

## **Relocations of the households affected by the development of the New Yogyakarta International Airport, Indonesia: problems and livelihood prospects**

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Land acquisition for infrastructure development in Indonesia, including Yogyakarta International Airport, has adopted a new principle of profitable compensation. Two options were created: voluntary self-relocation and government-assisted relocation. People whose farms were only partially appropriated by the project did not need to join the relocation. This paper compares problems faced by the three groups and their livelihood prospects, especially their employment four years after receiving financial compensation. Data available from 2018 would be referred to as a complement to our household survey data from 2021. Although by implementing profitable land compensation in land procurement, the YIA (Yogyakarta International Airport) project has been considered an example of successful land appropriation, many problems are reported by the affected population four years later. There are typical problems related to the early stage of settlement development, such as unemployment, environmental issues, dismissal of neighbourhoods and households, and conflictual events recorded between neighbours. On the other hand, the expenditure patterns indicate that the affected population have spent their compensation money more wisely. Thus, the prospect of their livelihood would be improved when measures in the original village and in cases of voluntary self-relocation areas but not in the government relocation areas. From various variables of financial management, there is a consistent pattern that the population from the original settlement and those who self-relocated would be able to maintain their financial resources and thus improve their future livelihood.

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## Introduction

The construction of Yogyakarta International Airport (YIA) in Indonesia is one of the national development priorities, especially in the aviation industry, as mentioned in the National Middle Term Plan for 2015-2019. Among the 33 provinces in Indonesia with a pressing need for infrastructure investment is the Special Province of Yogyakarta. As Indonesia's second-most important destination for international tourists, Adisutjipto Airport suffers due to its small capacity as it is an overused international airport. This airport has a capacity of 1.4 million passengers annually but had to support 7.2 million passengers in 2016, far above its initial capacity. The construction of the new airport is also needed because there are no possibilities of extending the existing airports due to land unavailability in their proximity. The current airport is located within the agglomeration of Yogyakarta City, and the cost of expanding it is considered very high, both socioeconomically and politically. The Indonesian government must prepare for the city's increasing air traffic and passenger numbers to support the tourism industry and its effects on regional development.

This new airport's construction utilises lands in Jangkarán, Sindutan, Palián, Kebonrejo, and Glagah in Temon District, Kulonprogo Regency. Administratively, consisting of Pakualaman Duchy Lands (the sand-dunes area) and community-owned land (the residential and agricultural areas) with a total of approximately 637 Hectares (Kulon Progo Regency, 2014). There has been a prolonged discussion, negotiation, and dispute in land procurement for this project. Under the existing Law of land procurement for public facilities, compensation to the affected people must be profitable (locally known as *ganti untung*) or they must benefit from resettling. The government used the term *ganti rugi* or unprofitable compensation, in land procurement for development projects. Therefore, the affected households in this project can receive financial compensation based on the principle that the land acquisition process is taking place smoothly compared to past experiences in Indonesia.

Land procurement by the government in this project has been viewed as profitable by most, if not all, of the affected households. Many other people also expect similar compensation for future land procurement processes by the government for constructing connecting roads and railways. A calculation by Rahman et al. (2018) shows that the fishpond owners received financial compensation of more than eight times their fair values. On the contrary, other households consider their compensation as profitable only when it was done in 2017 as, presently, land prices in their villages have tripled or increased fourfold.

The latter indicates that many affected households now face some uncertainties. Thus, although the project offers profitable compensation, the impacts of land appropriation on the livelihood of the affected households are essential to unravel. Many international experiences demonstrate that households affected by such development ended in poverty, marginalisation and displacement.

The paper aims to assess the problems faced by the affected households during the initial stage of airport development and their livelihood prospects (employment structure, expenditure patterns of compensation, and financial stability) based on their efforts and achievement in financial management at the household level.

The debate on the relationship between infrastructure and development leads to two opposing theories: macro-level and micro-level schools of thought. Fagbemi et al. (2022) assert that macro-level and micro-level schools are the primary competing ideas in the literature on the relationship between infrastructure and development. The macro-level school emphasises that raising public investment in infrastructure (such as roads and transportation) boosts the efficiency and productivity of the business sector and encourages the use of private capital. On the other hand, micro-level school contends that infrastructure investments perform poorly in terms of the environment, economy, and society. Case studies and massive datasets mainly support this argument. Although the macro-level school appears to be the most prevalent viewpoint in the literature, the opposing claims made by the two schools have become a more frequent topic of discussion among scholars.

However, the relationship between infrastructure development and economic growth can be significant for less developed economies, where a lack of infrastructure hinders economic growth (Fagbemi et al., 2022). Empirical evidence from Thailand shows that infrastructure development and marginalisation go hand-in-hand, which is how progress is observable. In other words, marginalisation simultaneously impacts and contributes to infrastructure development. Similarly to how marginalisation influences infrastructure development, it is partly responsible for it (Dayley, 1996). This indicates a complex and reciprocal relationship between infrastructure and economic development. Among the stumbling block of infrastructure development in developing countries is the complicated problem of land procurements for government projects. This is especially true for areas like Java Island, where population density is so high that initiatives for land expropriation for infrastructure development would face socioeconomic and political problems that many governments tend to avoid. This translates into the infrastructure development in Indonesia being left behind compared to the neighbouring ASEAN Countries like Malaysia, Thailand, and Singapore.

The land acquisition process for infrastructure development cannot be separated from the government's obligations to ensure the welfare of its people (Hamidah, 2012). Government land acquisition for infrastructure development in the context of regional development should accommodate the interests of locals as the rightful landholders and land cultivators as a form of recognition and

respect for their human rights. Unfortunately, evidence from developing countries shows that land acquisition for government projects neglects the interest of the locals as rightful landholders, which causes poverty, marginalisation, and displacement.

Recent experiences in Brazil show that the households were given compensation for their lost possessions and land in the form of cash or credit, and they were then left to find and buy a new property on their own. Because households in the region had to make significant migration decisions, as opposed to those resettled in planned communities, which makes for an excellent case study of the forced migration decision-making process (Randell, 2016). More empirical evidence from the northern region of Ghana (Mabe et al., 2019) shows that land acquisition significantly impacts household livelihoods. According to these findings, land acquisition has a considerable detrimental influence on household livelihoods. To minimize the impact of land acquisition on household livelihoods, the rightful landholders must receive adequate and reasonable compensation. In addition, due to the loss of land and livelihoods, governments or project initiators must support them in finding alternative employment.

Smyth et al. (2014) summarised the complex relationship between land acquisition for development projects and locals' livelihoods. The emerging issues are: (1) Land access and resettlement experiences suffer from a lack of community expectations, resulting in negative impacts on displaced people's livelihoods, a shortage of meaningful community involvement in decision-making, and inadequate project benefits, (2). The restoration of livelihoods is not appropriately planned or implemented. Finding good replacement land has become highly problematic—women, youth, and the underprivileged need a stronger voice and better support. Livelihood rehabilitation is a long-term process that should be linked more efficiently with broader community development programs (3). Projects should prepare and accommodate local participation as early as possible and more comprehensively (4). Resettlement practice due to land acquisition is improving, but more resources are required.

In the context of socioeconomic changes due to the development of an infrastructure development project that involved land procurement by the government, many previous studies in Indonesia and elsewhere show that the capability of the affected households to maintain their compensation would determine their livelihood sustainability. An important question arises about the sustainability of the financial benefits of the payment provided by the project owner to the affected households both to sustain their existing livelihood and to anticipate the emerging business opportunities when the airport enters operations. Empirical pieces of evidence from various countries such as Turkey (Harun & Aliefendioğlu, 2017), India (Ghosh and Prabir, 2005; Sankar et al. 2009), Uganda (Stickler, 2012; Anyuru et al., 2016), China (Hui et al., 2013) and from Indonesia (Arifin et al., 2015; Putra, 2015; Dewi et al., 2016) show that recipients of compensation in infrastructure development projects are often trapped in spending their payments on consumer goods, and eventually, they become poor and marginalised only a few years later. In the worst cases, many of

them have been marginalised and displaced from their residences, creating new social problems in nearby towns or elsewhere. A contrasting picture was observed for the development-displaced residents who were relocated to peri-urban rather than rural areas, where there may be some economic and livelihood-related benefits, including greater access to education and non-farming jobs. Because displaced households can diversify beyond traditional subsistence livelihoods, resettlement on the periphery of urban areas would seem to offer better outcomes (Singer et al., 2022).

Recent experiences of land procurement for government projects from Indonesia reveal a significantly different picture. In the last five years, the Indonesian government has introduced the concept of *ganti untung* (profitable financial compensation) to replace the old principle of *ganti rugi* (unprofitable monetary compensation) in land procurement for infrastructure development. The principle has been accommodated into regulation No. 19/2021 concerning land procurement for public facilities. It stipulates that lands evicted for infrastructure development must be valued according to their market worth, covering both physical and non-physical loss. Physical aspects of land include the land, land area, area under the ground, buildings, trees and crops, and all things related to that land parcel. Non-physical land aspects comprise loss of employment, loss of business, loss from employment change, emotional ties to lands (*solatium*), loss due to remaining lands being too small in size, in irregular shape geometrically, and/or isolated from the neighborhood, and other physical losses (The Republic of Indonesia, 2021). Under the new regulation, land acquisition by the government has been relatively smooth, and infrastructure development is progressing well. Mass acceptance of financial compensation offered by the government is the rule rather than an exception. Yogyakarta International Airport was among the first practices of land procurement for infrastructure development using the principles of profitable compensation.

The new Indonesian Law on land acquisition is similar to Indian experiences that give the government the authority to buy any land for public or business purposes, with prior notice and owner compensation. Compensation is given based on the current market value of comparable land used for similar purposes. However, the government has not included any provisions for relocation and rehabilitation of the displaced people, except reimbursement for specific losses related to land purchase and compensation for the land acquired. It is contended that the government's compensation plan was insufficient (Sarkar, 2007). Exciting findings from research on the development of an airport in Japan is the role of media in shaping affected people's perceptions, which are not always neutral. The findings show that the media inaccurately portrayed local perspectives on the development of the airport as either pro-airport or pro-environment. The perceptions of local islanders were diverse, and concerns other than the conventional economic development vs environment protection binary discourse associated with media coverage of infrastructure projects were present (Nguyen et al., 2022). Based on various empirical evidence from various countries above, the hypotheses of this study are:

Hypothesis 1: Problems faced by the settlers in the relocation areas and original village confirm international experiences in general, but settlers who remained in the original village or those who self-relocated are able to cope better with the emerging problems, and

Hypothesis 2: Better capability of the settlers who remained in the original village and those who self-relocated leads to improved livelihood prospects due to better access to livelihood assets and better opportunities for economic diversification.

## **Methodology**

The development of YIA in Yogyakarta, Indonesia, has affected households in five villages around the area of the airport, namely Glagah, Kebonrejo, Palihan, Sindutan, and Jangkaran. Glagah Village is the most severely affected by the airport construction, which converted some 50% of the village area into a built-up area and displaced hundreds of farm households in the village. The converted area of the village comprises dry sandy farmlands, home gardens, and rice fields. The Indonesian government offers a scheme of relocation to other government lands to purchase for those who are better off and interested in staying closer to the airport for future business. The second relocation scheme provides free, fully furnished houses on government lands for the landless, sharecroppers, and the poor displaced by the airport's construction.

The paper uses two primary data sets from two household surveys in 2018 and 2021. The first research was conducted to analyse the spatial impacts and consequences of the development of Yogyakarta International Airport, and collected data via household surveys. The second research in 2021 collected household data sets for establishing a model on the livelihood strategy of households affected by large-scale infrastructure development. The household survey of 2018 was conducted in three different locations, comprising (1) the original village settlements where the households were not affected or were affected to a lesser degree by the projects, as the project only affects parts of the farmlands of the village residents, (2) the voluntary self-relocation area where the affected households were displaced, and (3) the government relocation areas, which accommodated the affected land-less, sharecroppers and farm labourers with lands and fully furnished houses for free. Table 1 provides the detailed situation of the three relocation areas.

The survey covers household samples from two areas of relocation and one area of the original village of Glagah. Household samples were drawn randomly from those willing to be voluntary respondents. Unfortunately, many rejected the interviews as compensation-related issues are considered private and sensitive issues they cannot share with outsiders. Table 2 presents the number of interviewed households for our research in 2018 and 2021.

**Table 1.** The descriptive situation of the settlements

Aspects to compare	Old Settlements (Glagah Village)	Self-relocation (Kebonrejo Village)	Government relocation (Demem Village)
Relative location	Adjacent to the airport	Right in front of the airport gate	4 kilometers away from the airport
Possible livelihood options	Farm and non-farm opportunities from airport operation	Plenty of non-farm opportunities from airport operation	Limited non-farm opportunities from airport operation or farm opportunities beyond
Dependency on agriculture as a primary activity	Strong: access to lands and non-farm activities from airport operation	Moderate: access to lands in the original villages and expect non-farm businesses in the future	Weak: no access to farmlands; they find new non-farm activities elsewhere
Government supports	None	Permits to buy village lands	Free lands and fully-furnished houses for the affected landless and poor settlers

Source: Data compiled from field surveys, 2018 and 2021

The 2018 surveys were conducted by a research team consisting of senior researchers assisted by a group of undergraduate students of the Faculty of Geography, Gadjah Mada University, as field enumerators. The data collection activities were conducted in the selected areas by interviewing voluntary respondents who were encountered during the fieldwork. As many households consider information on compensation-related issues private and sensitive, only a limited number of respondents have been obtained via household surveys in 2018 (Table 2). More voluntary respondents have been interviewed in the 2021 research. Household surveys were conducted during the Covid-19 pandemic conditions, so students were not mobilised as field enumerators. An alumnus of the Faculty of Geography, Gadjah Mada University, living in the village, has assisted our research team in data collection by mobilizing the local youths for household surveys during the pandemic in 2021. More respondents have been obtained from the 2021 field survey.

**Table 2.** Number of households surveyed in 2018 and 2021

Household surveys	Old Settlements	Self-relocation	Government relocation
2018	30	30	15
2021	38	48	16

Source: Data compiled from field surveys in 2018 and 2021

The paper assesses the problems faced by the settlers in their (new) places of residence. It discusses the prospects of the livelihood of the affected households based on the following variables:

(1). Age of the household's head, extracted from the 2018 survey data

- (2). Household's demographic structure, extracted from the 2018 survey data
- (3). Education, extracted from the 2018 survey data
- (4). Problems related to land eviction for infrastructure development wan, extracted from the 2018 survey data
- (5). Employment structure of the household's head, extracted from the 2021 survey data
- (6). How the financial compensation was used, extracted from the 2018 survey data
- (7). Financial stability data obtained from Poetri & Rijanta (2019).

Simple descriptive statistics and cross-tabulation techniques were employed to structure the household data. Data were interpreted based on local experiences and compared against various literature from theoretical and empirical works on problems of new settlements induced by displacement due to infrastructure development and livelihood patterns and prospects in the new territories from multiple parts of the world. It was possible to make some additional field observations and documentation as cross-checking in early 2022.

## **Results and Discussions**

### *Problems of new areas of relocation*

From a demographic point of view, the affected population in the studied locations are not very young, which is also consistent with the provincial data trend. The affected area was also a primary sender of international migrant workers from the province. It also indicates that many people in the research areas have been exposed, directly or indirectly, to a global environment. Therefore, many considered a new airport development a sign of progress and modernity rather than a threat to their livelihoods. The average age of the household head in the original settlements, self-relocation area, and government relocation area is 54, 57, and 53 years respectively. It implies that, in most cases, there are limited opportunities for the head of the affected households to find new jobs when the airport is in operation.

The household size in the original village is slightly larger than in the relocation areas. The original village showed an average household size of 4 persons/households, slightly higher than those in both relocation areas (3 persons/households). The household size in the original settlement shares a typical picture of household size in the province. In some traditional villages, the larger household size represents households with a more complex structure and the presence of non-nuclear members. Participants of the relocation program are among those who are prepared to form a nuclear household structure. This is true for those who join self-relocations in which they can design their own houses on their new lands. The same situation applies to those joining government relocation in which they received free fully furnished houses with two rooms to accommodate three persons.



Analysing their educational attainment, households in the government relocation area show higher averages of years of schooling (10 years), followed by those in the self-relocation area (9 years) and those in the original settlements (8 years). Most respondents have been able to fulfil a compulsory education of 9 years, with few people completing their higher education.

The respondents report various socioeconomic and environmental problems in all sites under observation. Surprisingly, more than 50% of the affected households in both relocation areas reported no issues related to relocation (Table 3). In the context of the affected households, this answer is most probably a kind of compensation to the generous scheme of profitable land compensation from the government. In Javanese culture, it is not polite to respond to government kindness or generosity by complaining about something. Javanese politeness sometimes blocks the exposure of the truth of actual development issues.

**Table 3.** Problems related to relocation of the affected households in the development of the new Yogyakarta International Airport, Temon subdistrict 2018

Problems reported by respondents after receiving compensation	Original settlements	Self-relocation	Government relocation
<i>None</i>	23.3	50.0	53.3
<b><i>Socioeconomic and political</i></b>			
People must move and split households	3.3	0.0	0.0
Aggressive banks and other financial agencies	0.0	0.0	6.7
Conflicts from non-affected households	0.0	3.3	0.0
No transparent compensation scheme for farm labourers	3.3	3.3	13.4
Needing early CSR (Corporate Social Responsibility) Fund	0.0	0.0	6.7
Increasing trend of white-collar crimes	0.0	3.3	0.0
Growing number of petty criminals	0.0	16.3	0.0
Lack of assistance in financial management	0.0	3.3	0.0
<b><i>Economics</i></b>			
Difficulties in finding jobs	3.3	3.3	20.0
<b><i>Physical environment</i></b>			
Decreased air quality (dust) due to ongoing construction	66.7	10.0	0.0
Damaged roads	0.0	3.3	0.0
Low groundwater quality	0.0	3.3	0.0
Total (%)	100.0	100.0	100.0
Total (N)	30	30	15*)

Source: Household Survey, 2018

\*) Total number of households in the government relocation area in July 2018. The government relocation area was only partly occupied.

Two-thirds of the affected households reported a dusty environment as disturbing, leading to difficulty breathing. In addition, the land clearing, transporting, dredging, and filling produce much dust spreading around the area following the winds. However, this problem ended as the construction of runway was finalised.

Self-relocated settlers have reported physical-environmental issues such as road damage due to heavy-loaded trucks and poor groundwater quality. Trucks from other parts of the subdistrict transported soil and stones for the airport construction. Consequently, some households in the self-relocation areas must travel daily via the damaged roads. However, the trucks do not directly affect their relocation area. The low quality of groundwater results from the area's location in the alluvial zone of the South Kulonprogo Subdistrict. The weathering limestones form the alluvial debris from the Menoreh Hills in the upper-north part of the airport. Groundwater extracted from the aquifers naturally contains a high concentration of minerals such as Ca and Mg, giving drinking water an unpleasant smell and taste. The complaint about poor water quality also relates to the problem of the ineffectiveness of detergent or soap that does work as expected when applied to this type of water.

Issues related to unemployment emerge mainly in the government relocation area. Some 20% of respondents reported difficulties in finding jobs. This is also why many people in the government relocation demand early payment of Corporate Social Responsibility funds from the airport company and compensation for farm labourers. All private and state-owned companies in Indonesia are obliged to spend 5% of their annual profit on various CSR schemes in the vicinity of their place of operation. The farm labourers and sharecroppers who live in the government relocation spot expect to have the CSR funds paid as they do not receive financial compensation. The government has paid compensation to the landowners instead of farm labourers and sharecroppers. On the other hand, farm labourers and sharecroppers received payment from the government through free land parcels and fully furnished houses.

A more recent exploration of the problems related to the livelihood of the affected households by covering more comprehensive affected villages confirmed most of the issues listed in Table 3. Dania & Rijanta (2019) reported among the problems: (1) unemployment of the ex-farmers, (2) lack of farm labourers from the same village, (3) no more access to lands as livelihood resources, (4) further working place/farms, (5) insufficient incomes, (6) lack or limited possibility for land-based economic activities, (7) weak local institutions (mutual helps - *gotong-royong*, farmers group for mutual help in farming - *sambatan*, mutual lending and borrowing money - *arisan*), (8) poor quality environment in the relocation areas (hot air, poor water quality, the resistance of villagers in the new destination to accept them as new settlers) and (9) split households or loss of friends and neighbours.

The most striking finding of this exploration is the objection of residents in the destination villages to accept the new settlers as part of their neighbours. People in the destination village perceive the new settlers as wealthy persons (*OKB* - *orang kaya baru*) whose appearance and lifestyles sometimes change significantly. This group of OKB, with their distinct behaviours, leads to conflict. This rejection is a serious problem in Javanese culture, which commonly maintains harmony and tolerance. Therefore, local authorities and cultural leaders must bridge

communication between the new settlers and the villagers in the destination villages.

Dismissals or split of neighbouring households is also considered one of the fundamental problems by some respondents. For example, dismissals and split households may happen in a household headed by a widower with few members. The head of households usually joined one of their children in the same village or elsewhere soon after the payment of the compensation. Married household members of complex household structures have split into new households. From the view of those who remained in the original village, this is a loss of friends and neighbours whom they used to have for decades.

The discussion on the problems faced by settlers in three different locations of the study confirms hypothesis 1. The rising problems faced by the settlers in the studied locations confirmed international experiences in Vietnam, India, Brazil, Japan, and Uganda (Sarkar, 2009; Singer et al., 2012; Stickler, 2012; Randel, 2016; Anyuru, 2016; Nguyen et al., 2022). The settlers of the government relocation areas faced more complex environmental and socioeconomic problems. On the other hand, more substantial livelihood capitals in the settlers of the original village and voluntary self-relocation areas led to better capabilities to cope with various problems emanating from the new situation.

#### *Livelihood prospects*

The airport's construction utilised substantial lands in the affected villages and converted farmlands into a built-up environment. Nevertheless, dependency on agricultural employment is still powerful, especially in the original villages. The more significant number of respondents in the original villages are farmers (43%) and farm labourers (23%) (Table 4). In the original villages closest to the airport, socio-spatial transformation may not occur as quickly as expected. The dependency of the local people on agriculture has been the governor's primary concern. Therefore, all development programs related to the airport operation should accommodate the interest of the local farmers.

Among important proposals to accommodate the interest of rural people is the development of New Yogyakarta International Airport in an aerotropolis as a further development of the idea of the aero city (Kasarda & Lindsay, 2001). The airport also functions as a city where some business activities are based.

Thus, the aero city is an area where various urban activities support each other with airport activities. In an aerotropolis, the concept of the aero city has been expanded by integrating airports with more expansive areas around the airport with a radius of up to 30 km and with economic impacts of up to 70 km (Kasarda & Lindsay, 2001). From the aerotropolis master plan of the province, it is clear that the interests of local farmers are accommodated through the development of high-value agricultural commodities oriented toward the international market. Therefore, the government encourages farmers to produce highly valued commodities for the international market to take advantage of their proximity to the airport. However, given the local farmers' low education level and skills, there

is a significant need to improve their production skills and adjust various agricultural institutions' activities.

**Table 4.** Employment structure of the affected head of households in the development of New Yogyakarta International Airport, 2021

Former employment of respondents	Original settlements	Self-relocation	Government relocation
Farm and casual labourers	13.2	16.7	37.5
Traders	5.3	2.1	18.8
Civil servants & village officers	5.3	16.7	10.8
Various service providers	10.5	16.7	25.0
Self-employed	21.1	12.5	8.3
Retired and passive income receivers	10.5	12.5	0.0
Farmers	34.2	22.9	24.5
Total (%)	38	48	16*)
Total (N)	100	100	100

Source: Household Survey, 2021

\*) Number of households in the government relocation area in October 2021. The government relocation area was only partly occupied.

The higher percentage of farmers as the primary employment of respondents in the self-relocation area is also worth noting (23%). Many maintain farm work as one of their sources of income. The choice of location for self-relocation seems to be strongly considering the possibility of taking advantage of the airport's operation. The self-relocation area is only a few hundred meters from the airport's main entrance. Unsurprisingly, the settlers in this area prepare their house design for non-farming businesses. The most notable feature is the broader size of rolling doors installed in almost all houses in the area, a signal of a non-farming workshop. None of the households in the self-relocation area has initiated their business yet. The Covid-19 pandemic hampered any business plan. The declining operation of the airport has significantly reduced the number of travellers.

Table 5 further demonstrates that the respondents from the government relocation area suffer the most from unemployment. Some 25% in this area reported working as service providers. In the context of the settlers of government relocation area, providing services means participating in irregular, casual work with low and insecure incomes. Many of them are self-employed motorcycle taxi drivers. They have no access to various casual jobs at the airport as they live in the new houses located 3-4 km away from the construction area. People residing in the government-assisted relocation spot have no access to employment in the airport and its vicinity. Therefore, employers tend to recruit people living closer to the airport. It is also why the households that moved to government relocation areas are more mobile than the rest affected (Fitriyani, 2019). Many of them are working as farm labourers or renting farmland far beyond their present place of residents as a consequence of the conversion of the farmlands into the airport that do not permit them to work as farm labourers.

Patterns of the use of compensation in the three areas differ according to their prospect to improve their livelihood. The number of respondents in the original settlements and the self-relocation area who spend money on productive sectors is significantly higher than those in the government relocation area. The head of households in the self-relocation area demonstrates very aggressive investment expenditure. The percentage of respondents that spend the compensation money on land; house buildings; insurance, and bonds, is much higher than those in the original settlements and the government relocation area (Table 5).

**Table 5.** Positive responses to types of expenditures of compensation in the development of New Yogyakarta International Airport, Temon Subdistrict 2018 (%)

Types of expenditures of compensation	Old settlements	Self-relocation	Government relocation*)
Purchasing lands	23.3	83.3	13.3
House renovation	20.0	16.7	0.0
House building	6.7	73.3	20.0
Purchasing motorcycles	16.7	30.0	13.3
Purchasing cars	6.7	30.0	0.0
Purchasing electronic sets	3.3	26.7	13.3
Investing in insurance, share, and bonds	30.0	43.3	20.0
Purchasing jewellery	0.0	13.3	0.0
Travelling for haji/umrah	13.3	0.0	0.0
Giving money to children and relatives	23.3	46.3	13.3
Total (N)	30	30	15*)

Source: Source: Household Survey, 2018

\*) Number of residents in the government relocation area in July 2018 was only 15 households. The government relocation area was only partly occupied.

Table 5 shows that positive responses regarding land purchase in the self-relocation area are the highest (83.3%), followed by house construction (73.3%), insurance, share, bonds, and time deposits (43.3%), and giving the money to children and relatives (43.3%). Their willingness to join a self-relocation scheme proved a good decision. At present, the price of land for the houses they purchased from the village has tripled or increased fourfold only within two years. At the same time, they have been able to rent out (part of) their houses to the officers/workers of the construction companies at a very lucrative price during the construction phase of the airport. Investing in insurance, share, and bonds is also a good decision, as they can rely on passive incomes to fulfil their basic needs. Therefore, the majority of households joining self-relocation are among those who receive the most considerable amount of compensation. In addition, a more significant percentage of the respondents in the area also gave money to children and relatives.

Expenditures of the affected households in the original village share similar patterns to those in the self-relocation area but with different intensities. The highest positive responses are attained by land purchase, investment in shares,

bonds and insurances, house renovations instead of construction, and giving money to children and relatives. From the composition of main expenditures, the respondents in the original village were observed to be very conservative in spending money. The existence of land purchases in the area shows a strong belief that the money received as compensation for land must be spent wisely on land. They use the same conservative reasons to justify their expenditure on house renovations rather than constructing a new one. Buying insurance, shares, bonds, and time deposits reflect the prudent decision by which the households would receive regular passive incomes. A time deposit of 1 billion Rupiah, for example, would give a monthly revenue of about 3.5 million rupiahs which is almost twice as much as the monthly minimum wage. Many affected households keep billions of Rupiah in their savings accounts, and shifting the money to time deposit may give them better revenue. The older and less educated respondents in the original settlements may contribute to the differences in expenditure intensity compared to those in the self-relocation area.

Different expenditure intensity is also demonstrated by the affected households settling in the government relocation area. A similar expenditure priority is observable from this group of households, but with much lower intensity. The highest percentage of positive responses from respondents in the government relocation area target building a house (20%), insurance, share, bonds, and time deposit (20%). These figures are much lower than those in the comparison groups of respondents residing in the original village and those from the self-relocation areas. This confirms that most households living in the government relocation area are the poorer landless and farm labourers from the original settlements.

The data show that the prospects of livelihood improvement would most probably be achieved by the affected households in the original village, followed by those in the self-relocation and government relocation areas. The ongoing development does not disturb the socioeconomic and environmental systems of the original village. Many households in the area try to continue their current activities with only a minimum change. Therefore, the prospects of livelihood improvement in the original settlement are probably the most promising. Combining existing socioeconomic and environmental systems and prudent investments may lead to better livelihood outcomes in the original village. Contrary to the original settlement situation, households in the self-relocation are risk-takers who are very progressive in investing in various items with varied risks and gains. So, the balance between higher risks and a higher probability of success would give them a reasonable prospect of livelihood improvements.

Finally, the households residing in the government relocation area predominantly suffer from many uncertainties in their livelihood. They have no job security, so they must seek employment that requires a lot of geographical mobility. Thus, the availability of motorcycles in this group of affected households is a fundamental means precondition for employment. Their situation has worsened in the last two years because the discontinued access to farm works in the former lands is not compensated, at least temporarily, by the emerging job

opportunities in construction works at the airport. Their decision to receive free and furnished houses in government relocation areas is simply at the cost of the opportunity to work as construction workers in the airport. Those living near the airport enjoy top priority to become construction workers rather than those who live beyond the original settlement.

The livelihood sustainability of the affected households strongly depends on their capability to maintain and improve their financial performance in measuring financial stability as a critical element of livelihood sustainability. A set of variables grouped into three out of four complementing concepts, i.e., cash flow management, saving, and investment, introduced by Hilgert & Hogarth (2003), are used to measure household financial stability. However, one concept out of four, i.e., debt management, has been excluded from measurement. In the context of the affected households, debt payment has priority as soon as they have money to repay it. So, data on debt management has not been available.

In this analysis using a different set of household survey data (Poetri & Rijanta, 2019), there is a clear pattern that affected households residing in the original village and the self-relocation areas show higher scores in most dimensions of financial stability. The more significant majority of the affected households in the original village and self-relocation areas achieve average and higher scores of financial stability rather than those residing in the government relocation area.

The conservative financial management of the settlers of the original settlements reflects a higher percentage of savings and investments than those in the rest of the relocation areas. They score lower in more speculative investments like land purchase and building construction. Saving and investing in formal financial institutions are the most secure ways to utilise financial compensation to sustain their livelihood. The Indonesian government guarantees investments, time deposits, and saving up to 1 billion Rupiah per account in case of financial crises or bankruptcy as long as the banks comply with all government regulations. The affected households in the original settlements are less educated and older than those in the rest of the settlements, and more conservative investments are very much matching with their profile.

Contrary to the affected households in the original settlements, the affected households residing in self-relocation score better in cash flow management. Cash flow management of the affected households in the self-relocation is critical as their lands and buildings' investments contain higher risks than those of the affected households in the original settlements. From the raw data, it is evident that households in the self-relocation are practising simple bookkeeping and reviewing their expenditure more frequently and on a more regular basis.

Last but not least, greater attention must be given to the affected households settling in the government relocation area. Uncertainties about their employment may lead to their inability to sustain their livelihood. They have to spend substantial time and effort seeking employment elsewhere to ensure their subsistence. Although there is no objection from the original settlements of the government relocation area, it is essential to bridge social and cultural integration among the new settlers and local villagers. Mutual understanding between the

new and the original settlers may open up new employment opportunities for the latter. The mutual economic relationship between the original settlers around the government relocation area and the new settlers may develop when their skills, technical know-how, and talents are known. Residing in a government relocation area is considered prestigious by the original settlers, who might feel uncomfortable seeking help from the new settlers. Therefore, introducing various skills, technical know-how, and talents mastered by the new settlers to the original settlers is crucial to creating local employment for the former. Local-based non-farming employment may develop based on the high population density as a reflection of various thresholds for providing goods and services, as evident from the other rural parts of the province.

The discussion on the livelihood of the affected households has rejected, at least partially, hypothesis 2. The livelihood prospects are much better for the people residing in the original village and the self-relocation area than those residing in the government relocation area. The affected people still residing in the original village tend to be conservative in using the compensation. In contrast, those living in the self-relocation area tend to be very aggressive in various investments, ranging from land purchases to savings, insurance, and bonds. Their substantial assets affected their investment decisions, leading to better future livelihoods.

On the contrary, settlers of the government relocation area have to struggle very hard to achieve their subsistence as their choice to accept fully furnished houses from the government came at the cost of access to employment in the construction and operation of the new airport. Their limited livelihood assets, access, and activities have forced them to choose either free-furnished houses from the government or access to employment during the construction and operation of the new airport.

## **Conclusions**

Given that the socio-demographic profile of the affected households significantly varied among settlements, patterns of expenditure of financial compensation and sustainability of their livelihood also show a significant variation. Meanwhile, the emerging relocation problems differ from area-to-area settlements after four years of financial disbursement. However, some conclusions obtained from the above discussion are as follow:

The study reveals that socioeconomic problems (such as the unemployment of the affected households, the conflicts between original to new settlers, split households and dismissals of family members, the ineffectiveness of local institutions, and lack of socioeconomic relations between the original and new settlers) are not well addressed by the relevant government institutions. However, solving one of these problems may lead to solutions for others. For example, bridging the relationship between new and old settlers may lead to a mutual understanding that may lead to economic cooperation or relation. The problems



arising in various areas confirm the available knowledge from international literature.

The implementation of profitable compensation adopted by the project owner seems to have worked properly after four years of disbursement. Among important indications is that the more significant majority of the affected households spend their money on both productive and consumer sectors. As the affected households received a tremendous amount of money, they have been able to satisfy their (delayed) consumptive needs (similar to other cases researched). At the same time, they have been able to secure part of the money for investments in various forms.

Respondents' educational background and age in an early indication of their choices of investments made. Educated and younger respondents settling in the self-relocation area tend to be more progressive and willing to take risks in their investments. As a result, they combine various types of investments, from the less to the most-risky ones, as they are risk-takers. At the other end of the spectrum, the older and less educated respondents in the original settlement tend to take the most secure investment plan, i.e., time deposit, share, bonds, and insurance. As a result, the affected households in the original settlements and the self-relocation areas could achieve their financial and livelihood stability. Moreover, their composite practices of cash flow management, saving, and investments show a strong indication of financial stability compared to those residing in the government relocation areas.

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