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PARTICIPATION IN NATIONAL LOTTERY AND GAMES OF CHANCE: A RESEARCH ON MIDDLE AND LOWER INCOME GROUPS

MİLLİ PİYANGO VE ŞANS OYUNLARINA KATILIM DAVRANIŞI: ORTA VE ALT GELİR GRUPLARI ÜZERİNE BİR ARAŞTIRMA

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ÖZ

Bu çalışmada, Tokat ilinde orta ve alt gelir grubunda yer alan bireylerin şans oyunu oynama davranışları belirlenmeye çalışılmıştır. Analizlerde istatistiksel yaklaşımların yanı sıra ekonometrik yöntemler de kullanılmıştır. Bireylerin şans oyunu onama davranışlarını belirlemek için Ordered Probit Model kullanılmıştır. Elde edilen bulgulara göre; cinsiyet, yaş, şans oyunlarına aylık gelirden ayrılan harcamalar, daha önce ikramiye kazanmış olma, değer yargıları, medeni durum, çocuk sayısı ve gelirin şans oyunu oynama eğilimi üzerinde etkili faktörler olarak belirlenmiştir.

Anahtar Kelimeler: Şans Oyunları, Milli Piyango, Sıralı Probit Model.

ABSTRACT

In this study, it was tried to determine the behavior of the game of chance of the individuals in the middle and lower income groups in Tokat province. Statistical approaches as well as econometric methods have been used in the analyzes. The Ordered Probit Model was used to determine the behavior of individual game of chance. According to findings; Gender, age, monthly spending on game of chance, previous bonuses, values, marital status, number of children, and income were determined as effective factors on the tendency to play game of chance.

Key words: Games of Chance, National Lottery, Sequential Probit Model.

JEL Classification: D12, C51

1. INTRODUCTION

Almost every corner encountered lottery dealers, are a constant reminder of the lottery event, but many issues seen as it is, but on a much unthinkable in this event, beginning how in the world and Turkey in what way it evolves, how it creates a huge economic potential, usually by the masses it is unknown.

However, the fact that the national lottery system, in which the vast majority of individuals show interest by devoting time and resources to micro and macro manners, is a voluntary, but unrecognized transfer from the society to the public.

The lottery is considered by some thought groups or individuals to be a silent tax from the low income group and initiates a separate debate on whether to challenge the lottery or unnecessarily claim the lottery on the grounds that the tax policy principles are not respected

It has been decided to carry out a study in this regard, taking into consideration the importance of lottery, which has an important place among the financing resources of the state in Turkey, the update and public incomes. It is worth investigating because it is an important source of public revenues in Turkey, due to the fact that it is focused on current economic debates, and especially in low and middle income groups, there is a big tendency in this direction

In many countries today, it is observed that games of chance, which have a large share of individual economic behavior, are a dimension to be considered among the financing resources of the states.

Especially in the lower income group, the games of chance that consumer decision units regard as an important source for increasing their incomes constitute a transfer from their individual incomes to public institutions

Voluntary transfer of income but also very composed inadvertently gives rise to significant economic and social consequences for the national economy as well as the distribution of income.

The main objective of the study is to evaluate the general and individual reflections of the national lottery system by focusing on various social and economic consequences in the direction of importance. In this respect, our approach is as macroeconomic as microeconomics. The study covers the city center of Tokat and the tendency of people to play the lottery with the help of the data obtained by the field study in Tokat city center tried to be explained as a function of various explanatory variables.

After reviewing the relevant literature on the study, the section of the material being introduced and the methodology of the Ordered Probit Model are continued, and the findings obtained after the analysis are completed with the resultant part after emphasizing the findings.

2. LITERATURE REVIEW

When the researches on lottery and lottery are evaluated, it is seen that there is not much research in Turkey especially. In a few studies made, it is seen that evaluations about establishment, development, legal and organizational structure of the National Lottery Administration are mostly done. When foreign literature is searched, it is seen that the subject is examined in a very broad and comprehensive manner both theoretically and practically. Especially in the recent period, the issue of whether or not the lottery is a tax, or whether it can be evaluated as a tax, is at the head of the researchers.

The study by Pickernell, Brown, Worthington, and Crawford (2003) mentions that the lottery system adds a surplus value to government revenues in that it is a major source of revenue for many governments in terms of executive simplicity and hopes to win a large bonus by a large majority. In the study, the analyzes of EGMs, which are national lotteries and electronic gambling machines, in Queensland and Australia, show that lottery tax is mostly directed to education, health services and social and economic development.

Sullivan (1972) in his study, before the colonial period in America's lottery shows the distinction of being one patient who underwent occasional colonization with political and economic reasons and used mostly for defense and other public services stated that arise as a financial necessity required.

Gitmez (1986), in his study of games of chance, gambling and lotteries with respect to living socioeconomic system and responding to individual needs, stated that the lotteries show a change in the system to a uniform, boring way of life. In other words, the system is an extraordinary activity that goes beyond everyday life in order to sustain it.

Clotfelter and Cook (1989) attempted to explain the demand factors of lottery between 1975 and 1988, and it was due to variables such as age, gender, religion, race, income, employment status (working or unemployed) They predicted spending on per-capita games of chance.

Tunçay (1994), in his study, provided information about the history of the national lottery, the present and the period and its development

Thornton (1999) also described the lottery as a tax, but stated that the rate of the lottery tax was lower than that of the rich, and that the lottery was played by the poor mostly by the poor and thus a totally decreasing tax.

In Tomlinson's (2003) study, it is clear that lottery is a way of encouraging people to buy tickets by playing an entertaining game and paying for a good cause, thus increasing the incomes of the governments without increasing taxes, even though they are often expressed as voluntary taxes or hidden taxes, but the vast majority of the revenue provided by the lottery is the child protection institutions etc. such as the funds created for the purposes of social purposes.

In Hansen (2005) 's study, it is stated that the lotteries are different from other games of chance because they are only provided and controlled by the government. It is also stated that the income of the lottery is a small tax revenue added to the state treasury. However, when assessed in terms of tax policy criteria, it is stated that the taxpayer will remain in the class and do not conform to the criteria much. For the low-income group, it is said that the band consists of a tax for the group, which is considered as a naive group, but the majority, nevertheless, do not regard the lottery as a tax.

In his study, Cobin (2005) argues that lottery is a tax, and that the lottery revenues are functionally similar to the compulsory tax, only that the lotteries are taken voluntarily.. Curious and ambitious people are showing more interest in lottery games.

3. MATERIALS AND METHOD

3.1. Material

The study was conducted to identify the person that they play a game of chance, there are three important material. These; printed sources, statistics are given and survey studies are done.

Printed sources and statistical data used in the research are especially useful in the theoretical part. The questionnaire was included in the research that was conducted in order to determine the sociological, psychological and economic reasons affecting playing the game of chance. The results of the questionnaire were obtained in November 2014 in Küçükbeybağı, Büyükbeybağı and Değirmenönü districts of Tokat province by filling in an individual interview with the household owners. The total number of people interviewed is 604. Some surveys have been eliminated because of the lack of important data to be used during the analysis phase. Thus, the number of valid surveys in the analysis phase was determined as 496. Due to the fact that it was decided to play the game of chance and it was composed mostly of medium and low income level as the selected region, the respondents had to be excluded from the analysis of the 108 questionnaire analyzes because they were inclined to miss some questions. Descriptive statistics of the variables obtained from the questionnaires and used in the analysis are given in Table 1.

Table 1. Descriptive Statistics of Variables Used in Analysis

Variables	Definition of variable	Mean	Std. dev.
LOTT	Playing the lottery (0=none, 1=occasionaly, 2=a few times, 3=regularly)	0,594	0,789
GEND	Gender (0=female, 1=male)	0,72	0,449
MSTA	Marital status (1=married, 2=single, 3=other)	1,079	0,331
CHL	Number of children (1=no; 2=1; 3=2; 4=3; 5=over 3	3,628	1,013
AGE	Age (1=20 and under; 2=21-30; 3=31-40; 4=41-50; 5=51-60; 6=over 60)	3,315	0,827
EDU	Levels of education (1=illiterate; 2=literate; 3= primary school; 4= secondary school; 5= high school and their equivalent; 6=license/master)	4,308	1,336
INC	Monthly net income	1.271	887
LOTEXP	Revenue from monthly amount allocated to games of chance (1=none; 2=between 1-5 TL; 3=between 6-20 TL; 4=between 21-50 TL; 5=between 51-100 TL; 6=over 100 TL)	1,824	0,877
WINB	The amount of bonuses earned from lottery (1=between 1-100 TL ; 2=between 101-500 TL; 3=between 501-1000 TL; 4=over 1000 TL)	1,343	0,796
VAL	Lottery in terms of values (1= I certify; 2= I don’t certify)	1,863	0,344

3.2. Method

In this study, the Ordered Probit model (Zavoina and McElvey, 1975) was used to investigate the determinants of playing the game of chance.

For the price to be paid, y* is defined as an unobserved continuous variable.

$$y^* = \beta' x + u$$

In the equation (1), x represents the variables including the personal, familial, and socioeconomic factors, and u represents the independent and normal distributed error term.

B is the estimated coefficients vector. For the preference of people to play different games of chance, y, y * 'ın is the observed response. The thoughts that people give about playing the game of chance are divided into I numbered categories represented by 0, 1, 2 and 3. According to this, 0 means that you have never played game of chance, 1 played once, played 2 times, played several times, and 3 played regularly. The ordinal variable y takes the value i if y*, the i'th category:

$y = i$ if $\propto_{i-1} < y^* < \propto_i$ $i = 1, \dots, I$ (2)

in the equation (2) α, $\alpha_{-1} = -\infty, \alpha_0 = 0$ ve $\alpha_i = \infty$ Is the threshold value that must be calculated together with the assumption. The probability of obtaining an observation y=j is as follows:

$$Prob\ (y = i) = F\ (\propto_i - \beta' x) - F(\propto_{i-1} - \beta' x) \quad (3)$$

In the equation (3), F is the cumulative standard normal distribution function. Estimates were made using the maximum likelihood method, which provides consistent and efficient parameter estimation. The effect of the price of the independent variable at the i 'st degree is as follows:

$$\partial Prob\ (y = i)/_{\partial x} = \beta[f\ (\propto_{i-1} - \beta' x) - f(\propto_i - \beta' x)] \quad (4)$$

Equation (4) is the standard normal density function (Zavoina and McElvey, 1975: 103-120). Ordered Probit model was estimated with the following variables.

$$LOTT_i = \propto_0 + \propto_1 GEND_i + \propto_2 MSTA_i + \propto_3 CHL_i + \propto_4 AGE_i + \propto_5 EDU_i + \propto_6 VAL_i + \propto_7 LOTEXP_i + \propto_8 WINB_i + \propto_9 VAL_i \quad (5)$$

Apart from economic troubles and poverty, people are interested in the game of chance, they are seen in the columns and tickets sold. Aside from economic difficulties and poverty, the public appears to be interested in the games of chance and the number of tickets and tickets sold. The rising sales figures reveal the growing demand for game of chance by a population living in poverty.

It is foreseen that the social, economic and environmental factors that people have are determined to play game of chance. The relationship between the GEND variable indicating gender and game of chance seems to be difficult at first glance. However, there is a male-dominated profile.

The percentage of women players who play game of chance remains at a very limited level. Therefore, it is expected that there is a negative relationship between games of chance and gender. Because, in a patriarchal society, it is almost impossible to imagine playing women's games while playing a game of chance.

In addition, if people are married and have children, their responsibilities will increase, making them more inclined to play game of chance with a more relaxed life dream. For this reason, it is estimated that GEND and CHL variables are positively related to game of chance in married and high number of children.

As the educational status of the people increases, it is predicted that the demand for game of chance will decrease.

It is unthinkable for those who have reached a certain level of education to have a game with a probability of being in the range of one millionth As a result, the EDU variable is expected to have a negative sign coefficient.

As the income levels of the people increase, the rate of playing the game of chance is expected to decrease.

Because those who are at a level that meets their livelihood and social needs will not dream of a money that can come from game of chance. For this reason, it is considered that the INC variable has a negative sign. It is also thought that people living at the minimum subsistence level transfer a significant portion of their current income to the game of chance

Therefore, it is expected that the amount variable, which is determined as LOTEXP and separated from monthly income for the games of chance, will also be negative slope. Therefore, it is expected that the amount of money consumed per month for the game of chance determined as LOTEXP will also be negative.

It is not possible to make a definite decision about whether the winners of the game of chance will play the chance game again

Two different situations can be expected here. In other words, it is expected that a person who has already won a prize may play a chance game again in the negative direction.

Here, the winner of the game of chance will not play again if he is satisfied with the bonus he earns. However, if the winner gets more ambition to win, then the tendency to play game of chance will increase even more.

In terms of values, two situations can be expected to occur when playing the game of chance. If one believes that there is no objection to playing game of chance in terms of beliefs, it will not be a problem to play it. In such a case it can be said that there is a positive interaction between personal values and playing game of chance. The opposite is true if the games of chance are negative in terms of personal value decisions.

Particularly in smaller communities and in places where religious values are more intense, people prefer to not play game of chance with the “forbidden” by religion. In this case, it is thought that there is a negative interaction between values of playing the game of chance.

4. RESULTS

4.1. Statistical Results

The results of the questionnaire are given in Table 2.

Table 2. Frequency Distributions of Responses to Survey Questions

Variables	Frequency	%	Variables	Frequency	%
Spouse work			**Marital status**		
Yes	151	26,63	Married	567	93,87
No	396	69,84	Single	26	4,31
Retired	20	3,53	Other	11	1,82
Age			**Education**		
20 and under	17	2,82	Illiterate	13	2,15
21-30	49	8,11	Literate	27	4,47
31-40	302	50	Primary school	167	27,65
41-50	203	33,61	Secondary school	99	16,39
51-60	29	4,8	High school and their equivalent	150	24,84
Over 60	4	0,66	License/master	148	24,5
Children			**Job**		
No	21	3,61	Student	15	2,48
1	36	6,2	Public officer	197	32,62
2	212	36,5	Worker	101	16,72
3	181	31,14	Tradesman/artisan	44	7,28
Over 3	131	22,55	Self-employment	109	18,05
			Other	138	22,85

Amount of money left for the game of chance			**Types of game of chance ***		
Never	111	42,53	Chance ball-numeric lotto-super lotto- ten number	128	37,76
1-5 TL	97	37,17	Bet-sport toto	54	15,93
6-20 TL	44	16,86	Scratch win-just win	23	6,78
21-50 TL	7	2,68	National lottery ticket	128	37,76
51-100 TL	1	0,38	Horse Racing	5	1,48
100 TL üzeri	1	0,38	Other	1	0,29
Gender			**Earn bonuses before**		
Male	435	72,01	Yes	70	25,55
Female	169	27,99	No	204	74,45
Playing game of chance			**Total amount earned**		
Never	345	57,12	1-100 TL	56	80
Sometimes	174	28,81	101-500 TL	8	11,43
Several Times	70	11,59	501-1000 TL	2	2,86
Regularly	15	2,48	Over 1000 TL	4	5,71
Information on the amount transferred to the public			**Approve the game of chance in terms of values**		
Yes	159	35,41	Yes	71	13,65
No	290	64,59	No	449	86,35
Ideas about taxation			**Earned bonuses evaluation form ***		
Taxation must be made	198	43,32	Evaluation in game of chance	41	54,66
Taxation must not be made	79	17,29	Buying property / real estate	0	0
I do not know	180	39,39	Pay my debts	8	10,67
Behavior to be shown in case of a big bonus			Subsidize	5	6,67
Upset	102	30	Use for investment purposes	7	9,33
Continue to experiment	50	14,71	Other	14	18,67
Do not play again	59	17,35	**Thought about the share transferred to the public**		
Feel unlucky	129	37,94	More shares need to be transferred to the public	216	55,53
			The share transferred to the public must also be distributed	173	44,47

Of the 604 participants, 72% (435) were male and 28% (169) were females. A large majority of the respondents were married because the districts of Küçükbeybağı, Büyükbeybağı and Değirmenönü in Tokat province were determined as the study area. Accordingly, 94% (567) of the participants were married, 4% (26) were single, and 2% were of other marital status. Of the 567 married people, 26% (151) had their wife working, 70% (396) were not working, and 4% (26) were retired. The majority of participants have 2 (212) or 3 (181) children. The largest number of participants is between 50% and 31-40 persons. The majority of participants are 28% primary school graduates. Of the residents in the region, 32% (197) are public officer, 18% (109) are self-employed, 16% (101) are employee, while the rest are students or other occupational groups.

Monthly average net income of the participants was found to be TL 1,271. 57% (345) of the respondents who answered the question "Do you play the game of chance?" constitute the basis of the research question. Twenty-nine percent (174) of the respondents said that they play an occasional play, 12% (70) play a few times, and 2% play regular play.

The distribution about the frequency of game of chance is as follows; 38% of respondents (128) said they played the chance ball, numeric lotto, super lotto, ten number, 38% (128) said they got the national lottery ticket, 16% (54) bet, sport toto, 7% (23) said they played Scratch win, Just win, and 2% said they played horse racing.

In response to another question, "Why play game of chance?", Depending on today's economic conditions, most people have chosen the option to " improve the quality of life " or "Pay debts". According to this, 29% (57%) to improve the quality of life, 27% (53%) to pay debts, 11% (22) to buy property / real estate, 13% (25) to subsidize, 4% (5) to habit, 7% (14) for entertainment , and 6% (11) “the others” are of the respondents.

Most of the respondents to the question "The amount you allocate per month to the games of chance from your income" are asked to determine how much of their income is allocated to their game of chance on a monthly average basis. The vast majority of those who answered the question gave the answer "no allocation". According to this, 43% (111) of the respondents said that they do not allocate a certain amount of their income for game of chance, 37% (97) allocate 1-5 TL, 17% (44), 3% (7) is between TL 21-50 and the remaining 1% is TL 51-100 and over TL 100. It is also evident that the respondents who reside in the study area consist mostly of low income groups. That is 80% of the respondents said that they did not allocate anything at all and that they allocated between TL 1 and TL 5, and it is not surprising that those who are incompetent do not pay income for their game of chance and that they reserve a very small amount.

Those who are moving from the philosophy of "if it holds" which is the general slogan of the game of chance already fall into an expectation that "can I get something that can improve the present situation"? Have you won a bonus before? 70% (26%) of the 274 people answered "yes" and 204 (74%) answered "no". 80% (56) of the respondents who answered "Yes" earned between 1 - 100 TL 12% between 101 - 500 TL and 3% between 501 - 1,000 TL, remaining 5% (4) TL 1,000 have won over them.

Regarding the question "How did you evaluate the bonus you earned?"; 55% of the respondents (41) said they used the bonus they had earned in the game of chance again, 11% paid their debts, 6% donated (5), 9% (7) used for investment purposes and 19% (14) stated in other forms.

Regarding the question ""How they would feel if they missed the big bonus"; 38% of the respondents (129) stated that they would be unlucky, 30% (102) would be very upset, 15% would continue to try and 17% would not play again.

In order to determine whether the participants had information about the tax deductions from the games of chance and the amount transferred to the public, we asked the question "Do you think about the taxation?"; 40% of the respondents (180) stated that they had no idea about the taxation, 43% (198) stated that taxation must be made and 17% taxation must not be made. 65% of respondents (290) indicated that they had no idea about the amount transferred to the public, and 35% indicated that they had knowledge. When asked about their share of publicly funded shares, 56% (216) thought that the share transferred to the public should be increased, while 44% stated that they should be distributed to the public.

Finally, in response to the question "Do you approve of game of chance in terms of your values?", The vast majority indicated that 86% (449) did not approve and 14% (71) approved the game of chance.

4.2 Econometric Findings

Table 3 shows the results of the analysis using Ordered Probit model.

Table 3. Ordered Probit Model Findings

Variables	Coefficients	Z Values	P Values
CONSTANT	3,466	8,267	0
GEND	-0,945	-8,486	0
MSTA	0,718	2,223	0,026
CHL	0,458	8,904	0
AGE	-0,155	-2,454	0,014
EDU	0,406	0,829	0,406
INC	0,163	2,377	0,017
LOTEXP	-2,752	-38,848	0
WINB	-2,887	-18,535	0
VAL	-1,954	-12,529	0

According to the findings obtained after the analysis, the coefficients of GEND, MSTA, CHL, AGE, INC, LOTEXP, WINB, VAL variables were statistically significant. Only EDU variable were not statistically significant at 1%, 5% and 10% significance levels. Therefore, no statistical relationship was established between the participants and the participants in the game.

In terms of playing game of chance, there is a profile of a male-dominated group in Turkey. As a natural consequence, it is expected that the sign of the GEND variable representing gender is positive. However, according to the analysis results, the coefficient of the GEND variable is negative. Contrary to expectations, women are more willing to play game of chance than men. The coefficient of the variable MSTA is a positive sign. Married individuals are more willing to play their game of chance. Likewise, the coefficient of the CHL variable was found to be positive. As the number of children in the family increases, the tendency of people to play game of chance is also increasing. As people age, their tendency to play game of chance is diminishing. Therefore, the coefficient of the AGE variable that determines age is found to be negative. It was expected that the tendency of people to play the game of chance would decrease, so that the coefficient of the INC variable would be negative. However, according to the test results, the coefficient of the INC variable has a positive sign. This means that as the income levels of the participants increase, the tendency to play game of chance also increases. The LOTEXP variable is a negative sign that shows how much of your games of chance are divided on average by the month. That is, as the amount of money that people will keep for their game of chance from their income increases, the tendency to play game of chance decreases. The sign of the WINB variable, which determines the desire of a player who has already won a bonus game again, was found to be negative. Anyone who has already earned a bonus from the game of chance is less likely to play the game of chance again. In terms of values of the people, the coefficient of the variable VAL which shows the views on the games of chance is negative. People do not find it right to play game of chance in terms of their values.

Table 4. Marginal Impacts for Ordered Probit Models

Variables	Prob (Y=00)	Prob (Y=01)	Prob (Y=02)	Prob (Y=03)
CONSTANT	-0,8342	0,6228	0,1861	0,0254
GEND	0,2276	-0,1699	-0,0508	-0,0069
MSTA	-0,1728	0,129	0,0386	0,0053
CHL	-0,1102	0,0823	0,0246	0,0034
AGE	0,0374	-0,0279	-0,0083	-0,0011
EDU	-0,0098	0,0073	0,0022	0,0003
INC	0,0003	-0,0002	-0,0001	0
LOTEXP	0,6623	-0,4944	-0,1478	-0,0201
WINB	0,6947	-0,5186	-0,155	-0,0211
VAL	0,4703	-0,351	-0,1049	-0,0143

The marginal effects obtained from the analysis with the Ordered Probit model are given in Table 4. There is a difference of 0.69% between the probability of playing regular game of chance and 22.7% of the probability of not playing at all. According to the marital status of married persons, there is a difference of 0.5% between probability of playing game of chance regularly and 17.2% between probability of not playing game of chance. A marginal increase in children's numbers increases the chances of regularly playing chances by 0.3%. It reduces the probability of playing game of chance at all by 11%. A marginal increase in people's ages reduces the probability of regular game of chance playing by 0.1%. The probability of never playing game of chance increases by 3.7%. A marginal increase in one unit in people's income levels does not change the chances of playing game of chance on a regular basis. It increases the probability of not playing game of chance by 0.03%. The marginal increase in the number of units per month for a game of chance decreases the probability of playing regularly by 2%. The probability of never playing game of chance are increasing by 66.2%. An increase in the number of previous winners reduces the probability of playing a game of chance on a regular basis by 2.1%. The probability of not playing at all is increased by 69.4%. An increase of one unit of values reduce the probability of regularly playing game of chance by 1.4%. The probability of never playing game of chance is increasing by 47%.

5. CONCLUSION

In the study, socio-economic and demographic variables affecting the game of chance of the middle and lower income groups living in Tokat were examined. For this purpose, a statistical analysis was carried out using a sample of 604 people in Küçükbeybağı, Büyükbeybağı and Değirmenönü districts of Tokat province. In the analysis of the obtained data, Ordered Probit Model was used.

In the model formation, gender, marital status, number of children, age, level of education, level of income, amount of spending made for monthly game of chance, qualitative dependent variable (gender, age and gender) were considered as explanatory variables) have been tried to be analyzed.

As a result of the statistical significance test, it was determined that 574 (345) of the 604 participants who participated in the survey never played the game of chance. The remaining 43% play game of chance several times or play occasionally or regularly. According to the analysis results; It has been determined that the gender, the age, the amount separated from the monthly income for the game of chance, the earning of the prizes before and the values have negative effect in terms of the chance of the players playing the game of chance. On the other hand, marital status, number of children, age and income were positively associated with playing the game of chance.

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