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The Effect of Conditional Cash Transfers on the Prepaid and Postpaid Expenditures of Internet and Cellular Services: The Case of Filipino Households

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Technology has been playing a large role in the lives of households regardless of income. How, then, do poor families value the importance of internet and cellular services due to the existence of outcome-improving or outcome-worsening effects associated with these services? At the same time, since the Pantawid Pamilyang Pilipino Program (4Ps) substantially affects its beneficiaries' household expenditures, assessing its effectiveness concerning its objectives is important. Most literature on how poor households spend their cash transfers is centered on directly linked goods such as health and education. However, the relationship between CCTs and expenditures on goods that play a more indirect yet increasing role in the lives of poor households (e.g., internet and cellular services) has yet to be explored. Using the 2018 Family Income and Expenditure Survey (FIES) with the 4Ps program serving as the treatment, a propensity score matching methodology is applied to compare beneficiaries' expenditures on prepaid and postpaid internet and cellular services with non-beneficiaries via Average Treatment Effects on the Treated (ATT).

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Policy Recommendations

The researchers found that being a 4Ps beneficiary does not significantly affect spending on internet connection services, postpaid cellular phone subscriptions, payment for prepaid communication, and the total of these three variables when compared to non-beneficiaries. Given these findings, the group has three policy recommendations for the government based on this study that may lead to significant results in the future:

1. ***The government may consider revisiting the intended goals of the Pantawid program such that it recognizes the importance and necessity of ICT in day-to-day life.*** As the country increases its ICT use, the government has a key role in harnessing the power of ICT to benefit all citizens. Because ICT is now becoming increasingly linked to the formation of human capital (e.g., its role in improving education and health), then the government must take the key opportunity to integrate ICT with its 4Ps program, thereby increasing ICT access. This is especially true for the rise of online learning and the accessibility of government services such as the Department of Health's teleconsultation programs which, with more convenience via ICT, should help more citizens with concerns that are deeply important to them. This is not an extreme change given that the Department of Information and Communications Technology (DICT) has already expressed its plan to make ICT accessible for all Filipinos in its Philippine Digital Strategy from 2011-2015 (Department of Information and Communications Technology [DICT], 2014) and its National Broadband Plan to be achieved by 2040 (DICT, 2017).

2. ***Digital literacy and modules that increase knowledge on the usage of ICT must be integrated into the family development sessions (FDS) that beneficiaries attend monthly.*** The 4P's Family Development Sessions (FDSs) offer beneficiaries the opportunity to learn ICT's strengths and weaknesses. Thus, it is recommended that FDSs tackle topics like digital literacy, employment and information opportunities, online misinformation, and ICT's other potential benefits and harms. This recommendation is important so that 4Ps recipients, both from the younger and older generations, can maximize their technological resources and enhance their ICT literacy. This recommendation emanates from the study's results as the insignificant relationship obtained could be partially explained by the lack of knowledge Pantawid recipients have on

effectively using ICT due to the lack of demand for these goods created by the presence of extreme poverty. Besides the lack of knowledge, digital literacy modules can improve the perception of Pantawid beneficiaries about ICT commodities' usefulness and can lead them to avoid its negative effects.

3. ***ICT must be made accessible to households, especially poor ones.*** Shared access facilities or community centers such as computer labs in barangays or free Wi-Fi access could be subsidized by the government. Subsidizing these goods imply that poor families no longer have to spend on them and can instead focus on buying directly beneficial commodities such as more nutritious food, medicine, and education. This recommendation emanates from the results as the inaccessibility of ICT is one of the reasons why a Pantawid beneficiary does not spend more nor less on prepaid and postpaid internet and cellular services than a non-beneficiary. Further, the researchers believe that the government can consider adding the utilization of such "ICT hubs" as one of the conditions in the 4Ps program. This recommendation is consistent with DICT's two projects which are slowly being implemented to increase ICT access for underserved communities such as rural poor and urban poor communities (DICT, n.d.). These projects are: (a) Tech4ED centers which aim to serve as working spaces for online freelancers and a source of access for government services; and (b) Free Wi-Fi for All which aims to increase free internet access in areas where it is difficult to access.

Introduction

The shift to a more digital way of life is inevitable. This is supported by the fact that the Philippines is experiencing uptrends in internet and cellular usage, one of which includes a mobile phone penetration rate of about 80% as of 2019 and an above-average number of social media users of 78.5 million as of 2020 (DICT, 2019; Statista, 2021a). This suggests that Filipinos' ICT service usage has been growing despite various barriers such as low income (Statista, 2021b; Salac & Kim, 2016). Given the larger role that technology will play in the lives of households regardless of income, it raises the question of how much poor families spend on internet and cellular services, based on how they value them.

Model and Results

A probit model was used to estimate the probability that a household receives 4Ps assistance, given a series of individual, household, infrastructural, and environmental correlates. The population of households is then divided between 4Ps recipients (treatment group) and non-recipients (control group) using the propensity scores of households receiving 4Ps. The expenditure on prepaid and postpaid internet and cellular services is now compared between the treatment group and control group through average treatment effects on the treated (ATT). The propensity scores between both groups will then be matched. This study utilizes two classes of matching methods, which are distance and stratum matching. To further strengthen the results, this study conducted robustness checks by measuring the balance for each covariate through the absolute standardized mean difference (SMD). If balance is not achieved, the base model is reestimated by arbitrarily adding the squared terms of variables found to be imbalanced (Zhang et al., 2019; Garrido & Magaziner, 2016). In this study, the squared terms of family size and number of household members aged between five and seventeen were added. Also, the covariate balancing propensity score (CBPS) model, a methodology from Imai and Ratkovic (2014), is also employed to further optimize covariate balance. Given this methodology, the study's following results were drawn, thereby serving as a basis for the policy recommendations.

To answer the first research question of what factors affect the likelihood of receiving conditional cash transfers as a Filipino household, the following results were obtained:

- Individual characteristics, including the household head's sex, age, marital status, and job/business indicator, resulted in varying effects. The household head's sex and age are insignificant in receiving CCTs. Married, widowed, and divorced/separated household heads and those with a job or business as a household head are more likely to become a beneficiary relative to their respective reference categories. Household heads who have higher educational attainments than early childhood education are less likely to be Pantawid beneficiaries.

- Household characteristics, meanwhile, all appear to support the findings of the literature. Larger family sizes, more household members aged between five and seventeen years old, and

families whose major source of income was either entrepreneurial activity or other sources of income, were statistically significant variables that made it more likely for a household to receive CCTs.

- For infrastructural variables, it was found that having light materials, salvaged/makeshift materials, and mixed but predominantly light materials for their wall type made it more likely for the household to be a CCT recipient. Having electricity was not a statistically significant factor that affects the probability of a Filipino household receiving CCTs. It was shown that households whose water source is not of their own use in a community water system are more likely to receive a CCT than households whose water source is their own use in a community water system. Owning more landlines was an insignificant factor, but having more cellphones made it likelier for a household to receive CCTs.

- For environmental variables, it was found that while being an agricultural household was not a statistically significant factor, being an urban household makes it more likely to receive CCTs than rural households. Compared to NCR households, those within Region 5 (Bicol), Region 9 (Western Mindanao), Region 10 (Northern Mindanao), Region 11 (Southern Mindanao), Region 16 (Caraga), and Region 4B (MIMAROPA) are more likely to receive CCTs.

To answer the second research question of how receiving conditional cash transfers affect households' expenditures on prepaid and postpaid internet and cellular services, the results are as follows. Based on the results of the reestimated model with squared terms and confirmed by the third set of estimates through the CBPS model, a 4Ps household's expenditures on the studied outcome variables are not statistically different from a non-4Ps household. An insignificant result was obtained because of the sheer number of households that do not spend on the outcome variables, based on the descriptive statistics of the continuous variables. More importantly, since directly linked goods to the 4Ps program include spending on food, health, and education, then with families having more cash that provides for immediate needs, it is understandable if beneficiaries spend no more or less on ICT than non-beneficiaries.

Conclusion

The effect of receiving conditional cash transfers does not significantly increase nor decrease the households' expenditures on prepaid and postpaid internet and cellular services compared to not receiving CCTs. As the country increases its ICT use, the government has a key role in harnessing the power of ICT to benefit all citizens. More importantly, given the nation's experience with the COVID-19 pandemic, the new normal has called for Filipinos to adapt to online setups regardless of their income class. The government has a lot of opportunities to improve its Pantawid program as the government has a unique role to play in pushing the treatment effects from insignificance to significance.

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