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The impact of social assistance on households' transfer behavior: A micro data analysis

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A B S T R A K

Paper ini meneliti apakah terdapat efek crowding-out dari transfer publik terhadap transfer antar rumah tangga di Indonesia. Dengan menggunakan data dari Indonesia Family Life Survey (IFLS-3 & IFLS-4) riset ini mengevaluasi dampak Bantuan Langsung Tunai terhadap transfer antar anggoata rumah tangga (seperti transfer dari orang tua, saudara, anak serta kerabat lain yang tidak hidup serumah). Hasil penelitian menunjukkan bahwa efek crowding-out relatif kecil. Efek ini hanya terbukti signifikan untuk kasus rumah tangga perkotaan. Oleh sebab itu, program transfer tunai untuk membantu rumah tangga miskin tidak secara signifikan menggerus keberadaan transfer finansial yang secara informal sudah berlangsung di masyarakat. Secara potensial, transfer tunai memiliki pengaruh positif untuk memperbaiki distribusi pendapatan rumah tangga.

A B S T R A C T

This paper investigates whether public transfers crowd-out inter-household transfers in Indonesia. Using household data from Indonesia Family Life Survey (IFLS-3 & IFLS-4), this study evaluates the impact of direct cash transfer programs (Bantuan Langsung Tunai, BLT) on inter-family transfer (i.e., monetary transfer from parents, siblings, child, and other family members who do not live co-residently). The results indicate that, in general, the crowding-out effect is relatively small. This effect is statistically significant only in urban households but not rural ones. This finding suggests that expanding public transfer under formal social security programs to cover poor households does not significantly reduce the existence of informal transfers. Further, public transfers potentially improve the distribution of household income.

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INTRODUCTION

The relationship between intra-household and inter-household is a major feature in developmental economic studies. Households are crucial in preserving and improving their members' welfare, thus supplementing the roles of states and markets. Most people in developing countries have not experienced states' functions as providers of formal social insurance. Most services for parents no longer working (old-age security) and teenagers who are not yet economically independent are still supplied by households. Households can be viewed as a unit offering many sorts of insurance (health, education, accident, and so on). Households also serve as a safety net when some members struggle to make ends meet owing to unfavorable economic conditions.

Financial transfers between households are one type of service or activity that takes place between households. According to several surveys, between 20 and 90 percent of families in developing countries receive and provide transfers to other households. Transfers among family members (family) inside households include transfers among siblings, and other family members, including parents and their offspring. Statistics Indonesia (BPS) defines a household in this context as a person or group of individuals who occupy all or a portion of a physical structure, often live together, and prepare meals in a single kitchen. Further, preparing meals from one kitchen refers to handling all daily necessities in one place. Therefore, household members can include family members and non-family individuals, such as housemaids. Interhousehold transfers or private transfers are the two terms used to describe transfers between households (Cox, 1987).

Private transfers significantly affect (public transfers) in certain circumstances. Several studies indicate that public transfers potentially reduce private transfers. Public transfers' pressures on private transfers are commonly known as the crowding-out effect. A commonly cited study on private transfers in developing countries is conducted in the Philippines, demonstrating that 30 to 80 percent of private transfers are potentially crowded out (Cox *et al*., 2004). Referring to the World Bank report, scholars document that between 20 and 90 percent of private transfer contributions in developing countries are crowded out by public transfers (Gibson *et al*., 2011). The large potential of the crowding-out effect is bad news for developing countries that have been introducing various poverty alleviation programs due to unfavorable economic turbulence. Significantly large crowding-out effects arguably diminish the effectiveness of public transfer policies.

Several follow-up studies on crowding out in developing countries start to flourish after the Philippine study (Cox *et al.*, 2004). At least four studies on this subject have been completed in underdeveloped nations, including Burkina Faso (Kazianga, 2006), Bulgaria (De Menezes & Sciulli, 2007), India (Lal & Sharma, 2009), and Vietnam, PNG, and Indonesia (Gibson *et al*., 2011). Several studies indicate the crowding-out effect on household income levels.

The crowding-out effect was investigated using the relationship between the transfer received and the recipient's household income. The crowding-out effect can be observed if family income is inversely associated with the magnitude of the transfer. Higher household income reduces the amount of private payments received, and additional income, especially government payments (public transfers), will result in lower transfers from other households (private transfers). Household income becomes a variable of interest in assessing transfer behavior.

The probability of measurement error for the family income variable is a major problem that has become the main concern in prior studies. Severe measurement errors will arguably result in a biased estimation of the relationship between income and transfers. In the Philippines, a region-specific dummy variable is used to instrument the income variable (Cox *et al*., 2004). Meanwhile, studies in some Southeast Asian nations use home size and room count as instrument variables (IV) for the family income variable (Gibson *et al*., 2011). Although, on the one hand, the instrumental variable (IV) technique can mitigate the potential bias caused by income variable measurement error, the possibility of bias remains. Omitted factors at the household level, such as familial relationships or filial norms and the degree of altruism, can be sources of bias. Ignoring this variable will result in a shift in the income-transfer relationship (Bonsang, 2007). Family norms are closely related to income levels and financial transfers between households in developing countries.

Family ties, degree of affection, and related factors are crucial in determining the magnitude of the transfers. However, an appropriate estimation strategy is needed to overcome this problem because the variable in question is unobservable. Given its time-invariant nature, the effect of the unobserved heterogeneity can be isolated using the fixed effect approach at the household level. The availability of household panel data allows for applying a relevant estimation approach.

Our contribution is two folds. First, we use the relevant approach to isolate the effect of bias either from measurement error or neglecting important unobserved variables. Second, this study specifically mentions the effects of public transfer policies such as direct cash transfers (BLT) on transfers between households. So far, studies on crowding out indirectly investigate the issue indirectly without using policy variables as the explanatory variables. The existence of policy variables can be used to evaluate the impact of public transfers on private transfers directly.

Cash transfer (bantuan langsung tunai) is a popular policy addressing several development problems (Hossain *et al*., 2022). This policy specifically also helps reduce the health (Baker *et al*., 2020; Dolan & Broadbent, 2016) and energy (Aung *et al*., 2021) problems in poor households. In Indonesia, the impact of the direct transfer policy can even improve welfare levels (Rasyid, 2022).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Studies of household income remain relevant today. This topic is often associated with food security (Mabuza & Mamba, 2022) and climate change issues (Jalal *et al*., 2021). Empirically, the policy impact evaluation approaches such as propensity score matching (Wonde *et al*., 2022) are often used to test the effectiveness of certain policies. Policy studies for household income range from the issue of subsidies (Zarepour & Wagner, 2022) to applying taxes on food and beverages (Jones-Smith *et al*., 2022). Household income analysis is also often associated with poverty problems (Hajjar *et al*., 2021). Indonesian household poverty has been widely studied in previous studies (Purwono *et al*., 2021; Ruml *et al*., 2022; Wishanti, 2015). One of the most comprehensive studies on poverty in Indonesia focuses on the link between poverty and financial inclusion and economic growth (Erlando *et al*., 2020). So far, studies on household income have not specifically discussed the crowding-out effect. However, this issue is very relevant to the effectiveness of public transfer policies, such as BLT, which the government often uses to anticipate the effects of poverty.

Empirical studies on the crowding-out effect have initially focused on developed countries since the 1990s (Oh *et al*., 2012). They generally document relatively the weak crowding-out effect. Scholars summarize 30 studies on private and public transfers in the US, France, Germany, and Italy (Laferrère & Wolff, 2006). However, Cox *et al.* (2004) criticize these empirical studies on the crowding-out effect in developed countries for two reasons. First, these studies are no longer relevant in developed countries that have long initiated social security systems. The crowding-out effect may have occurred long and waned as citizens in developed countries frequently receive welfare packages from their states. Second, the linear estimation technique used in prior studies is arguably less representative in illustrating the actual relationship between income and transfers received.

To address the flaws in the previous study, Cox *et al*. (2004) undertook a fresh analysis of household transfers in developing nations. In particular, Cox *et al.* (2004) developed a novel strategy for identifying transfer patterns using data from the 1988 Philippine Family Income and Expenditure Survey (FIES). The estimation technique employed is threshold regression, which can discover a nonlinear relationship between income and the transfer amount. Later, the approach developed by Cox *et al.* (2004) became the new standard for measuring transfer motivation. This paradigm places greater emphasis on the receiving home. Transfers are contingent on household income indicators and other variables, and the income variable is expressed nonlinearly by sorting the income level at a given threshold (K). Theoretically, the relationship between transfer payments and recipient income is negative at low-income levels, demonstrating an altruistic motive. In some sense, the relationship between transfers and income becomes positive as the relative positions of the provider and recipient of a transfer transform the transfer motive into a form of trade.

Prior studies demonstrate that transfer patterns shift due to receiving households' higher income. However, the changes that occur are not drastic (from negative to positive) but rather a reduction in the slope of the derivative transfer coefficient. These findings show that altruistic motivations and associated crowding-out effects are more prevalent in lower-income households. Cox *et al.* (2004) did not include the policy variable (public transfer) as a key variable. Hence the crowding-out indicator was based only on the importance of the derivative transfer coefficient calculated. Public transfers will raise revenues, but increased revenues will decrease private transfers.

Cox *et al.* (2004) motivate follow-up studies. For example, Kazianga (2006) applies a nonlinear model to the Burkina Faso setting, a nation with a relatively low income level that does not have a formal state transfer system but is known to have a culture of mutual aid (gift-giving). In this study, the author addresses the endogeneity of income factors, which has been frequently overlooked in earlier studies. To solve the problem of missing variables that may be related to the income variable, the researcher instruments the income variable with rainfall data because the sample region is an agricultural area.

The results indicate that altruistic transfers could be identified at medium-income levels but not low-income ones. The findings differ significantly from Cox *et al.* (2004)'s hypothesized pattern of household moves. It is then suggested that public transfer policies and other government initiatives for low-income areas will not be driven out by interhousehold transfers (private transfers). Kazianga (2006) contributes to this field of study by emphasizing minimizing any biases due to endogenous income factors. The IV approach can overcome bias but is contingent on the instruments' quality.

The quadratic relationship between the magnitude of the transfer and the beneficiary's income is another specification in estimating inter-household transfers. De Menezes & Sciulli (2007) utilize this specification to estimate the household transfer model in Bulgaria. Using data from the 1995 Bulgarian Living Standards Measurement Survey (BLSMS), they employ the Ordered Probit and the Maximum Likelihood Estimator estimate methods (MLE). The results indicate that the relationship between transfers and income follows an inverted U shape. This demonstrates that exchange motivates transfer at lower income levels, but it becomes altruistic over a particular income threshold. The hypothesis and empirical test results of Cox *et al.* (2004) in the Philippines do not match this trend.

Lal & Sharma (2009) examine the transfer behavior of Indian rural families using Cox *et al.* (2004)'s model. The results reveal a trend comparable to that of the Philippines: the coefficient for income below the threshold is -0.575, while the coefficient for income over the threshold is -0.0008 (The income coefficient above the threshold is not statistically significant). They discover that the transfer amount was

lower if the respondent's household head is retired. Meanwhile, transfer receipts increase for more highly educated households. The study does not elaborate on why recipient families with greater levels of education receive more transfers from other households. In contrast to earlier research, a polynomial model is used to evaluate the relationship between the quantity of transfers and income.

Gibson *et al.* (2011) investigate the inter-household transfer patterns in Indonesia in their study of several countries: Indonesia, Papua New Guinea (PNG), Vietnam, and China. The OLS estimate in Indonesia, China, and Papua New Guinea reveal a significantly negative association between transfer quantity and the recipient's household income. The significance disappears when the Instrumental Variable (IV) method is employed. In this instance, revenue is instrumented by the size and quality of the residence. In addition, they also utilize threshold regression, similar to (Cox *et al.*, 2004). Among the four nations examined, only Indonesia exhibits a significant relationship. Contrary to the theory, however, the income coefficient over the threshold is more negative (steeper). In addition, the significance of the threshold is reached at a significantly above-average income level (twice greater than the average). They prefer to disregard these findings and conclude that the non-linear transfer model is unsuitable for describing the phenomena of household transfers in four nations (including Indonesia).

RESEARCH METHODS

This study utilizes data from the Indonesian Household Life Aspect Survey (SAKERTI), also known as the Indonesia Family Life Survey (IFLS). The most recent two waves (IFLS-3 and IFLS-4) will serve as the estimation foundation, providing that adequate data on government transfers are available during the IFLS publishing period. There are roughly 10,435 household units in IFLS-3 and 13,538 households in IFLS-4, which serve as the unit of analysis. About 22.35 percent of IFLS-4 families received money transfers from the government through BLT. Since mid-2005, the government's BLT initiative to mitigate the effects of the rise in gasoline costs has become a popular mode of public transportation. This initiative primarily targets low-income homes or Target Households (RTS) with various pre-set traits. The mentioned factors include the floor space per household member, the kind of floor, the type of wall, and the ownership of household assets.

We use the following standard empirical model to test the crowding-out effect as introduced by (Cox *et al.*, 2004; Gibson *et al.*, 2011):

$$NT = f(Inc, Educ, Other\ HH, Regional) \quad \ldots\ldots 1$$

where NT is net private transfers, Inc represents recipients' income, Educ is the education level of the head of household, and Other HH and Regional represent

household and regional characteristics, respectively. The negative relationship between NT and Inc indicates a crowding-out effect.

The following is the econometric specification to estimate the relationship between income and transfer:

$$T_{ht} = \alpha + \beta Inc_{ht} + \gamma Educ_{ht} + \delta \boldsymbol{X}_{ht} + \mu_h + \varepsilon_{ht} \quad \text{..... 2}$$

Subscripts indicate household *h* and time *t*. The crucial coefficient in model 2 is β that theoretically should be negative. Using OLS in the above model will arguably generate bias due to measurement errors in *Inc* (the income variable) that will be included in error ε_{ht}. Because the standard regression assumes that independent variables are not correlated with errors, implementing the least square typically results in biased estimation. To overcome this problem, we use the instrumental variable (IV) approach with the 2SLS strategy. Following Cox *et al.* (2004), our instrument variable is the regional dummy. Initially, we regress the income variable with the instrument variable and all independent variables in the previous equation (Khandker *et al*., 2010).

$$Inc_{ht} = \pi_0 + \pi_1 R_{ht} + \pi_2 Educ_{ht} + \varphi \boldsymbol{X}_{ht} + \mu_h + e_{ht} \quad \text{..... 3}$$

Further, we generate the estimator for income $\widehat{Inc}$ and reregress the estimator as in the initial model (step 2).

$$T_{ht} = \alpha + \beta \widehat{Inc}_{ht} + \gamma Educ_{ht} + \delta \boldsymbol{X}_{ht} + \mu_h + \varepsilon_{ht} \quad \text{..... 4}$$

The IV approach generates a consistent estimator for β. The underlying assumption is that the instrument is relevant (correlated with household income) and exogenous.

Although the IV approach mitigates the measurement errors in the income variable resulting in bias, bias remains potentially existent due to unobserved heterogeneity, μ_h that may be correlated with income. The variables include familial ties, degree of affection, and familial norms unique for each family, unobservable, and time-invariant. Thus, we use the estimation with household fixed effect to mitigate the effect of unobserved heterogeneity (Wooldridge, 2013).

RESULTS AND DISCUSSION

We run the estimation by initially replicating Cox *et al.* (2004)'s approach and then modifying the model and estimation strategy. Our main variable is household income as the key indicator of private transfers. Several explanatory variables used are the education level of the household head (elementary, secondary, and tertiary education). Specifically, the education level variables are dummy variables from elementary school (primary), junior secondary school (secondary), senior secondary school (tertiary), to university (university). Other household characteristic variables are the age of the household head (agehead), gender of household head (female head), marital status (marriedhead), number of children below one year old (numchild1),

number of children between one and six years old (numchild2), number of children of 7-14 years old (numchild3), number of adults in the household (numadult), employment status (not_employed), and whether the household has both husband and wife working (head_wife). Table 1 presents the descriptive statistics of each research variable.

The first estimation results using the OLS estimation demonstrate a significantly negative relationship between household income and transfer received. Generally, a one percent increase in income will reduce transfer by 0.11 percent. The results support the theoretical prediction of a negative relationship between income and transfer. Table 2 displays the estimation results.

Table 1
Descriptive Statistics of Research Variables

Variable	Mean	Standard Deviation
Transfer (log)	6.343	6.471
Income (log)	14.646	4.396
Household head's age (year)	44.665	15.405
BLT received (log)	3.051	5.397
Education status		
No schooling	0.103	0.304
Elementary	0.421	0.493
Junior secondary	0.142	0.349
Senior secondary	0.223	0.417
Tertiary	0.108	0.310
Female household head	0.180	0.384
Married household head	0.791	0.406
Unemployed household head	0.101	0.301

Source: IFLS-3 and IFLS-4

As previously mentioned, the OLS estimate cannot be used as a benchmark since it is not yet free of possible bias resulting from measurement errors in the income variable. Following Cox *et al.* (2004), we instrument the income variable in the estimation to account for measurement error-related bias. The regional dummy variables are employed as the instrument variable. In this instance, the IFLS provincial dummy is utilized as the income instrument variable.

The IV approach increases the derivative transfer coefficient. The findings indicate that a one percent increase in income translates into a 0.38 percent decrease in transfers. This estimate is comparable to the figures estimated by Cox *et al.* (2004) for the Philippines, which varied between 0.3 and 0.8. Several independent variables also demonstrate a strong relationship with the received transfers. Household heads who reside with their spouses (married) receive lower transfers than those who reside alone. Households with more children receive greater transfers. Additionally, households with more adult members receive larger transfers.

Table 2
The Effect of Income on Transfer

Dependent Variable: Transfer (log)	**(1) OLS**	**(2) IV**	**(3) IV - FE**
Income (log)	-0.110**	-0.385*	-0.178*
	(0.012)	(0.181)	(0.081)
Household Head's Education			
Elementary School	-0.477**	-0.361	-0.332
	(0.152)	(0.194)	(0.333)
Junior Secretary	0.023	0.242	0.178
	(0.185)	(0.264)	(0.448)
Senior Secretary	0.280	0.577	0.472
	(0.177)	(0.299)	(0.493)
Tertiary	0.827**	1.016**	-0.511
	(0.202)	(0.279)	(0.632)
Other Characteristics			
Household head's age	-0.010**	-0.005	0.010
	(0.003)	(0.004)	(0.009)
Female household age	-0.190	-0.126	0.135
	(0.156)	(0.168)	(0.324)
Married household age	-0.896**	-0.935**	-1.222**
	(0.158)	(0.181)	(0.319)
Number of children 0 – 1 years	0.724**	0.832**	0.590*
	(0.146)	(0.162)	(0.232)
Number of children 1 – 6 years old	-0.055	-0.001	-0.040
	(0.065)	(0.083)	(0.109)
Number of children 7- 14 years old	-0.054**	-0.434**	-0.064
	(0.065)	(0.053)	(0.097)
Number of adults	0.136**	0.209**	0.568**
	(0.022)	(0.055)	(0.094)
Unemployed household head	0.375*	0.083	0.348
	(0.162)	(0.271)	(0.275)
Working husband and wife	-2.054**	-0.116	_
	(0.201)	(1.203)	
Constant	10.793**	12.486**	7.307**
	(0.201)	(1.223)	(1.001)
Household fixed effect	No	No	Yes
R-Square	0.044	0.018	0.011
Observation Number	22,703	21,694	21,694

Note: Numbers in parentheses are standard errors. (**), (*) indicate significance levels at 1 and 5 percent, respectively.

The nonlinear relationship between income and transfers is a subject that has attracted substantial attention from scholars. This study classifies the income level into five categories. The estimation results indicate that the nonlinear specification is insignificant in explaining transfer. Although it is theoretically feasible to change the direction of the relationship between income and transfers, most empirical tests find that the slope changes with the same sign (negative).

Table 3
The Effect of Income on Transfer: Sub-Sample

Dependent variable: **Transfer (log)**	**(1)** **Rural**	**(2)** **Urban**	**(3)** **Java**[+]	**(4)** **Non-Java**
Income (log)	-0.102	-0.232*	-0.308**	0.085
	(0.128)	(0.106)	(0.104)	(0.128)
Household Head's Education				
Elementary School	-0.396	-0.043	-0.536	0.042
	(0.411)	(0.569)	(0.409)	(0.582)
Junior Secretary	0.821	-0.283	0.091	0.333
	(0.605)	(0.692)	(0.574)	(0.733)
Senior Secretary	1.217	-0.064	0.623	0.414
	(0.684)	(0.746)	(0.632)	(0.803)
Tertiary	0.790	-1.291	-1.076	0.542
	(0.999)	(0.892)	(0.808)	(1.030)
Other Characteristics				
Household head's age	0.032**	-0.016	0.019	-0.013
	(0.012)	(0.013)	(0.011)	(0.015)
Female household age	0.820	-0.450	0.204	0.078
	(0.459)	(0.458)	(0.397)	(0.566)
Married household age	-0.617	-1.710**	-1.303**	-0.991
	(0.461)	(0.443)	(0.392)	(0.556)
Number of children 0 – 1 years	0.248	0.936**	0.547	0.550
	(0.322)	(0.335)	(0.305)	(0.362)
Number of children 1 – 6 years old	-0.173	0.095	0.098	-0.300
	(0.155)	(0.154)	(0.143)	(0.172)
Number of children 7- 14 years old	-0.358*	0.207	0.003	-0.226
	(0.144)	(0.134)	(0.129)	(0.151)
Number of adults	0.438**	0.659**	0.701**	0.312*
	(0.142)	(0.128)	(0.123)	(0.148)
Unemployed household head	0.412	0.389	0.020	0.992*
	(0.435)	(0.359)	(0.337)	(0.483)
Constant	5.118**	9.429**	8.597**	4.927**
	(1.527)	(1.363)	(1.322)	(1.531)
Household fixed effect	Yes	Yes	Yes	Yes
R-Square	0.014	0.012	0.012	0.006
Observation Number	10,196	11,498	13,722	7,972

Note: Numbers in parentheses are standard errors. (**), (*) indicate significance levels at 1 and 5 percent, respectively. [+] including Bali

Until now, estimating derivative transfers with the standard method generates results consistent with prior findings in various countries. The existence of additional elements at the household level that influence the relationship between income and transfers is an unaddressed methodological gap in prior studies. Given that these additional elements are unobservable, they are frequently overlooked in past research. These factors include familial relationships, social conventions, and affection.

This analysis isolates the impacts of these unobserved variables using household-level fixed effects. The outcomes demonstrate that the derivative transfer coefficient decreases. A one percent rise in income results in a 0.17 percent decrease in transfers. By isolating the impact of unobserved characteristics at the family level, the relationship between income and transfer is diminished. This implies that if familial relationships are not controlled, estimations solely relying on IV will

overestimate.

We then present the transfer estimation model by splitting the sample based on its origin to have a deeper understanding of the influence of control on unobserved heterogeneity at the household level. Initially, we split the sample into rural and urban households. The findings indicate that the derivative transfer coefficient for rural samples has a negative sign but is statistically insignificant. In contrast, the derivative transfer coefficient for urban families is significantly negative. These findings imply that only urban families exhibit signs of crowding out.

Next, we disaggregate the sample into Java and non-Java regional categories. The estimation outcomes are shown in Table 3, columns (3) and (4). For the Java subsample, the household model estimation yields significant results. A one percent rise in income equals a zero point three percent increase in transfer receipts. The non-Java subsamples, meanwhile, yield insignificant results. The following summarizes the behavior of private transfers between families in Indonesia. First, the magnitude of the derivative transfer coefficient in Indonesia is not very great. This demonstrates that the influence of income on transfers is not very significant. When unobserved factors are controlled, the influence of income is diminished. Family relationships and affection levels significantly limit the transmission of derivatives. Second, based on the derivative transfer coefficient, indicators of crowding-out are limited to metropolitan regions and the Java-Bali region. Meanwhile, there is no evidence of crowding out in rural subsamples. This conclusion differs from studies in other nations, which indicate that this effect is more pronounced in rural regions.

Next, we use the BLT transfer policy variable to investigate the direct impact of public transfer policy on private transfers. Tables 4 and 5 present the estimation results.

The table demonstrates that BLT, independently or interacting with income, does not significantly affect transfers. The results suggest that government policies of cash transfers do not reduce the intensity of inter-household financial transfers. Thus, the crowding-out effect of transfer public in the form of BLT is not empirically supported.

The estimation with the first difference combined with the household fixed effect demonstrates that the derivative transfer coefficient declines further into -0.061, albeit still statistically significant. The results indicate that controlling for all unobserved factors at the household and community levels further reduces income's effect on transfer.

Table 4
The Impact of *BLT* on Transfers: First Difference, Rural and Urban

Dependent variable:	**(1)**	**(2)**	**(3)**	**(4)**
Transfer (log)	**Rural**	**Urban**	**Rural**	**Urban**
Income (log)	-0.043	-0.068*	-0.044	-0.056
	(0.042)	(0.032)	(0.040)	(0.031)
Income (log)*BLT (log)	-0.007	0.0004	-0.003	-0.001
	(0.005)	(0.005)	(0.005)	(0.005)
Amount of BLT (log)	0.027	0.044	0.027	0.054
	(0.024)	(0.031)	(0.023)	(0.029)
RASKIN (yes=1)	0.433	0.176	0.312	-0.183
	(0.336)	(0.363)	(0.293)	(0.314)
ASKESKIN (ya=1)	-0.417	0.529	-0.577	0.530
	(0.347)	(0.366)	(0.325)	(0.345)
Household Head's Education				
Elementary School	-0.392	-0.124	-0.519	-0.152
	(0.418)	(0.587)	(0.408)	(0.563)
Junior Secretary	0.736	-0.531	0.584	-0.469
	(0.614)	(0.719)	(0.599)	(0.691)
Senior Secretary	0.762	-0.121	0.873	-0.262
	(0.709)	(0.776)	(0.687)	(0.742)
Tertiary	0.369	-1.271	0.461	-1.656
	(1.061)	(0.936)	(1.008)	(0.892)
Other Characteristics	included	included	included	included
Constant	0.047	-0.449*	0.189	-0.272
	(0.279)	(0.224)	(0.254)	(0.211)
Community Fixed Effect (EA)	Yes	Yes	No	No
Tradition Fixed Effect	No	No	Yes	Yes
R-Square	0.018	0.016	0.018	0.017
Observation Number	4,233	4,351	4,233	4,351

Note: Numbers in parentheses are standard errors. (**), (*) indicate significance levels at 1 and 5 percent, respectively.

This study also performs resampling to explain the findings by splitting samples based on urban and rural areas and Java-Bali and non-Java-Bali regions. The estimation results suggest that derivative transfers are only significant for urban families. This shows that familial relationships in rural areas may be more influential than income in predicting transfer behavior. The data also indicate that derivative transfers are significant only in Java and Bali.

A crucial feature in analyzing private transfers is controlling for households' conventions and customs. IFLS has provided data on traditional customs used by households in their daily activities. Besides controlling for the variation of other factors at the enumeration area (EA) level, Tables 4 and 5 also control for custom variation. The results are qualitatively similar to prior findings; only rural and Java households exhibit the crowding-out effect.

Table 5
The Impact of *BLT* on Transfers: First Difference, Java and Non-Java

Dependent Variable:	**(1)**	**(2)**	**(3)**	**(4)**
Transfer (log)	**Java**	**Non-Java**	**Java**	**Non-Java**
Income (log)	-0.075*	-0.043	-0.067*	-0.032
	(0.030)	(0.045)	(0.029)	(0.043)
Income (log)*BLT (log)	0.002	-0.006	0.001	-0.007
	(0.004)	(0.006)	(0.004)	(0.006)
Amount of BLT (log)	0.036	0.032	0.037	0.035
	(0.024)	(0.032)	(0.022)	(0.031)
RASKIN (yes=1)	0.139	1.022	-0.043	0.805
	(0.292)	(0.421)	(0.253)	(-0.377)
ASKESKIN (ya=1)	0.126	-0.093	0.069	-0.329
	(0.302)	(0.444)	(0.285)	(0.424)
Household Head's Education				
Elementary School	-0.616	0.008	-0.686	0.033
	(0.411)	(0.592)	(0.404)	(0.577)
Junior Secretary	-0.119	0.041	-0.186	0.300
	(0.581)	(0.748)	(0.569)	(0.730)
Senior Secretary	0.337	0.044	0.267	0.373
	(0.638)	(0.828)	(0.625)	(0.806)
Tertiary	-1.403	0.262	-1.213	0.604
	(0.826)	(1.056)	(0.806)	(1.032)
Other Characteristics	included	included	included	included
Constant	-0.303	-0.137	-0.169	-0.029
	(0.217)	(0.292)	(0.200)	(0.273)
Community Fixed Effect (EA)	Yes	Yes	No	No
Tradition Fixed Effect	No	No	Yes	Yes
R-Square	0.020	0.012	0.020	0.012
Observation Number	5,453	3,131	5,453	3,131

Note: Numbers in parentheses are standard errors. (**), (*) indicate significance levels at 1 and 5 percent, respectively.

We also control BLT policy with other policy variables like Raskin and Askeskin and generate similar results (Rahayu *et al*., 2019). Public transfer policies do not reduce private transfers. Unlike prior studies, public transfers do not crowd out private transfers, implying that the aim of public transfers to improve income distribution does not compete with household (private) initiatives to share financially.

This study generates several new findings absent in prior studies. This study, to some extent, also supports the hypothesis of Cox *et al.* (2004) on the non-linear effect of income variables on private transfers. However, the non-linear effect can only be confirmed for households with very high income (the highest ten percent). In other words, the linear model is more appropriate to explain the relationship between income and transfers. Our findings are actually consistent with Gibson *et al.* (2011), who

observe household transfer behavior in several developing countries.

Our main concern is the endogeneity of the income variable. Gibson *et al*. (2011); Kazianga (2006) use the instrument variable to mitigate this problem. Kazianga (2006) uses the rainfall variable to instrument the income variable by assuming that Burkina Faso (the research setting) is entirely an agricultural area that heavily depends on rainfall. Meanwhile, Indonesia covers both rural and urban households. The full sample, urban and rural sub-sample tests indicate consistent results: income is negatively related to transfers. The results demonstrate no significant difference in the transfer behavior of rural and urban households.

Gibson *et al.* (2011) also use the instrumentation approach in the Indonesian setting (and other developing countries) by using the house characteristics (like the number of rooms inside the house). However, the same approach does not yield significant results in this study, and house characteristics may be endogenous and exacerbate the endogeneity problem.

We use the first difference and fixed-effect approaches to fill the research gap related to the endogeneity problem. This approach relies on the panel data feature offered by IFLS. The findings reveal that controlling for the unobserved factor effect reduces the impact of income on transfers. However, the effect remains significant.

Another research gap is related to the direct test of the impact of public transfers on private transfers. Kang (2004) utilizes this model to estimate household transfer behavior in Nepal. Kang (2004)'s model only uses the binary variable without specifically testing the policy types. Different from Kang (2004), we use the public transfer variable in the form of cash transfers. The results indicate that cash transfers (BLT) do not exhibit a significant effect. Even BLT recipients receive more private transfers. Thus, public transfers complement private ones.

Studies on private transfer behavior in Indonesia offer interesting results. Unlike prior studies that underscore the existence of the crowding-out effect, this study documents that crowding-out is generally less existent in Indonesia. Controlling unobserved factors significantly reduces the effect of income on private transfers. Further analysis reveals that only rural and Java households exhibit crowding out.

Using the public transfer policy variable like BLT to evaluate the crowding-out effect generates qualitatively similar results. Urban and Java households exhibit crowding out but with much lower intensity. The crowding-out effect is crucial due to its extant and serious policy implications. If the effect is significant, public transfers will be less effective. Government initiatives to aid specific households will be greeted with the opposite response to a reduction in inter-household private supports. Our empirical examination suggests that the crowding-out effect in Indonesia is negligible. Including the BLT variable in the analysis further elucidates the findings that BLT exerts no influence on private transfers. Offering inter-household transfers is mostly driven not only by income but also by familial relationships and ingrained conventions

that have a substantial impact on Indonesian people's behavior.

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

Our study on Indonesian families' private transfer behavior produces several crucial conclusions. First, consistent with several previous studies in multiple developing nations, household wealth is crucial in private transfers. However, the elasticity of private transfers concerning household income is quite modest. Controlling over all relevant variables, including unobservable components, reduce further the transfer elasticity. Despite several modifications to the model involving the addition of controls at the community level, the use of alternative specifications, and the sorting of samples based on regional circumstances (rural or urban, Java and outside Java), the estimation findings are also highly reliable.

This research demonstrates that private transfer is motivated by altruism. Two further findings back this conclusion: households with more children and unemployed households transfer more. Alternatively, transfers are reduced if both the head of the household and their spouse are employed or if the head of the household still resides with their spouse (not a widow or widower). In other words, private transfers are always prioritized for economically disadvantaged households.

Due to the relatively low elasticity of transfers, the potential crowding-out impact of public transfers is likewise very low. Using public transfers (in the form of BLT) for tests fails to demonstrate a crowding-out effect. Our findings indicate that BLT recipients receive more private transfers. Contrary to the crowding-out effect idea, there is no competition between public and private transfers, and the relationship between public and private transfers is complimentary.

Our findings have significant policy consequences. As documented in numerous previous research, the concerns that public transfers crowd out private transfers are not observed among Indonesian families. Public transfers do not substitute private initiatives to aid needy households. Even if the target homes also receive support in the form of public transfers, private transfers are nevertheless provided.

This research does not account for transfers from institutions other than the government, such as aid from donor organizations, zakat and infaq institutions, and other institutions with the same operations as the financial assistance model. Accordingly, we advise future studies to incorporate formal and informal aid components from nongovernmental groups in the analysis to improve the research quality.

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APPENDIX

Table 6
Description of Several IFLS Household Characteristics

Variable	Description	Obs.	%
Domicile	Urban	7,966	62.27
	Rural	4,826	37.73
Female household head	0 = Male	11,390	89.04
	1 = Female	1,402	10.96
Toilet	0 = Own	9,565	74.77
	1 = Others	3,227	25.23
Water	0 = Mineral, Pump	6,372	49.81
	1 = Others	6,420	50.19
Electricity	0 = Yes	11,911	93.11
	1 = No	881	6.89
Cooking fuel (Stove)	0 = Others	9,547	74.63
	1 = Firewood, Charcoal	3,245	25.37
House floor	0 = Ceramic, etc	10,358	80.97
	1 = Soil	2,434	19.03
House wall	0 = Cement, etc	9,598	75.03
	1 = Others	3,194	24.97
Accepting Transfers *	Yes	2,901	22.35
	No	10,067	77.58
	Not know	3	0.02

*) Direct cash transfer programs/*Bantuan langsung tunai*
Source: IFLS-4, 2007