

Policy Paper

# Overview of Informal Sector Workers Viewed from Education Variables

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## Abstract

The Special Region of Yogyakarta has a significant population engaged in the informal sector. This study aims to explore the relationship between educational level and participation in the informal sector. The data used in this study is from the August 2022 Sakernas (National Labor Force Survey) data. Descriptive analysis was employed to address the research objectives. The research findings reveal that over half of the population is employed in the informal sector. Workers with higher levels of education tend to transition to the formal sector, while less educated individuals dominate the informal sector. Education not only influences sectoral choices but also has an impact on conditions within the informal sector. Workers with higher education experience better conditions, regardless of the field of business, working hours, or income level. They engage in businesses that require capital, demonstrating organization, efficiency, and higher earnings. Some educated informal workers take part-time jobs while waiting for other opportunities.

**Keywords:** Education; Informal; Workers; Yogyakarta.

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## 1. Introduction

The Province of the Special Region of Yogyakarta, commonly referred to as DIY, is a province with numerous accolades. One of the well-known designations is the City of Students, which alludes to the high number of students studying there daily. From elementary schools to universities, educational institutions are abundantly available. There are 5,142 schools in total, with 422 of them being SMA/SMK or equivalent. Additionally, Yogyakarta is home to 117 universities. According to data from the DI Yogyakarta Education, Youth and Sports Office in 2021, the people of DIY generally have access to quality education. Consequently, it is not surprising that the Human Development Index (HDI) in DIY reached 80.64 in 2022, ranking second in Indonesia after DKI Jakarta. The superior quality of human resources resulting from education serves as a promising asset when entering the workforce (Bento et al., 2018; BPS Provinsi D.I. Yogyakarta, 2022a; Dellas et al., 2017).

On the other hand, in the world of work, two sectors can be entered, namely the formal sector and the informal sector. The informal sector is often referred to as an area where workers who are not accommodated in the formal sector engage in alternative jobs (Khuong et al., 2021). Formal jobs, which are synonymous with clear legality and regularity, cannot be fully accessed by the entire workforce. Generally, job vacancies in the formal sector require a minimum educational background. In DIY, the availability of complete educational institutions from elementary to high levels provides the population with a good educational background. Therefore, most residents of DIY are expected to enter the formal sector. As expressed by Gumbo & Moyo (2022) through their research in Albania, they found that the higher a person's education, the less likely they are to enter the informal sector (Jacolin et al. (2019) also stated that the informal sector is predominantly comprised of lower-class individuals with low incomes. They indirectly assumed that the lower class also has lower levels of education (Darbi et al., 2018).

The relationship between education and the informal sector will be explored in this article. As a province that provides comprehensive and adequate education for its citizens, DIY can demonstrate this relationship. Is it true that many individuals with low educational backgrounds enter the informal sector? Furthermore, does a higher educational background in workers from DIY result in fewer individuals entering the informal sector? In addition to examining the composition of the employment sector in DIY based on workers' educational backgrounds, exploring the relationship between educational background and the informal sector will also unveil distinctions in the characteristics of informal workers with low education and those with higher education backgrounds. If the level of education is higher, individuals are more likely to opt for the formal sector, which is generally perceived as better. Consequently, if they eventually end up in the informal sector, individuals with higher education should have better conditions or at the very least experience notable differences compared to informal workers with lower education

## 2. Methods

The data source for this research is secondary data in the form of raw data from the National Labor Force Survey (Sakernas) at the provincial level of the Special Region of Yogyakarta in August 2022. The utilized Sakernas data consists of educational background components and the economic sectors entered by individuals. The educational background variables are separated according to their levels, ranging from the lowest to the highest. There are 7 groups, including "No Primary Education/Equivalent," "Primary Education/Equivalent," "Junior Secondary Education/Equivalent," "Senior Secondary Education/Vocational School/Equivalent," "Diploma I/II/III," "Diploma IV/Bachelor's Degree," and "Postgraduate". These seven levels are simplifications of the 16 levels present in Sakernas. The second variable is the economic sector in which workers are employed, divided into formal and informal sectors. Indicators for this variable are based on the respondent's status/position in their main occupation during the past week.

The data used in this study employs the individual level as the unit of research analysis, which includes the working-age population (10 years and above) who are employed or have a job but temporarily not working in the informal sector. The data is processed using the Statistical Package for the Social Sciences (SPSS) Version 23. To address the research objectives, descriptive analysis in the form of tables, graphs, or diagrams is used to provide an overview of the relationship between education and the informal sector through the variables utilized in the study.

### 3. Results and Discussion

The Special Region of Yogyakarta is rightfully called the centre of the informal sector, as one can find various forms of informal workers everywhere. There are satay sellers with seating on the ground, tented angkringan food stalls, becak drivers, andong drivers, street vendors selling individual shirts, roaming cigarette sellers, and so on. As participants in the informal sector, they offer small-scale goods or services using their labour, facing unregulated competition (Mustapha et al., 2022).

Sperling et al. (2020) state that the informal sector usually manifests itself in six main forms, namely retail, small food stalls, transportation, service/repair, small manufacturing, and construction workers. It is underlined that the scale of the informal sector is limited and small. This is also agreed upon by Adom et al. (2020), who state that informal sector actors operate independently, employ themselves, work temporarily, or only help relatives. He also reveals that this sector usually emerges in developing countries due to the transition from agriculture to non-agriculture. Not all of them can enter industrial areas; as a result, some are still scattered as agricultural labourers or work independently informally outside of these fields. Other jobs included in the informal sector are voluntary or unpaid jobs. This was mentioned by Knox et al. (2019), who highlighted that the informal sector in Europe is closely related to activities such as volunteering or non-profit organizations.

These theories underlie the selection of indicators from variables in the economic sector that workers are engaged in. This article carries out the separation of the formal-informal sector by examining the status/position of respondents in their primary jobs during the past week. In the BPS Sakernas questionnaire, the status/position is divided into seven categories, which include: 1) Self-employed, 2) Business assisted by temporary workers/family workers/unpaid, 3) Business assisted by permanent/paid workers, 4) Laborers/employees/employees, 5) Casual workers in agriculture, 6) Freelance workers in non-agriculture, and 7) Family/unpaid workers. These seven indicators align with the aforementioned theoretical foundations, with those falling under categories 1, 2, 5, 6, and 7 being considered part of the informal sector, while those falling under categories 3 and 4 are classified as formal workers (BPS Provinsi D.I. Yogyakarta, 2022b).

Looking at it as a whole, in the 2022 Sakernas survey, there was a population of 2,960,204 people in DIY. Out of them, 2,053,168 had a working status, while 907,036 others did not work. Interestingly, when considering the working population, 69% of them were employed in the informal sector, whereas the formal sector had fewer individuals. This information is presented in Table 1 below.

**Table 1:** Economic Sectors Entered by People Working in DIY

	Formal	informal	Total
Working Residents	892,163	1,161,005	2,053,168
(%)	43.45	56.55	100

Source: August 2022 Sakernas, processed

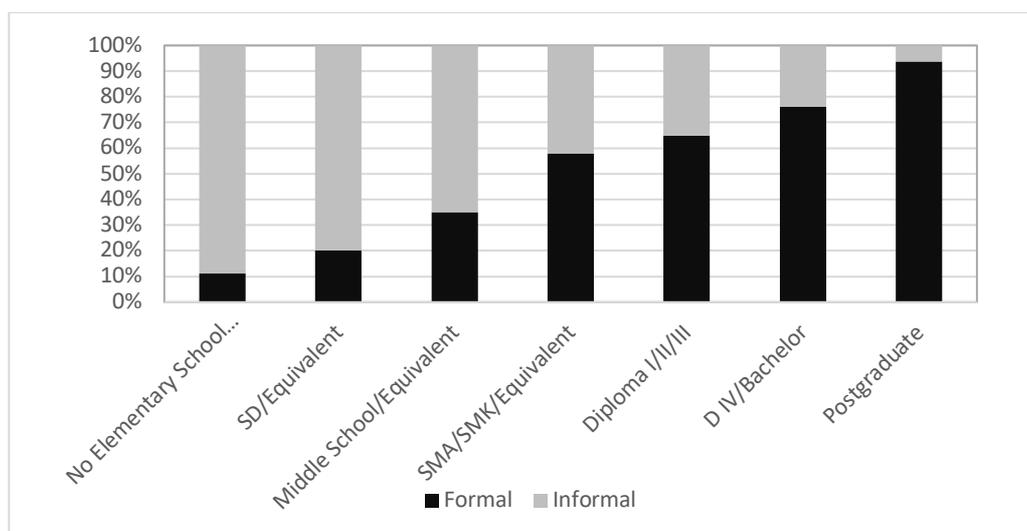
After examining the composition of the formal and informal sectors, the subsequent discussion will focus on the results of the data processing. By employing cross-tabulation, the intersection between the educational background variable and the economic sector can be observed. To conduct a more detailed analysis, the absolute number of formal and informal workers in each educational background group is converted into percentages for better comparison. Furthermore, changes in the number of workers, whether an increase or decrease, will be observed across various educational backgrounds.

**Table 2:** Educational Background in the Economic Sectors Entered by People Working in DIY

No	Educational background	Working			
		Formal	F (%)	informal	I (%)
1	No Elementary School Diploma/Equivalent	33783	11,19	268036	88,81
2	SD/Equivalent	69371	20,21	273880	79,79
3	Middle School/Equivalent	121507	35,05	225192	64,95
4	SMA/SMK/Equivalent	428044	57,99	310124	42,01
5	Diploma I/II/III	62080	64,98	33455	35,02
6	D IV/Bachelor	154225	75,97	48777	24,03
7	Postgraduate	23153	93,76	1541	6,24

Source: August 2022 Sakernas, processed

Table 2 above shows that workers in the do-it-yourself (DIY) sector are predominantly high school (SMA/SMK/equivalent) graduates in terms of absolute proportion, both in the formal and informal sectors. Following that, in the second highest order, we find workers with different educational backgrounds in each sector. In the formal sector, there are workers with a Diploma IV/Bachelor's degree education background, while in the informal sector, there are those who have graduated from elementary school or its equivalent. This indicates that individuals with higher educational backgrounds tend to prefer the formal sector over the informal one (Daru & Naura, 2018). To further clarify this, a comparison of percentages between sectors at each educational level can be observed in Figure 1.



**Figure 1.** Percentage of the Formal – Informal Sector for Each Educational Background of the Population Working in DIY

Source: August 2022 Sakernas, processed

It can be observed from the figure that as the level of educational background increases, there is a consistent change in the percentage ratio of the two economic sectors. Starting from the lowest educational background, which is the absence of an elementary school diploma or its equivalent, nearly 90% of individuals enter the informal sector. Moving on to the next educational background, which is elementary school graduates or its equivalent, the percentage of informal sector workers is lower compared to the formal sector. This reduction in the percentage of the informal sector persists until the highest level of education, which is postgraduate graduates (S2 and S3). Among this group with the highest educational background, the informal sector is the least prevalent, with almost all individuals being in the formal sector. From the lowest to the highest educational background, the percentage in the

formal sector consistently increases. This aligns with the theory proposed by Uzundu (2021), which suggests that individuals with more advanced educational backgrounds are less inclined to enter the informal sector.

Gerxhani & van de Werhorst's theory is based on their research in Albania, a country in Eastern Europe that opened its state system to become democratic in the early 1990s after 40 years of adhering to a communist system. This transition made the economic system unstable and submerged the various formal institutions that had previously existed. The informal sector then grew to fill the void, eventually accounting for 33.4% of all national economic activity in 1999/2000. Over time, development in Albania has continued, particularly in the education sector. The boost in education has had an impact on mindsets and decision-making, leading to a decreased inclination to participate in the informal economy sector. This influence of education is closely tied to the human capital theory. According to Son Early & Peksen (2019), individuals with higher levels of education have better job opportunities because they possess superior human capital, making them more competitive in the job market. In developing countries, where opportunities are often limited, competition in the formal sector is fierce. Moreover, there are minimum requirements for entry into the formal sector. Therefore, with higher education, individuals can meet or even exceed these requirements, increasing their chances of securing formal employment (Bagus Panglipur & Amijaya, 2018).

Educational background is also said by Tayyaba et al. (2022) to influence the job opportunities that a person gets. It was revealed that a low educational background would limit someone from entering the company because they were considered to have low productivity, in terms of their knowledge and skills. People who have limited opportunities then tend to enter the informal sector or work independently because this sector does not need special qualifications. This concept was also expressed by Inanna et al. (2020) who also agreed that the informal sector is very open to people who do not have an adequate formal educational background. Requirements to enter the informal sector are very low and it is common for the skills used to be not from a particular educational background. In contrast to those who have a higher educational background and are qualified, there are specific knowledge and skills that can be used in formal jobs with suitable specializations. They are also close to order by working regularly. This explains why workers in DIY, with higher educational backgrounds, will be more likely to enter formal jobs than informal jobs (Prayitno, 2017).

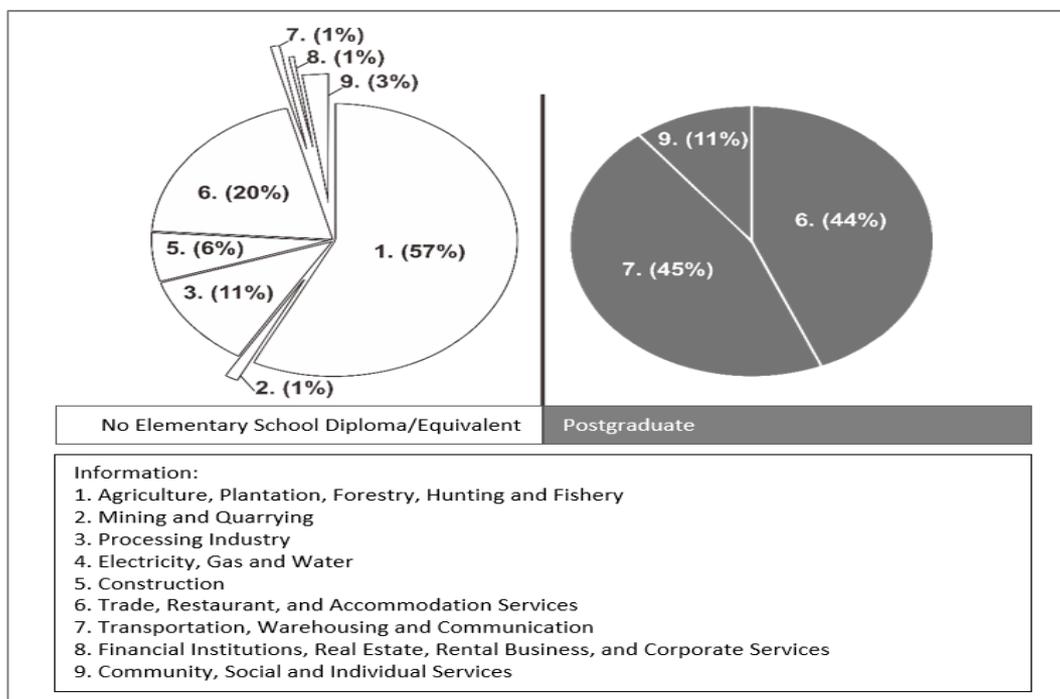


Figure 2. Comparison of Types of Business Fields between Informal Workers with Low and High Education in DIY

Source: August 2022 Sakernas, processed

After understanding that it is true that the higher the level of education of workers, the more likely they are to enter the formal sector rather than the informal sector, in line with human capital theory, their working conditions are generally better than those of workers with low educational backgrounds due to their superior knowledge and skills. Therefore, it is necessary to compare the characteristics of the informal sector between individuals with higher education and those with lower education. Figure 2, depicting the types of business sectors, provides a sharp comparison between the lowest point, representing informal workers without elementary school/equivalent degrees, and the highest point, representing informal workers with postgraduate education levels. Examining the disparities between these two points will reveal specific business sectors within the informal sector that are chosen by workers with different levels of education (Purnama Putra et al., 2018).

What can be inferred from the figure above is the discovery that informal workers with low education are more involved in agricultural businesses. More than half, or 57%, are engaged in agriculture, plantation, forestry, hunting, and fisheries. Informal businesses in this field are completely absent among informal workers with the highest educational background. A noticeable portion of informal workers with low education is occupied by manual labour jobs, such as in the construction and processing industries (Dahles & Prabawa, 2013). Considering that this sector lacks a formal job structure, one can envision construction jobs being performed by construction workers, wall painters, and other similar rough project work. The processing industry is also distinct from mass-production factories or companies but rather involves independent work converting raw materials into semi-finished or finished products. For instance, carpentry work with wood, wicker, and pottery falls into this category. Such jobs are not observed among informal workers with postgraduate education (Igwe et al., 2020).

The contrast between informal workers with the highest educational background and the strong capital-based business sector is evident. Three types of business fields can be observed, with the largest portion, accounting for 45%, being the transportation, warehousing, and communication sectors. Engaging in this field not only necessitates economic capital for acquiring vehicles, premises/buildings, and technology but also demands a well-established knowledge base and skill set. Similarly, the community, social, and individual service business field, comprising 9%, requires specific knowledge for its operation (Rochman et al., 2017). For instance, managing a business consulting service necessitates economic capital as support. The two types of business fields, coded 7 and 9, are rarely found among informal workers with the lowest education, accounting for only 1% and 3% respectively. Conversely, among informal workers with the highest education, the percentage engaged in trading, restaurant, and accommodation services is higher compared to those with the lowest education, standing at 44% and 20% respectively. Despite ranking as the second most common business field across both the highest and lowest education levels, they still exhibit distinguishing characteristics (Çakmak & Çenesiz, 2020).

Other characteristics that differentiate informal jobs from those of workers with higher and lower levels of education can be observed in terms of hours worked and income. Higher levels of education typically result in greater reliance on mental rather than physical abilities. Additionally, individuals with higher education tend to work more efficiently. In terms of income, those with higher education generally have more opportunities to earn higher incomes. Regarding working hours, among informal workers with the highest education level, namely postgraduates, there are only two types of working hours. Firstly, some work full-time for a week, which amounts to six days, or those who work very briefly for a week. Approximately 11% of these workers put in 57 hours per week, which equates to 8 hours per day. Meanwhile, 44% of them work 46 hours per week, which is around 7 and a half hours per day across six working days. Surprisingly, 46% of informal workers with the highest education level only work for 5 hours per week, which is quite astonishing.

This extremely short working time, when related to the earlier mentioned type of business field, could imply that they work as capital-intensive business owners or service providers with specialized skills. As a result, they only need to work occasionally to oversee or handle limited orders with high value. When examining informal workers with the lowest education level, different conditions can be observed as their working hours vary greatly, ranging from working only a few hours to exceeding 98 hours per week (Damayanti et al., 2018). The most contrasting situation involves those who work for 90-98 hours a week, equivalent to 12-14 hours per day. Among all informal workers from the lowest educational background, approximately 1%, or 2,490 individuals, work for half a full day or even more, continuously working for 7 days. Undoubtedly, this is physically exhausting and inefficient. A significant amount of time is spent waiting for passengers, as is the case for pedicab drivers or motorcycle taxi drivers who frequently halt at

intersections. Despite spending half a day waiting for passengers, their income remains limited (Webb et al., 2020).

Moving on to the issue of income, according to the Sakernas 2022 records in DIY, the highest income for workers in the informal sector ranges from IDR 10,000,000 to IDR 15,000,000 per month. This level of income is only achieved by individuals belonging to the higher education class. Specifically, 2.5% of all Diploma I/II/III graduates, totalling 606 people, and 4.2% of D IV/Bachelor graduates, totalling 2,081 people, can earn such high incomes. Apart from these two educational background groups, no one else in the informal sector earns such substantial income. Table 3 provides a clearer overview of the high-income levels earned by informal workers based on their educational backgrounds. The high income mentioned is determined by the UMK (City/Regency Minimum Wage) in DIY for 2022, which, when averaged and rounded up, amounts to approximately IDR 1.5 million. An income is considered high if it is a multiple of that nominal amount. Therefore, table 3 below presents individuals whose income has multiplied by that amount, starting from double (Rp. 3 million and above) and going up to fourfold (Rp. 6 million and beyond).

**Table 3:** High-Income Informal Sector Workers by Education

No	Education	Group Size	(%)	High Income			
				IDR 3 million - IDR 5.99 million	(%)	> IDR 6 million	(%)
1	No Elementary School Diploma/Equivalent	268036	100	717	0.27	0	0.00
2	SD/Equivalent	273880	100	2932	1.07	453	0.17
3	Middle School/Equivalent	225192	100	4102	1.82	1382	0.61
4	SMA/SMK/Equivalent	310124	100	16276	5,25	577	0.19
5	Diploma I/II/III	33455	100	2528	7.56	606	1.81
6	D IV/Bachelor	48777	100	6971	14,29	2602	5,33
7	Postgraduate	1541	100	164	10.64	674	43,74

Source: August 2022 Sakernas, processed

The table above demonstrates that as the education level of workers in the informal sector increases, the number of individuals earning high incomes also increases. This is evident from the percentages associated with each education level. For instance, only a small percentage of individuals with the lowest level of education earn incomes of IDR 3 million or IDR 6 million and above. However, as the education level rises, the percentage of individuals earning such incomes also increases at each level. The highest percentage is observed in the group of informal workers with D IV/Bachelor and Postgraduate education. Among the informal workers with a D IV/Bachelor degree, 14.29% earn incomes ranging from IDR 3 million to IDR 5.99 million, making this group the highest among other education groups. Additionally, 5.33% of informal workers from this group earn above Rp. 6 million. The majority of individuals with postgraduate education achieve the highest nominal income, with 43.74% of this group earning that amount every month.

In addition to the aforementioned characteristics that explain the differences in the conditions of the informal sector for groups with low and high levels of education, there are other noteworthy findings. Another characteristic is the decision of informal workers to either stay in the informal sector or work in it temporarily. Based on their educational background, it was found that some individuals with higher education only temporarily stopped in the informal sector as they were searching for other jobs or utilized it as part-time work while continuing their studies. Among informal workers, 12.6% with Diploma I/II/III education and 8.6% with Diploma IV/Bachelor's degree were actively seeking other employment in the past month. They would abandon their current informal jobs if they secured other opportunities. When asked about their reasons for seeking other employment, 675 workers from all educational backgrounds

mentioned that their current job was not suitable. This reason was expressed by 77.6% of informal workers with Diploma I/II/III and Diploma IV/Bachelor's education. Additionally, 16,503 individuals in DIY engage in informal work as a side job while pursuing higher education. Among them, 32.5% are recent high school graduates continuing their diploma/undergraduate education, and 11.7% are students who further their studies after completing a Diploma IV/undergraduate degree. This finding aligns with Sethuraman's statement (1985) that the informal sector serves as a temporary employment option for individuals, possibly as they await opportunities in the formal sector (Knox et al., 2019).

### Conclusions and Policy Implication

Of the working population in the Province of DIY, more than half, or 69%, are engaged in the informal sector. The informal sector outperforms the formal sector by a margin of 13.1%. When considering the educational background of workers, those with a high school diploma (SMA/SMK/equivalent) dominate both sectors in terms of absolute numbers. However, upon examining the ranking of the next highest absolute number, it becomes apparent that workers with higher education tend to gravitate towards the formal sector, while those with lower education fill the informal sector. The relationship between educational background and the informal sector in the Province of DIY becomes clearer through cross-tabulation and the presentation of percentage figures. This relationship suggests that individuals with higher educational backgrounds are less likely to enter the informal sector, as they are more inclined to join the formal sector due to their higher qualifications.

In addition to influencing the choice to enter the formal or informal sector, education also differentiates the characteristics and conditions of workers in the informal sector. Different levels of education entail distinct conditions. Generally, the higher the level of education, the better the conditions in terms of business field, working hours, and income. Informal workers with higher education predominantly engage in business fields that require capital, whether in terms of materials or skills. On the other hand, those with low education are primarily involved in menial business fields. Highly educated individuals tend to have more organized and efficient working hours, leading to higher incomes. It has also been observed that some informal workers with higher education in DIY (Do-It-Yourself) only work temporarily while awaiting other job opportunities or engage in part-time jobs.

### Recommendation

DIY has provided numerous educational institutions that cover all levels from elementary to high school. If the population has a higher education level, job opportunities will be widely available. Individuals also tend to prefer entering structured and specialized formal jobs based on the knowledge and skills they acquire during their education. However, the percentage of the formal sector in DIY is still lower than that of the informal sector. The current suggestion is for the government to make educational and economic policy choices. Should residents in DIY be encouraged to pursue higher education and subsequently create new formal sectors? Alternatively, is it sufficient to limit education to the high school level and then enhance the informal sector through guidance, skills training, and supportive regulations. Other options can be explored if this issue is further studied.

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