The Influence of Social Assistance and Demographic Factors on Income and Consumption of Poor Households during the Covid-19 Pandemic in the Coastal Area of South Sulawesi

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Abstract. The problem of poverty during the COVID-19 pandemic has become increasingly complex, making it a threat to achieving the SDGs by 2030. For the problem of poverty, a poverty alleviation strategy is needed by combining macro and micro household variables. The provision of social assistance during the COVID-19 pandemic and demographic factors such as education level, age, household size, and work experience are determining factors in increasing household income and consumption, contributing to reducing poverty. This study aims to analyse the influence of social assistance and demographic factors on household consumption both directly and indirectly through household income using the path analysis regression equation. This study uses primary data from in-depth interviews with heads of poor households in the coastal areas of Makassar City and Pangkep Regency. The sampling method was carried out in stages by selecting two sub-districts per each district/city. Then, each sub-district was assigned two villages/sub-districts, which had relatively large numbers of poor households, and the dominant source of livelihood was fisheries and marine products. The sample of poor households was determined randomly, with 80 respondents. This study found that social assistance, work experience, and household size influence consumption directly and indirectly through increasing income so that it can be used as a household poverty alleviation strategy, especially in coastal areas during and after the COVID-19 pandemic. Even though education level and age have no effect on household consumption in the sample area, along with technological developments, education remains an important variable as a determinant of reducing poverty in the future through increasing household income and consumption in general.

Keywords: Strategy, poverty, COVID-19 pandemic, demographic factors, consumption, household survey, South Sulawesi Indonesia

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1 Introduction

The Covid pandemic that has hit all countries has had a significant impact on all areas of development, both at the national and regional levels. One area that is quite big in human life is the economic sector, which is reflected in the decline/loss of people's sources of income. Policies restricting population mobility in economic activities cause the economic cycle not to run as before the COVID-19 pandemic. A further implication is that it will worsen poverty (Musa, 2020) and threaten achieving the SDGs by 2030. Martin (2020) found that implementing social distancing during the COVID-19 pandemic reduced household income and consumption. Global poverty increased by around 420-580 million due to the COVID-19 pandemic (Sumner et al, 2020).

With poverty during the COVID-19 pandemic, a strategy is needed to increase the income and consumption of poor households and those who can exceed the poverty line. Macro-scale poverty alleviation strategies such as increasing government spending, accelerating economic growth, and increasing private investment have been explained theoretically and in empirical studies. These macro variables aim to increase household income and consumption through various channels, thereby reducing poverty.

Many studies estimate the relationship between poverty and macro variables, and the results vary depending on the type and measurement of variables and the analysis approach. Several empirical studies support the theory that economic growth, investment, and government spending are statistically significant in reducing poverty, such as Warr & Yusuf (2010) focus on government spending and economic growth in Laos, Edrees & Nor (2015) focus on investment in Africa, Nursini & Tawakkal (2019) focus on state spending in Indonesia, Nursini (2020) focuses on economic growth in Indonesia, most recently Tiwary et al., (2021) focus on state spending in Indonesia. Several studies contradict the theory, such as Adegboyo (2020) and Falade & Babatunde (2020), who found that social protection spending has no statistical effect on reducing poverty in Nigeria.

There is debate over the results of empirical studies indicating that poverty alleviation strategies do not only focus on macro variables but what is no less critical is the micro-level demographic conditions of households (Majeed & Malik, 2015). Household poverty is also determined by education level, age, work experience, and family size, so the alleviation strategy is more directed at the household level. These demographic variables influence household income and consumption (Nayga, 1994) and Morrison et al., 2007). For example, the higher the education level of the head of the household and household members, the higher the work productivity, which has implications for increasing household income (Maloma, 2016; Awan et al., 2011; Tuyen, 2015; and Manh Nguyen and Anh Nguyen, 2019).

South Sulawesi, one of the provinces in Indonesia, has experienced an increase in the number and percentage of poor people due to Covid-19. In 2020, the percentage of poor people reached 8.99 per cent, an increase of 0.43 per cent from 2019. The number of poor people was 800,400, an increase of 40,660 people from 2019. This figure is spread across 24 districts/cities in South Sulawesi, and based on the number

of poor people, 7 (seven) districts had a poor population of more than 40 thousand in 2020, namely North Luwu, Luwu, Pangkajene and the Islands, Jeneponto, Gowa, Makassar, and Bone. In terms of the percentage of poor people, 8 (eight) districts have a percentage of poor people above 12 per cent, namely Enrekang, Tana Toraja, North Toraja, Luwu, Pangkajene Islands, Selayar Islands, North Luwu, and Jeneponto. These areas are generally coastal in South Sulawesi except for Enrekang, Tana Toraja, and North Toraja.

In conditions where the spread of COVID-19 has yet to end, a combination of poverty alleviation strategies at the macro and micro levels of poor households is needed, especially in South Sulawesi. Government spending policies in the form of social protection, especially social assistance received by poor households and the use of knowledge, productive age, and optimising family size, as well as individual work experience, are a combination of strategies that can increase the income of poor households. An increase in income then increases the consumption of poor households, which reduces poverty overall.

Innovation and creativity of poor individuals and households to survive and find solutions to get out of poverty are urgently needed during the COVID-19 pandemic. A person's level of education, work experience, and productive age will be valuable variables in times of economic uncertainty, including in South Sulawesi. Wietzke (2020) states that demographic changes reduce global poverty by taking the case of 140 countries. Zhang et al. (2020) adopted the life cycle hypothesis theory with a panel regression model, finding that education level and family size harmed household income and consumption in China. Kamuzora and MKanta (2020) found a pattern of poverty that decreased with family size.

The results of this study confirm that the relationship between income, consumption, and poverty is quite strong. The higher the income, the greater the household consumption. The higher household consumption, the more prosperous the household is. Thus, the critical word for reducing poverty is increasing household income, so what needs attention are the factors that influence growing household income.

Previous studies have examined social protection spending and demographic factors contributing to reducing poverty through increasing income and consumption. However, they generally focus on secondary and national scale data, which is still limited to household survey data. This study aims to observe the influence of social assistance and demographic variables on household income and its influence on household consumption by developing a path analysis model using a household survey approach in coastal areas. South Sulawesi Province, Indonesia. The results of this study will likely be the right solution in formulating poverty alleviation strategies and policies during and after the COVID-19 pandemic, which will then contribute to achieving the SDGs in the social sector.

2 Literature

The problem of poverty amid a pandemic that has not yet ended is becoming increasingly complex and threatening the achievement of the SDGs (Suryani, 2020). UNICEF (2020) found an increase in the poor population due to a decrease in monthly household expenditure in Georgia. Around 21.7% of the population and 27.6% of children live below the poverty line. Sumner et al. (2020) used poverty lines of US$ 1.9%, UD$ 3.2, and US$ 5.2 per day and found that around 20 per cent of income and consumption decreased, and the number of poor people worldwide increased by around 420- 580 million. The results of this study further emphasise that household income and consumption are indicators for measuring poverty.

The government's more popular poverty alleviation strategy is macro variables such as economic growth, investment, and government spending (Varlamova & Larionova, 2015). These macro variables theoretically have a relationship with poverty reduction and have been tested by several empirical studies. Sasana and Kusuma (2018) found that government spending harms poverty. Nursini (2020) found that economic growth is negatively related to poverty in Indonesia. These findings strengthen the study of Suryahadi et al., 2012. Economic growth contributes to reducing poverty because economic growth impacts reducing inequality (Adam, 2003). Economic growth contributes to reducing poverty, so it is essential to promote economic growth in Vietnam (Tram et al., 2021). However, this aligns differently from Sasana and Kusuma (2018), who found a positive relationship between growth and poverty. Adegboyo (2020) found an insignificant relationship between social protection spending and poverty reduction in Nigeria. This study is in line with Alamanda (2020) for the case in Indonesia. However, during the COVID-19 pandemic, macro variables such as government spending, especially social protection, are still quite an appropriate strategy. Increasing government spending on social protection can protect poor people from welfare loss (Tiwary et al., 2021).

Poverty alleviation can be accomplished not only through macro variables but also through demographic factors of poor households themselves, such as the education level of the head of the household, household size, work experience, and age. Demographic factors such as age, household size, income, and sex are significant to consumption (Nayga, 1994). Using a probit model, Baiyegunhi and Fraser (2010) found that the factors of age, education level, and occupation of the head of the household were statistically significant in explaining household vulnerability to poverty in South Africa. Manh Nguyen and Anh Nguyen (2019) used a microeconometric model to explain the determinants of household welfare in the Central Highlands, Vietnam. The results found that education contributed to increasing the household income of poor households and reducing poverty.

This study supports the findings of Tuyen (2015) that the level of education of heads of poor households plays an essential role in increasing household income so that they can fight poverty. Majeed and Malik (2015) found that low household education levels cause low income and poverty. This study is in line with (Awan et al., 2011) that a higher level of education has a high chance of reducing the poor population. A recent study by Zhang et al. (2020) adopted the life cycle hypothesis

theory with a panel regression model, finding that education level influences household consumption in China. Van Vu (2020) used a survey of household living standards in Vietnam and found that education level positively affected household income.

Apart from education level, household size is also a demographic factor contributing to poverty reduction. The declining birth rate causes a decrease in the percentage of poor people and the poverty severity index in developing countries (Birsall et al., 2001). Peich et al. (2010) found that household size influences income distribution in Germany. Kamuzora and MKanta (2020) and Zhang et al. (2020) state that poverty patterns decrease with large family size. A large family size has more workers and thus earns more income. The work experience of the head of a poor household also influences household poverty through the income earned. The higher the work experience, the greater the income and reduced poverty in Pakistan (Awan et al., 2011).

During the Covid-19 pandemic, innovation and creativity are urgently needed for every poor household to survive. Households with a high level of education have innovative ideas and insights to utilise the potential of their resources so that, with developed creativity, they can generate new sources of income. Population classified as productive age and accompanied by high work experience has the potential to create higher incomes.

Thus, to realise the achievement of the SDGs related to the goal of reducing poverty, a comprehensive strategy is needed by combining macro and micro variables at the level of poor households and the poor range. This strategy is expected to increase household income and consumption, reducing poverty. It is essential to analyse the factors influencing household income and consumption by including macro and household demographic factors (Manh et al., 2019). The higher the social assistance a household receives, the higher the income and, subsequently, the higher the household consumption. Likewise, the higher the household's education, size, productive age, and work experience, the more it increases household income and consumption. The results of these estimates are used to formulate appropriate strategies for alleviating poverty in the future, which, of course, has positive implications for sustainable development goals.

3 Methodology

3.1 Material and Source of Data

This research uses primary data from a survey of poor households in the coastal areas of Makassar City and Pangkep Regency in South Sulawesi Province, Indonesia. The research sample selection was carried out in stages. The first is to determine two sub-districts in each district/city and one or two villages on the coast are selected for each sub-district. Most residents in the selected villages are classified as poor, and their source of livelihood mainly comes from the fisheries and marine sectors. The sampling technique was carried out randomly, twenty per village/subdistrict, so the total number of respondents was eighty. The unit of analysis is the head of a poor

household. The data collection technique is in-depth interviews using a semi-open structured questionnaire instrument. The data is divided into three groups: household characteristics, household economic conditions, and respondents' perceptions of the impact of Covid-19 on income and consumption.

Data related to economic variables is household income (Y), the average net income of the head of a poor household per month, calculated from gross income after deducting the average production costs expressed in rupiah. The household income definition used in this study is derived from business results, excluding transfer income and income such as inheritance. This definition is used to observe the impact of the COVID-19 pandemic on the economic activities of poor households. Production costs are all average monthly costs, excluding initial capital costs. Consumption (C) is the average monthly household expenditure to meet basic needs expressed in rupiah. Expenditures for basic needs per month include expenditure estimates for food and drink needs and monthly school fees for children. Social distancing (SD) is the response of respondents using a Likert scale regarding the implementation of large-scale restrictions (PSBB) during the Covid-19 pandemic. Income transfer (Tr) is the monthly social assistance households receive during the COVID-19 pandemic, including aid for basic needs in cash and cash assistance for productive businesses.

Demographic factors (DF) include Education Level (ed), which is the number of years of education completed by the head of a poor household expressed in years; household size (Hz) is the number of household members who are dependent on the head of the household, age (Ag) is the age head of household at the time the interview was conducted. Work experience (exp) is measured by the length of time in the job expressed in years. The definition of demographic factor variables is in line with Baiyegunhi and Frazer (2010) and Awan et al. (2011).

3.2 Analysis Model

This study aims to analyse macro and micro variables which can be used as a poverty alleviation strategy during the Covid-19 pandemic. Two critical variables are targets for poverty alleviation strategies during the Covid-19 pandemic: income and consumption. Increased household consumption is an indicator of household welfare. Higher household expenditure means a higher level of satisfaction, which means reducing poverty (Pindyck & Rubinfeld, 2015). However, consumption can increase if income increases. The relationship between consumption and income has been explained in macroeconomic theory (Blanchard & Johnson, 2013; Mankiw, 2013). Many factors, including demographic factors, also influence the size of household income. Thus, knowing and testing the factors influencing the increase in household income and consumption is essential.

Related to this, the analytical models used are a multivariate regression model of income and a multivariate regression model of consumption. Measuring poverty through income and consumption is a direct and more relevant measure (Kamuzora & MKanta, 2020). Previous researchers, such as Chaudhry et al. (2009), have used multivariate income regression models. In theory, household income is influenced by

social assistance (Tr), social distancing (DS), and household demographic characteristics (DF). The policy of implementing social distancing to deal with the COVID-19 pandemic impacts household economic activities, thereby reducing household income (Martin et al., 2020). The functional relationship of household income during Covid-19 is as follows:

$$Y_i = F(Tr_i, SD, DF_i) \quad (1)$$

Meanwhile, the functional relationship between household consumption is influenced by the income of the head of the household, which comes from business results and demographic factors of the household itself. The functional relationships are as follows:

$$C_i = F(Y_i, DF_i) \quad (2)$$

Where, i is respondent 1…,80. Equations (1) and (2) are transformed into estimation equations using the natural logarithm (Ln) for household income and household consumption (Chaudhry et al., 2009), except for the DF and SD variables.

$$LnY_i = \alpha_0 + \alpha_1 LnTr_i + \alpha_2 SD_i + \alpha_3 \sum_a^5 DF_i + \epsilon_1 \quad (3)$$

$$LnC_i = \beta_0 + \beta_1 Ln\, Y_i + \beta_4 \sum_b^4 DF_i + \epsilon_2 \quad (4)$$

Demographic factors in Equation (3) include ed, Ag, Sqag, and Hz. Exp. In equation (4), demographic factors include ed, Hz, Ag, and Sqag. Following Tuyen (2015), increasing age tends to give decreasing returns to scale, so it is crucial to include square age (Sqag) as one of the independent variables in equations (3) and (4). Entering the work experience variable in income equation (3) follows Awan et al. (2011). Equation (3) and (4) are each rewritten by explicitly describing the demographic factors as follows:

$$LnY_i = \alpha_0 + \alpha_1 LnTr_i + \alpha_2 SD + \alpha_3 ed_i + \alpha_4 Ag_i + \alpha_5 Sqag_i + \alpha_6 Hz_i + \alpha_7 Exp_i + \epsilon_3 \quad (5)$$

$$LnC_i = \beta_0 + \beta_1 Ln\, Y_i + \beta_2 ed_i + \beta_3 Ag_i + \beta_4 Sqag_i + \beta_5 Hz_i + \epsilon_4 \quad (6)$$

so $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are parameters. ϵ_1 and ϵ_2 are error terms. Equation (6) contains one endogenous variable, namely variable Y, which explains that income influences household consumption, and all independent variables in the income equation indirectly influence household consumption. Thus, this study wants to observe that social assistance, social distancing and demographic factors indirectly influence consumption through household income. This means that social assistance received by households can influence consumption, but first through its effect on income. Social assistance affects income, and then income affects

consumption. Social distancing policies and demographic factors also influence household consumption through increasing household income. Apart from directly affecting consumption, demographic factor variables also have an indirect impact through increasing household income. These two models align with the model developed by Heshmati et al. (2019) in India. To determine the indirect effect of the independent variables, equation (5) is substituted into equation (6) to produce the following reduced form:

$$LnC_i = \beta_0 + \beta_1(\alpha_0 + \alpha_1 LnTr_i + \alpha_2 SD + \alpha_3 ed_i + \alpha_4 Ag_i + \alpha_5 SqAg_i + \alpha_6 Hz_i + \alpha_7 Exp_i + \epsilon_3) + \beta_2 ed_i + \beta_3 Ag_i + \beta_4 Sqag_i + \beta_5 Hz_i + \epsilon_4 \quad (7)$$

By simplifying the symbols, equation (7) becomes as follows

$$LnC_i = \beta_0 + \alpha_0\beta_1 + \alpha_1\beta_1 LnTr_i + \alpha_2\beta_1 SD + \alpha_3\beta_1 ed_i + \alpha_4\beta_1 Ag_i + \alpha_5\beta_1 Sqag_i + \alpha_6\beta_1 Hz_i + \alpha_7\beta_1 Exp_i + \beta_1\epsilon_3 + \beta_2 ed_i + \beta_3 Ag_i + \beta_4 Sqag_i + \beta_5 Hz_i + \epsilon_4 \quad (8)$$

$$LnC_i = \emptyset_0 + \emptyset_1 Ln\,Tr_i + \emptyset_2 SD + \emptyset_3 ed_i + \emptyset_4 Ag_i + \emptyset_5 Sqag_i + \emptyset_6 Hz_i + \emptyset_7 Exp_i + \epsilon_5 \quad (9)$$

Where

$\emptyset_0 = \beta_0 + \alpha_0\beta_1$ is a constant, namely the sum of the intercepts of the direct and indirect influence models, $\emptyset_1 = \alpha_1\beta_1$ explains the indirect effect of transfer (social assistance), $\emptyset_2 = = \alpha_2\beta_1$ explains the indirect effect of social distancing, $\emptyset_3$ explains the total influence of education level which consists of the indirect influence coefficient $\alpha_3\beta_1$ and the direct influence coefficient β_2, $\emptyset_4$ explains the total influence of age which consists of the indirect influence coefficient $\alpha_4\beta_1$ and the direct influence coefficient β_3, $\emptyset_5$ explains the total square effect age which consists of the indirect influence coefficient $\alpha_5\beta_1$ and the direct influence coefficient β_4, $\emptyset_6$ explains the total influence of household size which consists of the indirect influence coefficient $\alpha_6\beta_1$ and the direct influence coefficient β_5, $\emptyset_6$ explains the direct influence of work experience, and ϵ_5 is the error term $\beta_1\epsilon_3 + \epsilon_4$

4 Result

Demographic variables analysed in this study include level of education completed, age of head of household, and household size. These variables theoretically influence household income and consumption. Based on the data description, it was found that the highest level of education completed by heads of households was primary education, or the length of education was only 12 years. Of the 80 respondents, some had never attended school, and some had studied up to university. On average, the

length of education of the head of the household is 13 years or the equivalent of junior high school. The higher the education level of the head of the household, the higher the work productivity and compensation received, thus encouraging an increase in income. Income and consumption have a close relationship; the higher the household income, the higher the consumption. High consumption indicates a higher level of household welfare or reduced poverty. Zhang et al. (2020) stated that heads of households with a high education level tend to choose high-quality goods. Quality goods have a higher price level relative to goods that are not quality or have a low-quality level.

Age plays a vital role in increasing income and basic needs consumption. Heads of relatively older households have a high enthusiasm for working hard for both productive business and side activities. It has an impact on increasing income. Likewise, as people age, they must carefully consider the type of goods they spend on. The number of goods purchased increases with age, affecting increasing consumption. Of the 80 sample heads of households, the lowest age was 25 years, and the highest was 68 years; on average, the respondents were 46 years old, and the most dominant was 45 years old. The respondent's age group is categorised as productive age. However, the age group above 65 tends to reduce household income and consumption. This means that the age of 15-65 years is a productive age, which tends to increase income and ages above 65 years will cause a decrease in income and consumption.

Apart from age, household size is another demographic factor influencing income and consumption. Household members are workers who can increase income and, at the same time, consumption. For households with many members, it can increase household income. However, on the other hand, if household labour is not involved in the production process or does not work, it will reduce household income and household consumption. Based on a household survey in the research area in South Sulawesi Province, It is recorded that the average number of dependents in a household is 3-4 people. Even though the average is relatively small, some households have as many as seven members.

Table 1. Descriptive Statistics demographic factors

	Mean	Median	Mode	Standard Deviation	Minimum	Maxsimun
Education	8,14	9	6	3,35	0	18
Household size	3,64	4	4	1,32	1	7
Age	46,27	46	45	8,53	25	68
Experience						

Sources: Process Data

Based on the results of in-depth interviews with 80 heads of poor households in the coastal areas of South Sulawesi Province, it is clear that the income they earn varies between respondent and another. The average income is IDR 2.5 million per month. This figure is still below the poverty line in South Sulawesi; both the rural poverty line is IDR 3.5 million, and the urban poverty line is IDR 3.7 million in 2020. The most common income respondents receive is IDR 1 million per month, with the highest limit being IDR 5.3 million per month and the lowest IDR 600 thousand. This indicates relatively high inequality, reflected in the fairly large standard deviation. The survey results also show that the average household expenditure for basic food, drink, and school needs is still relatively low, namely IDR 1.9 million per month. If rationed to household members, per capita expenditure becomes smaller. The average household consumption expenditure is still far from South Sulawesi Province's poverty line.

With the income obtained, it can be seen that most respondents do not have savings, and even dissaving occurs with a minimum figure of IDR 2.3 million per month. However, along with the income earned, some respondents can set aside their income with a maximum value of IDR 3.9 million per month. The household average savings are IDR 488 thousand per month. During the COVID-19 pandemic, one of the government's macro policies was to increase spending on social protection, including social assistance to the poor and people experiencing poverty. The types of assistance received are direct cash and capital assistance for micro-business actors affected by COVID-19. The minimum value received by respondents is IDR 300 thousand, and the highest is IDR 3.6 million, or on average, the social assistance received by respondents is IDR 810 thousand. This social assistance was only received twice during the Covid-19 period. Even though the value is not large enough, this social assistance can increase income or reduce the burden of poor households.

Table 2. Descriptive statistics of economic variables

	Mean	Median	Mode	Standard Deviation	Minimum	Maxsimun
Transfer	810000	600000	600000	621880	300000	3600000
Consumption	1927937	1785000	1500000	777996	600000	3600000
Saving	488178	365000	-290000	2114786	-2310000	3970000
Income	2482615	2270000	1000000	1181442	800000	5360000

Source: processed data

To further analyse the factors that influence household income and consumption in coastal areas, this study uses a multiple regression model using two estimation equations, namely (i) the income estimation equation as the dependent variable, which is influenced by seven independent variables, and (ii) the equation consumption estimation as a dependent variable which is influenced by five independent variables.

These two equations observe the direct influence of independent variables on household income and consumption. Based on the results of the income estimation equation, there are four independent variables that statistically significantly influence household income.

The four variables are social transfer with a coefficient value of 0.391, social distancing with a coefficient value of 0.125, household size with a coefficient value of -0.102, and work experience with a coefficient value of 0.025. This coefficient explains that every one per cent increase in social transfers to households will increase household income by 0.391 per cent. Every additional year of work experience increases household income by 0.025 per cent. Each time social distancing is implemented, it increases household income by 0.125 per cent, and each time an increase in household members by one person reduces income by 0.102 per cent. Meanwhile, other independent variables such as age, age squared, and education level do not significantly influence household income. The coefficient of determination R2 is Fifty-four per cent, which explains that the independent variables in the model determine 54 per cent of the variation in household income, and the remaining 46 per cent is determined outside the model. The F statistical test also shows a probability value of 0.000, which means that, simultaneously, all variables influence household income.

Table 3. Results of Estimating Household Income Equations

Independent Variables	Coefficient
Intercept	4.537 (0,000)
Ed	0,246^{ns} (0,828)
SD	0,125* (0,086)
HZ	- 0,102*** (0,000)
Ag	-0,042^{ns}
	(0,106)
Sqag	0,0004^{ns} (0,105)
Tr	0,391*** (0,000)

Exp	0,025*** (0,002)
$_R2$	0,54
F Statistik	8,27
Probality	0,0000

Source: processed data

* significant at 10%; ** significant at 5%; *** significant at 1%. ns= nonsignificant

The numbers in brackets indicate the p-value

In the consumption estimation equation model, four variables were found that were statistically significant for household consumption: net income from business results, savings, household size, age, and age square. Each of these four types of variables has a different influence on consumption. Every 1 per cent increase in net income increases household expenditure by 0.203 per cent. Every increase in household size by one person reduces household consumption by 0.236 per cent. Every increase in the head of the household will increase consumption by 0.037 per cent, and as the head of the household increases, consumption will decrease by 0.0003 per cent. The R2 value is 64 per cent, which means that 64 per cent of the variation in changes in consumption is contributed by the variables contained in the estimation model, and the remaining 32 per cent is contributed by other variables not included in the estimation equation. Likewise, the F statistic value shows a significant p-value. It is indicated that the estimation model is feasible. The results of the multivariate regression model calculations can be seen in Table 2 below.

Table 4. Results of Estimating Household Consumption Equations

Variables independent	Koefisien regresi
Intercept	2,288 (0,000)
Net Income	0,203*** (0,000)
HZ	-0,236*** (0,000)
Ed	-0,236ns (0,698)
Ag	0,037*** (0,009)

Sqag	-0,0003***
	(0,018)
$_R2$	0,64
F Statistik	25,65
Probality	0,0000

Source: processed data

* significant at 10%; ** significant at 5%; *** significant at 1%. ns= nonsignificant

The numbers in brackets indicate the p-value

5 Discussion

In the current COVID-19 pandemic, government spending policies in the form of social protection play an essential role for households that are heavily impacted, such as poor households and people with low incomes, including those that live in coastal areas. The social assistance received by households affected by COVID-19, including low-income families, was well received by the recipients, even though the value was relatively small. Based on the estimation results, it was found that the social assistance or transfers received by households in the research location were statistically significant in increasing household income. This means that the social transfer the household receives is quite beneficial because it can ease the shopping burden for poor households even though the value is relatively low. Respondents' social transfer rupiah value during the COVID-19 pandemic varied: IDR 300 thousand, IDR 600 thousand, and IDR 3.6 million. The social transfer received by all sample households averaged IDR 810 thousand during the COVID-19 pandemic. Even though the value is small, assistance from the government is enough to help poor households. This study aligns with Manual et al. (2020), who state that during the COVID-19 pandemic, poor households need financial support for social protection and access to health.

To reduce the spread of COVID-19, the central government and regional governments have issued several policies, including implementing large-scale social restrictions (PSBB). This policy negatively impacts the economy at a macro and micro level, influencing household behaviour in carrying out productive and consuming economic activities. This impact affects non-poor households, poor households, and those in the poor range. Based on the data processing results, it was found that the social distancing policy affected the productive economic activities of poor households. Even though the regression coefficient is positive and statistically significant, the significance level is only 90 per cent. The positive sign of the regression coefficient explains that the social restrictions implemented by the government are increasing household income because the implementation of the PSBB policy is also accompanied by the implementation of other policies in the form of providing cash assistance for basic food needs and capital assistance to both poor

and poor households. as well as to micro-entrepreneurs who are poor. Apart from that, community participation, especially for those with middle to upper-income levels, is very high in distributing necessities and other assistance, significantly increasing the income of poor households. This study is inconsistent with Martin et al.'s (2020) study, which found a negative relationship between the implementation of social distancing policies and income. Martin et al.'s (2020) study looked at households in the San Francisco Bay Area, including households working in the industrial and service sectors, so implementing social distancing can reduce income. The socio-economic impact of depression is more significant in households that work formally in the industrial sectors, which means they are not classified as poor households.

The implementation of social distancing causes a decrease in household income through several channels in cases in ASEAN countries (Morgan & Trinh, 2021), further increasing the number of poor people.

Several previous empirical studies have estimated the influence of household demographic factors on household income with varying study results. This study also found that household size and the work experience of the head of the household influence the income of poor households. Household size has a negative relationship with income and is statistically significant. This means that a large household size reduces household income. Household members are labourers who have the potential to increase income as long as household members are classified as workers and are involved in the production process. However, conditions at the research location prove that household members are generally still children and studying. This explains that household members have not been involved in the production process, so they have not created income that can improve welfare.

The increasing number of household members puts more pressure on household per capita income, which harms welfare. This aligns with a survey of 80 respondents who, on average, had 3-4 household members. This study's results align with Tuyen's (2015) study in Vietnam, which found a negative and significant relationship between household size and income. However, Kamuzora and MKanta (2020) found that household members in Tanzania are labourers who have the potential to improve household welfare. The larger the household size, the more excellent the opportunity to increase household income, and conversely, the smaller the household size, the less prosperous or, in other words, the poorer it is. Furthermore, Weitzke (2020) stated that there is a positive relationship between birth rate and per capita consumption. The lower the birth rate, the greater the added value of gross domestic product and increased per capita consumption.

Work experience is a variable that significantly influences household income (Alsulami, 2018). Generally, households working for a long time have higher incomes than those who have just started working. Alsulami (2018) found that women with work experience of 15 to 20 years had higher incomes than women whose work experience was less than 15 years. Alsulami's study was reinforced by Zveglich (2019), who stated that work experience is the primary key to determining human income. Awan et al. (2011) found that work experience was negatively related to poverty in Pakistan. This means that work experience can encourage increased income so that the effect of poverty is reduced.

The demographic factor that generally plays a vital role as a determinant of household income is education. However, studies in the coastal areas of South Sulawesi, especially in the outskirts of Pangkep Regency and Makassar City, do not support the theory. This study found no significant relationship between education and household income. This study is not in line with previous empirical studies such as Baiyegunhi and Fraser (2010), Tuyen (2015), Majeed and Malik (2015), Manh Nguyen and Anh Nguyen (2019), and most recently, Zhang et al. (2020). The main factor causing the insignificant relationship between education and household income in the research location is the type of work carried out by the heads of poor households, mostly fishermen or fish and seaweed cultivators, which, of course, do not require a high level of education. Field data proves that around 74 per cent of poor households have a junior high school education or below. However, several heads of households work as fishery product processors, requiring higher education but fewer in number.

The variables age and age square also do not affect household income in the research sample area in South Sulawesi. All age groups can work as a fishermen, fish processors, and fish marketers. Thus, the age variable does not affect household income. This study does not align with Tuyen (2015), who found a significant relationship between age and age square on household income in Vietnam. The relationship between income and consumption has been explained by the theories of Keynes, Irving Fisher, Franco Modigliani, and Milton Friedman (Mankiw, 2012). Although there are different views on household consumption behaviour, it is generally concluded that household consumption behaviour is determined by household income. As household income increases, household consumption also increases. Many factors, including demographic factors, also determine household income. Thus, demographic factors influence consumption through their influence on income. The consumption estimation equation shows two groups of influence, namely variables that have a direct effect and variables that indirectly impact consumption. Demographic variables such as education, age, and household size influence consumption directly and indirectly through income.

Based on the results of the consumption equation estimation, it was found that household income affects household consumption. If income increases by 1 per cent, household consumption rises by 0.2 per cent, assuming that other factors are constant. This indicates that poor households' marginal propensity to consume (MPS) is very low. In other words, there is a tendency for the marginal propensity to save (MPS) to be more significant. These empirical facts are acceptable for case studies in coastal areas, which generally work in the fisheries and marine sectors. If their income increases, they prefer to save some of their money to be used as capital for the next production cycle. This statement aligns with Mensah (2018), who found a positive relationship between household income and savings in Ghana's agricultural sector. The positive relationship between income and consumption is in line with the study by Deacon et al. (2014) on development.

Razzak (2015) was in Spain, Enbeyle et al. (2020) was in Ethiopia, and most recently, Habanabakize (2021) was in South Africa. Enbeyle et al. (2020) found that household income is significant for food consumption. The existence of a positive

relationship between household income and household consumption indicates that there is an improvement in the economic conditions of poor households. In other words, increasing income causes consumption and poverty to decrease (Heshmati et al., 2019); Manh et al. (2019).

Apart from income variables, several demographic factors directly influencing consumption are age, square age, and household size. Changes in population age affect consumption patterns. The older the head of the household, the higher the consumption (Katsaiti, 2017), and past the age of 45 tends to reduce household consumption (Stöver, 2012). It stands to reason that as adults approach, more types and volumes are consumed, both primary and other needs. However, after reaching adulthood and reaching old age, consumption tends to decline. This means that the age variable influences consumption to a certain extent or that the relationship between age and consumption is in the shape of an inverted U. This study found an inverted U; that is, age approaching adulthood will increase consumption. However, as the age of the head of the household increases, consumption decreases. The negative coefficient value of the age square variable indicates this. Tuyen (2015) supports this finding, finding that age square has a negative and statistically significant relationship. The decline in consumption due to the ineffectiveness of age causes poverty to increase. Baiyegunhi and Frase (2010) found that older age increases poverty because older people can no longer produce. However, this is contrary to the study by Enbeyle et al. (2020), which found that age did not influence food consumption in 130 sample households in Ethiopia.

Household size is one of the variables that influences household consumption. The household size variable has two directions: increasing and decreasing consumption. This study found that increasing the number of household members reduces household consumption. The more household members with a certain income, the more per capita consumption will reduce the number of poor people. The negative influence of household size is also supported by previous researchers (Heshmati et al., 2019). This study does not align with Katsaiti's (2017) claim that household size increases consumption. The same survey by Kamuzora and MKanta (2000) shows that the larger the household size, the less poor it means, the higher the consumption.

In general, educational variables are closely related to consumption and poverty and have been proven by several previous studies such as Awan et al. (2011), Tuyen (2015), and Zhang et al. (2020). This means that the higher the education, the more excellent the household's opportunity to increase work productivity and income will encourage increased consumption and reduce poverty. However, this study found that education did not significantly affect household consumption in a case study of 80 households in South Sulawesi Province. Several studies outside this study include Varlamova and Larionova (2015).

It was found that education level statistically affects household consumption expenditure in Russia, Katsaiti et al. (2017) in the United Arab Emirates, and Heshmati et al. (2019) in India. Furthermore, demographic variables, apart from directly affecting consumption, also have an indirect effect through increasing income. Table 3 shows the estimation results of the indirect influence of education, social distancing, household size, age, age square, transfer, and work experience on

household consumption through household income. Social distancing, household size, transfer, and work experience indirectly and statistically significantly influence household consumption. These findings explain that these four variables consistently correlate to income and consumption. All variables that statistically influence income also influence consumption. This further strengthens the direction of the relationship between income and consumption.

The government's social distancing policy during the COVID-19 pandemic encouraged an increase in household consumption through an increase in income, especially in the research area. This means that social distancing policies encourage increased household income in the case study research area. Further increasing income causes an increase in household consumption. With the distancing policy, not all households experienced a decline in income and consumption during the pandemic. However, some poor households received various types of assistance, both in the form of cash and assistance in the form of goods and services. This assistance comes from multiple sources: the regional government, central government, local institutions, and the general public. The role of stakeholders in helping the government deal with poverty is quite significant in the era of the Covid-19 pandemic.

It should be noted that although there is a positive correlation between social distancing policies and income and consumption, this does not necessarily change the status of poor households to non-poor. Alternatively, the social assistance received by poor households during the implementation of social distancing policies only maintains life for poor households to prevent economic downturn. This is because the additional income obtained by households is only temporary.

Table 5. Results of the estimation equation for indirect effects on consumption through household income

Variables independent	Koefisien regresi
Intercept	0,921***
Ed	0,049ns
SD	0,025*
HZ	-0,021***
Ag	-0,008ns
Sqag	0,00008ns
Tr	0,079***
Exp	0,005***

Source: *Procees data*

* significant at 10%; ** significant at 5%; *** significant at 1%. ns= nonsignificant

Another variable that significantly influences consumption indirectly is the household size variable. Household size has a negative influence and sign on consumption through its influence on income. The negative relationship between household size and income explains that the larger the household size, the lower the household income. This aligns with the view (Stover, 2012) that household members in terms of age include young people and adults. For households with many members who are still young or still in school, they still need to be classified as workers or have not been involved in the production process, so they have yet to create income. Thus, a large number of household members reduces per capita income. A decrease in per capita income causes a decrease in household consumption. This study is consistent with the study by Mok et al. (2011) in Malaysia, which found that increasing household size reduces food consumption. Yalcintas and Kaya (2017) found that household consumption behaviour varies between regions, and their study found that household size is a determinant of electricity consumption in Oahu and does not apply to other regions.

The variables of transfer or social assistance and work experience have a positive relationship with consumption through a positive effect on income. This means that the social assistance received by poor households increases household income, which increases household consumption. The work experience variable increases household consumption as long as work experience also increases household income.

6 Conclusion

The ongoing COVID-19 pandemic has harmed the achievement of sustainable development goals, especially in eliminating poverty. The problem of poverty has become increasingly complex, including in South Sulawesi Province, which is indicated by an increase in the number, percentage, depth, and severity of poverty. For this reason, poverty alleviation strategies during the Covid-19 pandemic are urgently needed. Poverty alleviation strategies are generally pursued through macro variables such as increasing government spending in social protection, accelerating economic growth, and increasing private investment, all leading to increasing income for poor households and the poor range.

The relationship between these macro variables and poverty alleviation through increasing income has been tested empirically by several researchers with varying findings. There are debates regarding the results of empirical studies indicating that poverty alleviation is more appropriately addressed through a micro-household level approach. Household poverty is determined by household demographic factors such as education level, age, household size, and work experience. These demographic factors influence household income and household consumption. The higher household consumption indicates the more prosperous the household; in other words, increasing household consumption can reduce poverty.

This study aims to observe and analyse the combination of macro and micro household variables on household poverty through a regression analysis model of the household consumption equation directly and indirectly through the income equation. Social assistance variables, social distancing policies during the COVID-19 pandemic, and demographic factors influence household consumption directly and indirectly by increasing household income. This study uses a household survey approach in the coastal areas of Makassar City and Pangkep Regency, South Sulawesi. This study finds that (i) policies implementing social distancing, social assistance, and work experience affect consumption through the income of poor households. (ii) Age and square age directly affect household consumption in an inverted U shape but do not affect income. (iii) Household size influences consumption directly or indirectly through increasing household income. (v) Education level does not affect consumption directly or indirectly through household income.

Based on the findings of this study, macro policy in the form of providing social assistance to poor households is still the right strategy for overcoming poverty both during the COVID-19 pandemic and in the future post-COVID-19 pandemic. Household demographic factors such as household size and work experience are determinants of the income of poor households in coastal areas, so these two variables can be used as poverty alleviation strategies in the future. Even though the level of education is not significant in the case of poor households in coastal areas, in the future, along with technological developments, the education variable will remain an essential concern for all households to encourage increased household income and consumption, contributing to reducing poverty.

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Reference

1. Adam, Jr. Richard H. (2003) Economic Growth, Inequality, and Poverty Findings from New Data Set. Policy Research Working paper 2972. World Bank
2. Adegboyo, O. S. (2020). Does government spending reduce poverty in Nigeria? Evidence from Auto- Regressive Distributed Lag Specification. *Journal Ekonomi Bisnis dan Akuntansi*, *7*(2), 86–90.
3. Alamanda, A. (2020). The Effect of Government Expenditure on Income Inequality and Poverty in Indonesia. *Info Artha*, *4*(1), 1–11. https://doi.org/10.31092/jia.v4i1.614
4. Alsulami, Hemaid (2018). The Effect of Education and Experience on Wages: The Case Study of Saudi Arabia. *American Journal of Industrial and Business Management*, 8: 129-142. http://doi.org/10.4236/ajibm. 2018.81008
5. Awan, Masood Sarwar; Malik, Nouman; Sarwar, Haroon; Waqas, Muhammad (2011). Impact of Education on Poverty Reduction. *International Journal of Academic Research*. 3(1):659-644
6. Baiyegunhi, LJS dan Fraser, GCG (2010) Determinants of Household Poverty Dynamics in Rural Regions of the Eastern Cape Province, South Africa. Poster presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa, September 19-23, 2010

7. Birsall, N; Kelley, A.C & Sinding, S. (2001), Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World. Published to Oxford Scholarship Online. DOI:10.1093/0199244073.001.0001
8. Blanchard, Olivier and Johnson, David R (2013) Macroeconomics Sixth edition. Pearson.
9. Chaudhry, Imran Sharif; Malik, Shahnawaz; Hassan, Abo ul (2009). The Impact of Socioeconomic and Demographic Variables on Poverty: A Village Study. *The Labour Journal of Economics* 14 (1): 39-68
10. Diacon, Paula-E & Maha, Liviu-George (2014). The Relationship between Income, Consumption and GDP: A Time Series, Cross-Country Analysis. *Procedia Economics and Finance 23 (2015) 1535 – 1543.* doi:10.1016/S2212-5671(15)00374-3
11. Edrees, A & Azman Hassan, A.M. & Nor, Norashidah.M (2015) The Impact of Government Spending, Trade, Foreign Aid and Foreign Direct Investment on Poverty Reduction in Africa: GMM Estimation. *International Journal of Economics & Management Sciences.* 5(1),2-6 http://dx.doi.org/10.4172/2162-6359.1000308
12. Enbeyle, Wegayehu; Meslie, Yibeltal, & Pandey, Digvijay (2020) Determinants of Household Consumption Expenditure in Tepi Town, SNNPR, Ethiopia. *International Journal of Intelligent computing and teknology.* 4(1):40-56
13. Falade, O. E., & Babatunde, D. (2020). Functional Government Spending,Unemployment and Poverty Reduction in Nigeria. *Journal of Economics and Development Studies*, *8*(1). https://doi.org/10.15640/jeds.v8n1a9
14. Habanabakize, Thomas (2021). "Determining the Household Consumption Expenditure's Resilience towards Petrol Price, Disposable Income and Exchange Rate Volatilities," *Economies*, MDPI, Open Access Journal, 9(2), 1-15.
15. Heshmati, Almas; Maasoumi, Esfandiar and Wan, Guanghua (2019). An Analysis of the Determinants of Household Consumption Expenditure and Poverty in India. *Economies 7*(4), 96; https://doi.org/10.3390/economies7040096
16. Kamuzora, C.Lwechungura & MKanta, William (2020) Poverty and Houshold/Family siza in Tanzania: Multiplie Responses to Population Pressure? *Research report* N0.00.4. Published by: Research on Poverty Alleviation P.O. Box 33223 Dares Salaam
17. Katsaiti, Marina-Selini; Abdulla Ahmad, Khalifa Abdulrahman; Tajuddin, Hamid Mohammadi; Abdulrouf, Shahabuddin (2017). Determinant of Households Consumption Behavior in UAE: A Comparison of Nationals and Expatriates. *European Scientific Journal.* 13(16):84-98 doi: 10.19044/esj.2017.v13n16p84 URL:http://dx.doi.org/10.19044/esj.2017.v13n16p84
18. Majeed, M. Tariq & Malik, M. Nauman, 2015. "Determinants of Household Poverty: Empirical Evidence from Pakistan," *The Pakistan Development Review, Pakistan Institute of Development Economics,* 54(4), 701-718.
19. Maloma, (2016) The Socioeconomic Determinants Of Household Poverty Status In A Low- Income Settlement In South Africa. *International Journal of Social Sciences and Humanity Studies.* 8(2):122-131
20. Mankiw, N Gregory (2013).Macroeconomics eight edition. Worth Publishers 41 Madison Avenue New York, NY 10010 www.worthpublishers.com
21. Manuel, Marcus; Carson, Liam; Samman, Emma, and Evans, Martin (2020). Financing the reduction of extreme poverty post - covid-19. *Briefing Note World Bank*
22. Martin, Amory; Markhvida, Maryia; Hallegatte, Ste´ phane; Walsh, Brian. (2020) Socio-Economic Impacts of COVID-19 on Household Consumption and Poverty. *Economics of Disasters and Climate Change* 4:453–479. https://doi.org/10.1007/s41885-020-00070-3

23. Mok, *Thaiyoong Penny; Maclean, Gillis; Dalziel, Paul.* (2011). Household Size Economies: Malaysian Evidence. *Economic Analysis & Policy*, 41(2):203-233
24. Morgan, P. J. & L.Q. Trinh (2021). Impacts of covid-19 on households in ASEAN countries and their implications for human capital development. *ADBI working paper series* N0.1226
25. Morrison, Andrew; Raju, Dhushyanth; Sinha, Nistha (2007). Gender Equality, Poverty and Economic Growth. *Policy Research Working Paper* 3439
26. Musa, Muhammad (2020) Fighting Extreme Poverty During COVID-19: Two Proven Ways to Build Resilience in Times of Catastrophic Disruption. *Article* https://nextbillion.net/fighting-poverty-building-resilience-during-covid19/
27. Nayga, Rodolfo (1994) Effects of Socioeconomic and Demographic Factors on Consumption of Selected Food Nutrients. *Agricultural and Resource Economics Review.* 23 (2): 171-182 DOI: https://doi.org/10.1017/S1068280500002288
28. Manh Nguyen, Hung & Anh Nguyen, Tuan (2019) Investigating the determinants of household welfare in the Central Highland, Vietnam, *Cogent Economics & Finance*, 7:1, 1684179, DOI: 10.1080/23322039.2019.1684179
29. Nursini Nursini (2020) Micro, small, and medium enterprises (MSMEs) and poverty reduction: empirical evidence from Indonesia, *Development Studies Research,* 7(1): 153-166, DOI: 10.1080/21665095.2020.1823238
30. Nursini, N. & Tawakkal. (2019). Poverty alleviation in the contex of fiscal decentralization in Indonesia. *Economics and Sociology*, *12*(1), 270-285. doi:10.14254/2071-789X.2019/12-1/16
31. Peichl, Andreas., Pestel, Nico., Schneider, Hilmar (2010) Does Size Matter? The Impact of changes in Household Structure on Income Distribution in Germany. IZA *Discussion Paper*. No.4770.
32. Pindyck, Robert S & Rubinfeld, Daniel L (2015).Microeconomics 8th edition Global Edition. Pearson. www.pearsonglobaleditions.com
33. Razzak and Razzak (2015). Dynamic Relationship between Income and Consumption: A time series analysis of Spain. *Developing Country Studies*. 5(1).34-38.
34. Sasana, Hadi & Kusuma, Panji (2018) Government Expenditure and Poverty in Indonesia International Conference on Economics, Business and Economic Education 2018. Vol 18. *Knowledge E*. https://knepublishing.com/index.php/Kne-Social/article/view/3125
35. Stöver, Britta (2012). The influence of age on consumption. *Discussion Paper* gws. https://econpapers.repec.org/paper/ekd002672/3808.htm
36. Sumner, A., Hoy, C., Ortiz-Juarez, E., & Unu-Wider. (2020). *Estimates of the impact of COVID-19 on global poverty* (43rd ed., Vol. 2020). UNU-WIDER. https://doi.org/10.35188/UNU-WIDER/2020/800-9
37. Suryani, Anih Sri (2020). Dampak pandemi covid-19 terhadap lingkungan global. Info Singkat. 12(13) Pusat Penelitian Badan Keahlian DPR RI
38. Suryahadi, A., Izzati, R. A., & Suryadarma, D. (2020). *The Impact of COVID-19 Outbreak on Poverty: An Estimation for Indonesia* (p. 20). The SMERU Research Institute. http://ns2.smeru.or.id/sites/default/files/publication/wp_covid19impact_draft.pdf
39. Tram et al, 2021). Tram, Pham Ngoc; Anh, Bui Duc; Duc, Tran Minh (2021).Economic Growth with Poverty Reduction in Vietnam (1986-2020): Current Situation and Solutions. *Journal of Hunan University(Natural Sciences*). 48(55):138-145
40. Tuyen, Tran Quang (2015) Socio-Economic Determinants of Household Income among Ethnic Minorities in the North-West Mountains, Vietnam. *Croatian Economic Survey.* 17 (1): 139-159

41. UNICEF. (2020). *Estimating the Impact of Covid-19 on Child Poverty in Georgia Using a Micro-Simulation Model* (p.32). https://www.unicef.org/georgia/media/4871/file/COVID-19_impact_on_child_poverty_in_Georgia.pdf
42. Van vu, Hung (2020) The Impact of Education on Household Income in Rural Vietnam.
43. *International Journal of Financial Studies 8*, 11: 1-8 doi:10.3390/ijfs8010011 Varlamova, J & Larionova, N. (2015). Macroeconomic and demographic determinants of household expenditures in OECD countries. International Conference on Applied Economics, ICOAE 2015, 2-4 July 2015, Kazan, Russia. *Procedia economics and Finance*. www.elsivier.com/locate/procedia
44. Warr, Peter & Yusuf, Arief (2010) International food prices and poverty in Indonesia. *Working Papers in Trade and Development*. No 209/19. http://rspas.anu.edu.au/economics/publications.php
45. Wietzke, Frank-Borge (2020). Poverty, Inequality, and Fertility: The Contribution of Demographic Change to Global Poverty Reduction. *Development and Population Review* 46(1):65-99.
46. Yalcintas, Melek and Kaya, Abidin (2017) Roles of income, price and household size on residential electricity consumption: Comparison of Hawaii with similar climate zone states. *Energy Reports*. www.elsevier.com/locate/egyr
47. Zhang, Yu; Jin, Haiyan; Gao, Yumin. (2020) What are the Effects of Demographic Structures on Housing Consumption?: Evidence from 31 Provinces in China. *Hindawi Mathematical Problems in Engineering*. https://doi.org/10.1155/2020/6974276