schools, thus disturbing public order.

Table 2
The estimation results of the logit model

Variable	Coefficient	Odds-ratio
Constant	2.691	14.746
X_1	-0.946	0.388
X_2	-0.321*	0.725
X_3	1.735	5.669
X_4	-0.011	0.989
X_5	-2.200*	0.111
X_6	-0.037	0.964
McFadden R-squared	0.241	
LR statistic	15.659	
Prob (LR statistic)	0.016	

Note: * significant at 10% error level
Source: data processing results

Another variable that indicated a significant relationship was gender, with coefficients and odds ratios of -2,200 and 0.111, respectively. The finding suggested that probability among female respondents stated the implementation of the policy was useful at 0.111 times than male respondents, ceteris paribus. The interpretation of the above finding was that female respondents tended to assume that the cigarette consumption policy was not completely successful, relatively to male respondents. It affirmed the previous hypothesis that women who usually do not smoke also suffer adverse effects of stricken other cigarette smoke such as inconvenience, lack of ethics, and have the same risk of contracting smoking-related illnesses as committed smokers (Ahsan, 2012). They might assume that the government had not, at most, provided a desirable atmosphere for healthy living and conduct, such as the establishment of smoke-free zones in closed public spaces and the development of smoke-free zones in open spaces. Moreover, according to Ahsan (2012), the state should intervene to reduce the negative externalities of cigarette use.

CONCLUSION

Variables of years' school and gender were variables that had a significant effect on the perception of the community in enforcing policies to regulate cigarette consumption in the Bogor Municipality. Respondents of higher education tended to be more critical of the numerous weaknesses they still face in the application of the policy. In the meantime, the gender variable explained that female respondents tended to assume that the policy had not been completely applied effectively. It supposed the female respondents who generally were non-smokers also often experience the impact of cigarette consumption activity, so they felt that the implementation of the policy had not been successful. The initiatives needed by the Bogor Municipality Government include consistent law enforcement, backed by appropriate legislation, budget and human resource support, the presence of positive role models by local champions, and intense socialization with the aid of all relevant stakeholders.

Acknowledgment

REFERENCES

Afifi, M. (2011). Kontribusi Kesalehan Ritual dan Kondisi Sosial Ekonomi Keluarga terhadap Perilaku Merusak Ekosistem Terumbu Karang. *Jurnal Ekonomi dan Pembangunan Indonesia*, 11(2), 135-151.

Ahsan, A. (2012). Kegagalan Pasar dalam Konsumsi Rokok dan Intervensi Pengenaan Cukai. In Iluni FEUI (ed.). *Dulu Mendengar Sekarang Bicara: Kumpulan Tulisan Ekonom Muda FEUI*. Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Almizi, M., & Hermawati, I. (2018). Upaya Pengentasan Kemiskinan dengan Mengurangi Konsumsi Rokok di Indonesia. *Jurnal Penelitian Kesejahteraan Sosial, 17*(3), 239-256.

Asmaunizar. (2018). Pengaruh Iklan Bahaya Merokok terhadap Tingkat Konsumsi Rokok pada Masyarakat Pekerja Keras/tukang Bangunan di Gampong Keutapang Lhoksukon Aceh Utara. *Al-Idarah: Jurnal Manajemen dan Administrasi Islam, 2*(2), 127-146.

Balitbangkes [Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia]. (2013). *Riskesdas dalam Angka Provinsi Jawa Barat 2013*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan.

Balitbangkes [Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia]. (2019a). *Laporan Nasional Riskesdas 2018*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan.

Balitbangkes [Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia]. (2019b). *Laporan Provinsi Jawa Barat Riskesdas 2018*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan.

Bank Indonesia. (2013). *Laporan Perekonomian Tahun 2012*. Jakarta: Bank Indonesia.

BPS [Badan Pusat Statistik]. (2020). *Kota Bogor Dalam Angka 2020*. Bogor: Badan Pusat Statistik Kota Bogor.

Kementerian Kesehatan. (2012). *Bunga Rampai Fakta Tembakau dan Permasalahannya di Indonesia*, Available at: http://tcsc-indonesia.org/wp-content/uploads/2012/12/Buku-Fakta-Tembakau.pdf.

Mahpudin, E. (2020). Poverty Reduction through Local Financial Performance: Case Study in East Nusa Tenggara Province, Indonesia. *Ekuilibrium: Jurnal Ilmiah Bidang Ilmu Ekonomi*, 15(2), 151-160.

Mardhiati, R., Fatimah, N., & Andayani, N. (2016). Dukungan Perokok dan Bukan Perokok terhadap Kebijakan Pengendalian Tembakau di Kota Denpasar dan Yogyakarta. *Arkesmas: Arsip Kesehatan Masyarakat, 1*(2), 75-82.

Mangunsong, F. (2006). Persepsi Masyarakat tentang Terumbu Karang di Kepulauan Seribu. *Jurnal Ekonomi dan Pembangunan Indonesia*, 7(1), 27-46.

Maulana, I., & Krianto, T. (2012). Penilaian Warga Kota Bogor terhadap Efektivitas Peraturan Daerah tentang Kawasan Tanpa Rokok (KTR) di Tatanan Tempat-tempat Umum di Kota Bogor Tahun 2012. *Diseminasi Nasional Riset Kesehatan*; 2012 Sept 28-29; Depok, Indonesia.

Nasution, M.E., & Usman, H. (2008). *Proses Penelitian Kuantitatif*. Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Nopiana, M., & Maulana, A. (2017). Urgensi Pembentukan Badan Penyelesaian Sengketa Konsumen di Kabupaten Bekasi Provinsi Jawa Barat. *E-Qien: Jurnal Ekonomi dan Bisnis*, 6(1), 48-55.

Sarosa, C.S., & Purwanti, E.Y. (2019). Pengaruh Kenaikan Harga Rokok, Pendapatan dan Karakteristik Perokok terhadap Konsumsi Rokok di Kota Semarang. *Diponegoro Journal of Economics, 1*(1), 22-30.

Setiawan, N.P., Hernawan, D., & Salbiah, E. (2017). Evaluasi Kebijakan Peraturan Daerah Kota Bogor No. 12 Tahun

2009 tentang Kawasan Tanpa Rokok: Studi Kasus Pelaksanaan Kawasan Tanpa Rokok pada Sekolah Menengah Atas Negeri di Kota Bogor. *Jurnal Governansi*, 3(1), 13-22.

Sugiharti, L., & Sukartini, N.M. (2016). Keterkaitan antara Perilaku Merokok, Preferensi Waktu dan Pilihan Terhadap Resiko: Studi Kasus di Kota Surabaya. *Jurnal Ekonomi Kuantitatif Terapan*, *9*(1), 12-27.

Sugiyono. (2012). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Penerbit Alfabeta.

Supriadi, A.Y., & Rusyiana, A. (2018). Beras atau Rokok? Beban Ekonomis Rumah Tangga Miskin di Indonesia 2014. *Jurnal Aplikasi Statistika dan Komputasi Statistik, 10*(1), 27-37.

Suprihanti, A., Harianto, Sinaga, B.M., & Kustiari, R. (2018). Dinamika Konsumsi Rokok dan Impor Tembakau Indonesia. *SEPA: Jurnal Sosial Ekonomi Pertanian dan Agribisnis, 14*(2), 183-194.

Suryawati, C., Kartikawulan, L.R., & Hariyadi, K. (2012). Konsumsi Rokok Rumah Tangga Miskin di Indonesia dan Penyusunan Agenda Kebijakannya. *Jurnal Kebijakan Kesehatan Indonesia, 1*(2), 69-76.

Sutrisno, & Djannah, S.N. (2020). Persepsi Perokok terhadap Implementasi Kawasan Tanpa Rokok: Tinjauan Sistematis. *Arkesmas: Arsip Kesehatan Masyarakat*, *5*(1), 16-25.

Rachmat, M. (2010). Pengembangan Ekonomi Tembakau Nasional: Kebijakan Negara Maju dan Pembelajaran bagi Indonesia. *Analisis Kebijakan Pertanian, 8*(1), 67-83.

Ratnawaty, L., & Hartini, S. (2017). Pelaksanaan Peraturan Daerah Nomor 12 Tahun 2009 tentang Kawasan Tanpa Rokok di Kota Bogor. *Yustisi*, 4(2): 68-74.

Renaldi, R. (2014). Implementasi Kebijakan Kawasan Tanpa Rokok (KTR) pada Mahasiswa di Lingkungan Sekolah Tinggi Ilmu Kesehatan Hang Tuah Pekanbaru. *Jurnal Kesehatan Komunitas, 2*(5), 233-238.

Roscoe, J.T. (1975). *Fundamental research statistics for the behavioral sciences (2nd ed.)*. New York: Holt, Rinehart and Winston.

Wandita, D.T. (2020). Pengaruh Cukai Rokok terhadap Konsumsi Rokok serta Faktor-faktor yang Mempengaruhi Konsumsi Rokok. *Jurnal Pendidikan Ekonomi: Jurnal Ilmiah Ilmu Pendidikan, Ilmu Ekonomi, dan Ilmu Sosial, 14*(1), 159-165.

Zulaeha. (2015). Implementasi Kebijakan Pemerintah tentang Penetapan Kawasan Tanpa Rokok: Studi pada Rumah Sakit Umum Daerah Undata Propinsi Sulawesi Tengah. *e-Jurnal Katalogis, 3*(5), 58-67.