

PRODUCTIVE VS. UNPRODUCTIVE BORROWING: INSIGHTS FROM HIES DATA ON HOUSEHOLD CONSUMPTION PATTERNS

By

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A thesis submitted to the Department of BRAC Institute of Governance and
Development in partial fulfillment of the requirements for the degree of
Masters in Development Studies (MDS)

BRAC Institute of Governance and Development

BRAC University

March, 2026

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Ethics Statement

I have personally prepared this thesis as part of academic requirements. I have conducted the research personally, data analysis and interpretation of data.

I have also properly acknowledged the sources and references used in this work maintaining the academic integrity and ethical research practices.

In this work, I utilized Artificial Intelligence (AI) tools to checking grammar, improvement of the languages.

Abstract

This research focuses on the contrasting effects of productive and unproductive borrowing on household welfare in Bangladesh, and it utilizes the data from the Household Income and Expenditure Survey (HIES) 2022, which is nationally representative. It is generally assumed that income-generating loans are allocated to building up capital, such as micro business opportunities, crop agriculture, or human capital, which brings long lasting households welfare development. By contrast, immediate consumption loans create social obligations and are associated with increased vulnerability and dependency on debt.

The study analyses 4,895 households that received loans and adopts ordinary least squares (OLS) regression as the method to understand the loan type impact on three vital aspects of outcomes: regular households consumption expenditure, non-crop asset formation, and income of total household member. Another 4,740 households subsample with concentrated loan of 75% or more of their total credit is being used to investigate the borrowing behavior patterns. Indications from the analysis are that households having the maximum portion of the debt as productive will have monthly consumption (919.164 BDT/month) significantly larger, value of the asset (28,086.94 BDT) higher, and income of the households (39,276.87 BDT) more comparing to the unproductive loans holders when other parameter are under control.

The findings portray that households with a major share of efficient loans contains much better monthly consumption, non-crop capital accumulation, and income of total household comparing to unproductive credit. Purpose of the loan has a vital hook in the financial outcomes, with income producing borrowing being associated with monetary resilience. There is an argument that not all loans create equal impact on welfare, the investigation sheds light on the policy debate on targeting of credit and alleviation of poverty. Such mechanisms is essential to put in place that not only promote borrowers to utilize the loan productively but also addressing the barriers in structure that leading to loan diversion and obligation.

Keywords: Productive loans, unproductive loans, household welfare, consumption, asset accumulation, household size, income, HIES 2022, Bangladesh, microfinance, microcredit, poverty alleviation.

Acknowledgements

I would like to convey my gratitude to the persons who was there with support to completion of this study.

First and foremost, I am sincerely thankful to my supervisor, for the valuable direction, guidance, insights of critical points, and continuous involvement during the process of research. His regular feedback and academic consultation have been instrumental in forming the direction and maintain the quality of this work.

I also express my gratitude to the Bangladesh Bureau of Statistics (BBS) to make the available of the Household Income and Expenditure Survey (HIES) 2022 data. The richness of this set of data allocated a robust and significant analysis of household credit behavior in Bangladesh.

Also, special gratefulness to my peers and academic colleagues, whose insightful discussions and constructive criticisms worked to refine my strategic approach. I am also extending my thankful to my kith and kin and partner for their continuous support, patience, and assistance during this research.

Finally, I acknowledge all the scholars whose previous research led the foundation upon and depend on this study builds. Any errors or shortcomings in this study are my sole responsibility.

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List of Acronyms

Abbreviation	Full Form
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
CE	Consumption Expenditure
GDP	Gross Domestic Product
HH	Household
HIES	Household Income and Expenditure Survey
MFI	Microfinance Institution
OLS	Ordinary Least Squares
PSU	Primary Sampling Unit
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
SSN	Social Safety Net
UNDP	United Nations Development Programme
WB	World Bank

Chapter 1

Introduction

The provision of credit in developing, and even in some developed, countries has been widely promoted as a way out of poverty. By enabling households to invest in land, small enterprises, or human capital, credit can reduce income volatility and improve socio-economic welfare over time. However, it is also a fact that not every loan brings about the same consequences.

Researchers categorize loans into two groups: the productive ones (the loans meant for income generating or asset building purposes) and the unproductive ones (the loans meant for consumption or non-investment purposes). It is assumed that productive loans will in turn lead to the growth of assets, stability in the economy, and better quality of life for the households in the long run. On the other hand, unproductive borrowing may uncomfortable situations arise in the form of the past debt that will not have the effect of enlarging the households' asset base (Mamun et al., 2010).

The distinction is backed by empirical research. In particular, Shamsuddin et al. (2021) conducted a study regarding microfinance programs in Bangladesh and arrived at the conclusion that microfinance participation is significantly correlated with the accumulation of assets by borrowing households. The study carried out by Kamal and Bin (2014) worked with HIES data from Bangladesh and found that total asset holding had a positive correlation with income, profits from enterprises, and financial assets, but variables such as the education level of the head of the household, gender, or religion were not always strong effects.

Understanding the Impacts of the two types of loans which are productive and unproductive on household consumption and asset accumulation is the aim of this research. It is directed by HIES data and specifically examined into the issue of whether households concentrating predominantly on one type of loan have different actions in terms of household consumption or assets building. The importance of this study lies in the fact it dives into the quality of loan usage (productive versus unproductive) and how it interacts with households' consumption and asset accumulation kinetics whereas the existing literature often highlights the amount of the loan or the access to it.

Chapter 2

Research Significance

Borrowing money is the usual way for families to cope with daily needs and unexpected situations in many low earning countries. Occasionally loans are taken out for productive intentions, for example, to begin a small business or provide funds for agricultural activities. In contrast, they may also be taken for unproductive or emergency motives such as paying medical bills, funeral expenses or wedding. Loan usages can greatly impact household well-being and quality of life, thus the difference in their effect.

Various crucial research has been conducted to understand the impact of credit and borrowing on low earning households. The well-known studies include the one conducted by Banerjee, Karlan, and Zinman (2015). Their findings suggest that microcredit was of benefit to certain households in acquiring durable assets and beginning of businesses. Still, it could not lead to better consumption or better welfare for all. This implies that only credit access is insufficient; the purpose of borrowers' is also matters.

Conversely, the study by Kaboski and Townsend (2012) in Thailand on the effects of a government village loan program reported that loans led to a rise in consumption, increase in agricultural investment, and household income, but also, of course, they realized that asset growth became slower. This indicates that there is a exchange: loans for productive purposes may enhance daily living and income, but they are not necessarily developing sustainable wealth.

Loans in households are an economic shock measure that other researchers have analyzed, with the inception on the basis of changing consumption patterns. In the case of Stefan Dercon and Pramila Krishnan (2016), the study in rural Ethiopia brought to light that households are often in a situation where they are unable to borrow and thus, suffer from the risks. Health related loans, for instance, may give temporary easing of the situation but they do not always result in consistent consumption patterns or improved household welfare, which is in line with the productive and unproductive borrowing distinction present in HIES data analyses.

Barrett and Carter (2012) take a wider view introducing the notion of poverty traps. They contend that families possessing little in the way of assets are, in effect, held captive by their own poverty since they cannot invest in the area of income earning scope. If one looks at this argument, loans for productive investments can help families to leave the poverty traps; on the other hand, the use of loans for unproductive purposes may contribute to the indebtedness and vulnerability cycles.

Research on microfinance has shown that productive loans result in better household outcomes than unproductive or emergency borrowing. This also applies to the case of HIES data for household consumption patterns. Imai and Azam (2012) concluded that microfinance loans in

Bangladesh benefited household incomes and food consumption, while the loan's objective largely determined the welfare outcome. Likewise, Basargekar (2009) reported that loans for productive purposes increased economic empowerment to a greater extent among micro entrepreneurs in self-care groups than unproductive loans, which only a small amount of impact on household welfare. Likewise, Sekhon and Grant (2021) identified that productive loan utilization was one of the key indicators to poverty alleviation, although often accompanied by a number of barriers that prevented the understanding of these gains. On the other hand, Khaleque (2011) pointed a very serious problem: a staggering 68% of loans allocated for generation of income were actually redirected, with 40% totally diverted, especially between the non-savers and wage earners who use to spent more than 28% of their credit on consumption, thus laying bare the problems triggered by unproductive borrowing.

This study is to examine household motions in Bangladesh through the lenses of the comprehensive Household Income and Expenditure Survey (HIES) 2022 data. The central question is Do households that borrow for productive purposes (such as business or agriculture) do better in terms of consumption than households that borrow for unproductive or emergency purposes (such as health, weddings, or funerals)?

This question, is the main point of this study when examined thoroughly, which therefore wants to take part in the ongoing argument about the impact of loan on better life. It also can be useful to decision makers and institutions to come up with more appropriate credit offerings. The objective is to determine if the promoting of more productive borrowing could bring higher household consumption and poverty alleviation in the end.

Chapter 3

Evaluation Design

The research uses data from the Household Income and Expenditure Survey (HIES 2022) to explore the differences in household consumption according to the sort of credit. The survey included 14,395 households including 62,407 individuals (31,269 males and 31,138 females) in whole. The sample consists of an equal distribution of rural (7,199) and urban (7,196) households.

Of the total households, 4,895 indicated that they had borrowed money. These loans are categorized into two groups:

Productive loans: used for activities such as business, agriculture, or education.

Unproductive loans: Loans used for purposes such as medical expenses, festivals, food, or marriage related costs are classified as unproductive. Specifically, medical expenses, while

potentially critical for sustainable health and well-being, are considered unproductive because they do not directly generate income for individuals, unlike investments in business or agriculture.

The loan taking households are the main subjects of the study. Their consumption expenditures are recorded at various frequencies (daily, weekly, monthly, and yearly) allowing to see if households that take loans for business reasons are better off in terms of consumption than those that take loans for personal or emergency reasons.

The subsequent descriptive statistics give a complete picture of the main features of the 14,369 households that were drawn from the Household Income and Expenditure Survey (HIES) 2022 in Bangladesh. The table is a collection of household demographics, economic indicators, loan and credit behavior, and individual level traits. The statistics sample show the variation to understand the context of borrowing patterns and their effects on consumption, assets, and income as mentioned in this thesis. The information shows a mixture of rural and urban households with a total of 62,311 people living in all households. All values are in Bangladeshi Taka (BDT), and also the percentages taken from binary indicators where needed.

Variable	Mean	Std. Dev.	obs
Household Characteristics			
Household size (number of members)	4.335096	1.757927	14,369
Head of household is male	.8830816	.3213342	14,369
Head of household is female	.1169184	.3213342	14,369
Head of household education	6.35855	5.974815	14,369
Religion (%) – Islam	.8963045	.3048757	14,369
Religion (%) – Hindu	.0936043	.2912875	14,369
Religion (%) – Buddhist/Christian	.0100912	.0999501	14,369
Economic Indicators			
Monthly household income (BDT)	9061.812	51186.54	13,144
Monthly household consumption (BDT)	22306.52	21372.6	14,366

Loans and Credit			
Total loan taken (BDT)	57191.84	895189.4	14,369
Any Loan	.3406639	.473949	14,369
Loan type – Productive loan	.1677918	.3736943	14,369
Loan type – Unproductive	.1728722	.3781499	14,369
Individual Characteristics			
Average age of household members	29.292	20.0493	62,311
Education (years, all members)	7.968756	8.414827	44,905
Number of earning members	1.344825	.8251201	62,330
Share of female earners	.0546286	26.22805	62,330

An in-depth analysis of the descriptive statistics from the Household Income and Expenditure Survey (HIES) 2022 is able to share crucial knowledge regarding household traits, loan usage, also economic measures with the study of productive loans against unproductive loans. A household of four or five is the most common and it appears in 14,369 households with an average of 4.34 members. Almost all of these households (88.3%) are headed by men while only about one tenth (11.7%) of them have female heads whose average education in 14,369 households is 6.36 years. The majority of the households (89.6%) practice Islam; others are quite minor with Hindus at 9.4% and Buddhists or Christians at just 1%.

In monetary terms, monthly household income in BDT is 9,061.812 on average across 13,144 households, while average monthly consumption is estimated at 22,306.52 BDT for 14,366 households implying that different financial resources and ways of spending are prevailing. Loan sector has a percentage of 34.07%, which means that it comprises approximately one third of the total families (14,369) who have borrowed money, with an average loan amount of 57,191.84 BDT accepted. Of these families with loans, the proportion of the productive ones is about 16.77% and the unproductive ones, 17.28%, thus indicating a rather even spread of the two types of loans.

The demographic statistics reveal that the average age of residents is 29.29 years for 62,311 individuals, while the corresponding figure for education is 7.97 years for 44,905 individuals. Each family has on average 1.34 earning members, and of the total workforce (62,330 individuals), the female share of workers is indicated as 5.46%. These results show the different

socioeconomic context that defines the different borrowing manners; hence they serve as a foundation for discussing the strike of productive and unproductive credit on consumption and asset accumulation behavior.

Chapter 4

Estimation Strategy

This survey draws on the nationally demonstrative Household Income and Expenditure Survey (HIES 2022), done by the Bangladesh Bureau of Statistics, which assists as the primary dataset. The investigation considers the household as the fundamental unit, which emphasizes collective financial behavior in low earning families aligning existing literature. For cross module linkage between household and individual level variables, a unique household identifier (HHID) was formulated by combining the variables Term, Primary Sampling Unit (PSU), and HHID. This formulated identifier allowed for precise incorporation of loan, income, expenditure, asset, and demographic characteristics across the dataset.

This study follows a common methodological convention by assigning the household head as the proxy borrower since loan data in HIES is reported at the household level, not in individual level. This approach represents real world financial decision taking culture in countryside and low earning population, where the head of the household often manages outer credit and allots its use. Such arrangement is supported by earlier empirical work, notably Kaboski and Townsend (2012), who used similar intra household constructs in analyzing loan behavior in rural finance.

From the dataset sample of 14,369 households, 4,895 households stated taking at least one loan. Many households simultaneously held multiple loans, some for productive purposes (e.g., agriculture, small enterprise, or education) and others for unproductive or emergency related reasons (e.g., medical costs, social obligations, or food) learnt from a preliminary review of the loan data. In order to account for this complexity, total loan amount per household was calculated and further disaggregated it into productive and unproductive loan components.

To analyze meaningful borrowing behavior, each household categorized based on its dominant loan type. Specifically, if a household's total loans 50% was utilized for income generation or asset building, it was categorized as a productive loan dominant household; in contrast, it was considered unproductive loan dominant household. This model-based classification assisted account for diversity in loan behavior and served as a foundational grouping variable in regression models evaluating welfare outputs. This model-based approach harmonizes with frameworks described by Banerjee et al. (2015), where the importance of loan purpose highlighted, not just access, in deciding microfinance consequences.

To ensuring further robustness, another analysis conducted sensitively on a subsample of 4,740 loan intensive households, categorized as those with at least 75% of their total credit intense in either productive or unproductive loans. To enhance the internal validity and allowing for cleaner comparisons this refined categorization isolates households with more steady borrowing manner. This resolution is aligned with best practices in poverty dynamics studies, such as the work of Stefan Dercon and Pramila Krishnan (2000), who debate for well-defined behavioral distinctions in empirical microeconomic studies.

Along with loan data, HIES 2022 provides detailed expenditure data across various types and time intervals daily, weekly, monthly, and annual. Ensuring consistency and comparability, all expenditures were normalized to monthly values reported in household. This coordination enabled a unified measure of monthly household consumption, which helped as one of the primary outcome variables. The normalization approach reflects established applies in household budget analysis and was important for comparing welfare levels across households with different credit patterns.

Through this systematic and organized approach, the study understands not only the amount of loan but also the quality and purpose of loan utilization, allowing for a more perceptive analysis of how credit interacts with household welfare in the Bangladeshi culture. Households' consumption in the dataset can be broadly categorized as follows:

Daily consumed food items and perishables: Rice and rice products, pulses, wheat and bread, raw meat of cattle, fresh/frozen fish, eggs and egg products, vegetables (including cultivation seeds), and meals from restaurants.

Weekly consumption items: Baby food, cigarettes and bidi, coffee, tea, and cocoa-based beverages.

Monthly non edible expenditures and services: Household bills, salaries of domestic workers (house help, drivers, home tutors, gardeners), medicine, fuel, transportation, communication costs, grooming (salon, parlor), and purchase of small household electric items.

Annual or infrequent non-food expenditures: Clothing and tailoring, footwear, house rent, repair and maintenance of dwellings, household furniture and fixtures, major equipment (electric or general), therapy equipment, healthcare services (including dental and paramedical services), hospital services, postal and communication services, data processing equipment, recreation and sports services, books, holiday packages, education costs, jewelry, clocks and watches, insurance, and income tax.

This categorization not only represent the structure of the HIES survey parameters but also aligns with standard household budget survey methodologies used in poverty and welfare analysis (Deaton, 1997). It enables consumption smoothing analysis, since families may alter daily food expenses differently than the durable goods or annual obligations. For instance, daily consumption components (like rice, pulses, and vegetables) are highly connected to income

shocks, while durable or annual expenditures (like education, healthcare, or major equipment) often reflect longer financial decisions. This distinction is crucial in assessing whether households with access to productive loans show improved capability to maintain regular food consumption and make bigger annual investments, compared to others depending on unproductive loans (Townsend, 1995), (Deaton, 1997).

Chapter 5

Result

This part shows ordinary least squares (OLS) regression to evaluate the impact of loan type (productive vs. unproductive) on total household consumption expenditure (in BDT). The analysis emphasizes on two samples: (1) the borrowers' households of all observation ($N = 4,895$), and (2) a subsample of loan concentrated households ($\geq 75\%$ of loans in one specific category, $N = 4,740$). The model contains the dependent variable is monthly total household consumption, while the key independent variables include:

Dominant loan type (productive vs. unproductive loan),

Total loan amount,

Education (household head's years of schooling),

MEMBER (Number of household members),

Religion (household head religious group).

$$Y_i = \beta_0 + \beta_1 \text{LoanType}_i + \beta_2 (\text{LoanAmount}_i) + \beta_3 \text{Education}_i + \beta_4 \text{HHMembers}_i + \beta_5 \text{Religion}_i + \epsilon_i$$

where i represents household (i)'s consumption, assets, or income, and ϵ_i is the error term. This specification examines the productive borrowing, compared to unproductive borrowing, influences consumption, asset accumulation, and income, while controlling for socioeconomic factors such as education, household size, and religion.

All Loan-Taking Households

Table 1: presents the OLS estimates for the full sample of loan taking households

Dependent Variable: Monthly Household Consumption

Variables	Coefficient	Std. Error	Significance
Dominant loan type	863.548	202.479	Highly significant (1% level)
Total HH loan	0.002	0.0002	Highly significant (1% level)
HH Head Education	-12.884	14.677	Not significant
Number of HH members	1803.852	95.057	Highly significant (1% level)
Gender of HH Head	-420.189	536.664	Not significant
HH Head Religion	-546.951	237.223	Significant at 5% level
Number of income earners	1516.523	380.491	Highly significant (1% level)
Marital Status of HH Head	215.917	260.521	Not significant

Observations (N): 4,895 households

R-squared: 0.29

F statistic (p value): 0.000

The regression analysis examining the connection between loan type and household consumption exposes several vital and important patterns. Most remarkably, the dominant loan type is signifying that productive purposes such as agriculture, business, or education loans reported monthly consumption levels higher by 863.55 BDT than those households' loans are predominantly unproductive. This empirical finding provides strong support for this thesis's core hypothesis: that loan quality specifically, it's the purpose is a vital determinant of household wellbeing which syncs with existing study (Imai and Azam, 2012), which highlights that income

generation get spike up by productive borrowing, also resulting better consumption stability and extended economic resilience.

The analysis also visualizes a positive but modest impact on consumption with the loan amount. Increasing a unit of loan amount, consumption increases but the effect is relatively small but statistically significant, suggesting that substantially household welfare may not improve with the increase of loan size if utilization of the loan is not considered. This finding connects with Khaleque (2011), who prescribed that major portions of supposedly productive loans are often redirected toward consumption, diminishing their developmental impact.

Interestingly, household head's education does not show an important result on consumption levels. Although for enhancing economic outcomes education is often linked, due to short term financial limitation or the more immediate requirements of borrowing tendency on household expenditure limited the education influence in this context. In other words, for developing long term income outcomes, education may matter more than in deciding present consumption patterns, especially in small income households or with the families who largely depend on credit.

Another coefficient is household size which has strong and statistically significant effect. Each extra member increase in monthly consumption by 1803.852 BDT. Two reflections can be observed, first is increased consumption needs and also increase of potential earning members contributing to household income. The outcome underscores the emphasizes the family structure and also shaping of economic behavior and resource allocation depending on intra-household dynamics.

Finally, another significant predictor is religion of the household head, lower consumption levels was reported with the households whom do not follow Islam (e.g., Hindu or Buddhist/Christian) that are 546.95 BDT lower than Islamic households. This result may imitate deeper socioeconomic discrepancies or structural exclusion faced by religious ethnic households in accessing financial prospects, job, or casual support networks as the regression controls for other demographic and financial factors.

Overall, the findings advertise that the purpose of the loan is not only having access to it though its quantity of loan plays a vital implication in improving a household's financial welfare. While better consumption is strongly proportionate to productive loans, the mute effects of loan amount and education advise that strategies should focus on supporting productive borrowing nature. Household size and religion also differenced the borrowing decisions are molded by societal and organic factors, emphasizing the requirement for inclusive and context aware financial plan.

Loan Intensive Households ($\geq 75\%$ in Productive or Unproductive Loans)

Table 2: presents the OLS estimates for the loan intensive households

Dependent Variable: Monthly Household Consumption

Variables	Coefficient	Std. Error	Significance
Dominant loan type	919.164	206.847	Highly significant (1% level)
Total HH loan	0.0019	0.0002	Highly significant (1% level)
HH Head Education	-2.565	13.625	Not significant
Number of HH members	1810.707	97.522	Highly significant (1% level)
Gender of HH Head	-397.938	547.759	Not significant
HH Head Religion	-489.696	238.923	Significant at 5% level
Number of income earners	1558.645	388.586	Highly significant (1% level)
Marital Status of HH Head	219.721	264.387	Not significant

Observations (N): 4,740 households

R-squared: .281

F statistic (p value): .0000

Loan concentrated households whose loan is at least 75% concentrated in either productive or unproductive loans is focused in the above analysis, it showed steady and consistent relationships among loan characteristics and household consumption. Remarkable point is that households dominated by productive loan, spends on average 919.164 BDT more per month than those relying mainly on unproductive borrowing. This supports the core argument of the study: income generating activities supported by productive loan, lead to better consumption level and upgrade household welfare. These findings and prior research by Katsushi and Azam (2012) both are aligned, also demonstrates, household consumption have positive impact of due to microfinance loans when the investments are purposefully.

The analysis also reveals a modest but significant effect of loan size. While the total amount of loan increases, monthly consumption also increases but in slow rate. This result suggests that

while the volume of borrowing contributes to household consumption, the magnitude of the benefit is small relative to the influence of loan purpose. In a loan intensive context, this may reflect the efficient allocation of funds among households with clearer borrowing strategies, as opposed to general household samples where loan diversion is more prevalent (Khaleque, 2011).

Interestingly, household head's education does not show an important result on consumption levels. Although for enhancing economic outcomes education is often linked, due to short term financial limitation or the more immediate requirements of borrowing tendency on household expenditure limited the education influence in this context. In other words, for developing long term income outcomes, education may matter more than in deciding present consumption patterns, especially in lower income or the families who depend on credit. Similarly, gender of the household head is not a significant variable, suggesting no strong gender-based difference in consumption results once behavior of borrowing and household structure are accounted for.

Another coefficient is household size which has strong and consistent effect. Each extra member increase in monthly consumption by 1810.707 BDT. Two reflections can be observed, first is increased consumption needs and also increase of potential earning members contributing to household income. The outcome underscores the emphasizes the family structure and also shaping of economic behavior and resource allocation depending on intra-household dynamics.

Finally, another significant predictor is religion of the household head, lower consumption levels was reported with non-Islamic households (e.g., Hindu or Buddhist/Christian) that are 489.69 BDT lower than Islamic households. This result may imitate deeper socioeconomic discrepancies or structural exclusion faced by religious ethnic households in accessing financial prospects, job, or casual support networks as the regression controls for other demographic and financial factors.

The patterns for both cased entire sample (N = 4,895) and the loan intensive subsample (N = 4,740) remain remarkably consistent. In either model, the dominant loan type shows a certain and strong influence on consumption: 863.55 BDT in the full observation versus 919.164 BDT in the concentrated sample. The welfare benefits of productive loans get strengthens when the borrowing is focused, owing to more detailed planning, reducing loan misuse, and also proper alignment among borrowing plan and actual expenditure. Across the two samples the impact of total loan amount and household member size remain stable, furthermore verifying the vigor of these relationships.

A major policy insight can be underscored from these two findings: purpose of loan is more powerful than size of the loan in case of determining the outcomes of welfare, specifically for consumption. Remunerative borrowing not only provide better stable meals and primary spending way but also develop capability in better living standards. These patterns provide evidence-based support for targeted economic interventions that foster determined borrowing practice and limit loan diversion especially in settings where small credit is utilized as a poverty alleviation instrument.

Total Non-Crop Asset Value and Loan taking Households

To understand how diverse borrowing forms influence continuous economic wellbeing, this study estimates an estimation model to measures the association between loan type and household asset accumulation, prioritizing specifically on non-crop assets. Resource building reflects a household's proficiency to budgeting, wealth accumulation, and capital allocation unlike temporary consumption, which may rise and fall with wages or credit access. Resource accumulation will serve as a more structural indicator of economic stability.

The econometric draws on data from all households that observed taking at least one loan in the HIES 2022 dataset. Total value of non-crop household resources, calculated in Bangladeshi Taka (BDT), is a dependent variable which includes household furniture, electrical appliances, vehicle, and other tangible capital, but not included land as a result of the missing of credible, across geographic areas price data in the dataset.

Dominant loan type is the key explanatory variable which is a binary indicator to identifying the purpose of the household's loan was used for productive purposes (Revenue generating purposes) or unproductive purposes (such as healthcare, food, or ceremonial expenses) mostly. The dataset also contains control variable of household level which have major influence in asset accumulation, including:

Total household loan amount (continuous variable, in BDT), is used to understand the household credit exposure without knowing the actual use of it.

household head's education level in years, represents knowledge capacity;

Number of household member size is a vital source to impact both asset and income;

Another dummy variable is religion which is recorded for the household head to understand the context of cultural or structural difference in economic habit.

The goal of the study is to specify assets accumulation is associated better in productive borrowing, not depending on other household characteristics. In Rural and limited income families, assets often saved as informal safety nets during shocks and somewhere significantly affect generational needs. For this social structure this analysis is relevant. Addition to that, another investigation is to understand the household behavior to loan to utilize in immediate necessity or develop household's wealth and longer stability.

Table 3: presents the OLS estimates of non-crop assets for all loan taking households

Dependent Variable: Household Non-Crop Asset

Variables	Coefficient	Std. Error	Significance
Dominant loan type	27044.620	4475.003	Highly significant (1% level)
Total HH loan	-0.001	0.0004	Significant at 5% level
Education level of HH Head	-244.706	232.829	Not statistically significant
Number of HH members	8883.780	1599.698	Highly significant (1% level)
Religion of HH Head	4096.611	4014.299	Not statistically significant

Observations (N): 4,895 households

R-squared: .0193

F statistic (p value): .0000

There is a certain relationship between credit behavior and non-crop asset accumulation which has reflected in the above regression analysis supporting this study's central hypothesis that the contrast between productive and unproductive loans is a major determinant of sustainable economic resilience. The statistical value for dominant loan type is identifying that productive borrowing households such as investment in agricultural, development of microenterprise, or investment in education accumulate distinctly larger asset comparing to households majorly relying on unproductive credit. This result bolsters the notion that capital formation of household supported to utilize credit to develop investment, aligning with prior findings in microfinance literature (Katsushi & Azam, 2012).

Interesting fact is, while productive loan usage is proportionate to asset growth, but this analysis portrays a negative association linking total loan amount and asset accumulation. As the volume of loans expands, the value of non-crop assets slightly drops. Some reflection can be address from this finding, the burden of repayment, deficient loan utilization, in some cases the diversion of funds away from asset building initiatives. These issues widely discussed in the literature on poorly managed loan and over indebtedness (Khaleque, 2010). It also emphasizes the shortcomings of credit extension plan that focus solely on quantity without acknowledging actual deployment plan of loans.

Another notable parameter of asset accumulation is number of members in household or household size. Suggestion behind this is each extra household member is connected with growth in total non-crop asset value, due to availability of extra labor, pool of joint income or household savings practices within bigger families. Particularly in rural or informal settings family based joint effort substitutes for formal financial infrastructure, this habit underscores the cultural, social and structural context of asset development.

Keeping the findings together, it's explaining the variation of household capital formation the central points are purpose of the loan and loan size. Household's ability enhances to create durable goods and physical property by productive credit; disproportionate or misdirected borrowing may restrict this formation. Another broader socioeconomic setting can be seen in the household size as a facilitator of asset growth where decisions of borrowing are embedded. Some practical implications for credit program design can be underscored from these findings endorsing that efforts to facilitate productive borrowing. Among families with low or modest income, loan diversion can play a crucial role in supporting wealth formation.

Total Non-Crop Asset Value among 75% Concentrated Loan Taking

Households

A separated statistical regression has conducted on focused subsample of loan concentrated households to make it deepen of borrowing behavior categorized toward either productive or unproductive uses depending on the 75% of total borrowing direction. This approach represents households with an inclination for a particular loan type, allowing for a better understanding of the consequences of borrowing purpose on wealth accumulation.

Table 4: presents the estimates of non-crop assets for the concentrated loan households

Dependent Variable: Household Non-Crop Asset

Variables	Coefficient	Std. Error	Significance
Dominant loan type	28086.94	4593.133	Highly significant (1% level)
Total HH loan	-0.001	0.0004	Significant at 5% level
Education level of HH Head	-234.924	235.888	Not statistically significant
Number of HH members	8937.88	1659.833	Highly significant (1% level)

Religion of HH Head	3028.831	4065.466	Not statistically significant
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Observations (N): 4,740

R-squared: .0197

F statistic (p value): .0000

The results restate this central point of this study: purpose of loan is a critical influence of enduring household wealth creation. Households with a strong assurance on effective loans accumulate 28,086.94 BDT more in non-farming assets than those with a same consolidation of borrowing concentrated on consumption. Productive loans which work to generate more income have a strong and vital impact on enhancing household capital, specifically when they establish most of a household's borrowing. It aligns with the prior findings in the literature (Imai & Azam, 2012), where productive credit was proportionately linked to asset formation and resilience.

Conversely, negative association has been shown between the total loan amount with asset accumulation in this concentrated sample. Though the degree of change is modest, the direction is steady with concerns that bigger credits may impose burdens of debt servicing or misutilization over time, especially in those households which may invest borrowed funds to quick consumption rather than investment for longer period (Khaleque, 2011). The suggestions behind the result are the amount of loan, without strategic allocation, financially stress households may actually undermine asset growth.

Another notable parameter of asset accumulation is number of members in household or household size. Suggestion behind this is each extra household member is connected with growth in total non-crop asset value, due to availability of extra labor, pool of joint income or household savings practices within bigger families. Particularly in rural or informal settings family based joint effort substitutes for formal financial infrastructure, this habit underscores the cultural, social and structural context of asset development. In settings where formal economic institutions are restricted or remote, family based economic cooperation can act as a vital mechanism for wealth formation.

Keeping the outcomes together, it confirms that explaining the variation of household capital formation the central points are purpose of the loan and loan size. Household's ability enhances to create durable goods and physical property by productive credit; disproportionate or misdirected borrowing may restrict this formation. Another broader socioeconomic setting can be seen in the household size as a facilitator of asset growth where decisions of borrowing are embedded. Some practical implications for credit program design can be underscored from these findings endorsing that efforts to facilitate productive borrowing. Loan diversion can play a crucial role for low to middle income households for wealth formation. In economically

unprotected populations this strong statistical support for identifying financial inclusion strategies not only increase credit opportunity but also encourage efficient loan usage.

Household Income and Loan Dynamics

A bended measure of total household income was formulated by summing multiple reported income streams from the HIES 2022 dataset to intensively examine the connection between Loan acquisition behavior and household income. The aim was to ensuring the income parameter captured the full range of employment related earnings and enterprising activity relevant to household financial condition.

Three main forms of work income were deemed in this construction:

- (i) Everyday income remunerated in cash,
- (ii) Regular income remunerated in kind,
- iii) Crop Production and
- (iv) Paid employment.

Additionally, for a sample of households, entrepreneurial net profit derived from employment or micro scale business activities presented a significant element of income. From the survey, the income sources were recorded in different temporal units which standardize to a common monthly format for accurate summation and cross household comparison.

Altering everyday income (cash and in-kind) into monthly equivalents, reported daily earnings were added by 20, reflecting the dominant format of casual and physical labor in Bangladesh, where people work typically over 18 to 22 working days per month. Fixed wages required no conversion, as already they were recorded in monthly bases. Yearly enterprise earning was divided by 12 to get a monthly equivalent, based on the hypothesis of equally distributed income over the annual year, a conventional practice in household financial analysis when no seasonal adjustment was possible.

After normalizing each income stream, all the income were added to get an integrated measure of total household income. This composite parameter was placed as the dependent variable in regression models evaluate the effect of loan type (productive vs. unproductive) and other characteristics of households on income levels.

By balancing these different earning sources, the pattern captures not only the diverse household income generating activities but also ponders the monetary multiplicity within the sample. This cautious augment the intrinsic validity of the paradigm and ensuring the observed connectivity

linking to credit behavior and income are not drive by inconsistencies in earning or measurement.

Table 5: presents the estimates of household Income for all loan taking

Dependent Variable: Household Total Income

Variables	Coefficient	Std. Error	Significance
Dominant loan type	37750.87	3872.51	Highly significant (1% level)
Total HH loan	0.005	0.00	Highly significant (1% level)
Education level of HH Head	174.44	266.65	Not statistically significant
Number of HH members	11780.86	1476.32	Highly significant (1% level)
Religion of HH Head	3706.997	4179.11	Not statistically significant
Gender	-13310.9	5150.11	Significant at 1% level

Observations (N): 4,895

R-squared: 0.0482

F statistic (p value): 0.000

The factor analysis understands the impact of debt behavior on income by household among loan concentrated cases (N = 4,895) categorized with at least 75% of total debt focusing in either productive or unproductive loan. These patters wise division offers convincing evidence that purpose of loan runs a crucial role in forming economic outcomes. The key variable, dominant loan type, identifying the household's income, on average, over 37,750. BDT more per month for predominantly productive loans than the households with unproductive debt patterns. This significant understanding establishes the hypothesis that efficient loan when directed toward more income generating activities like micro enterprise, agriculture job, or education transforms into practical and tangible improvements in household earnings. It aligns with prior work by Imai and Azam (2012), where it found strong income impacts tied to the gainful usages of microfinance in Bangladesh.

On the contrary, the total loan amount is showing a significant connection with household income. This advises that increasing the amount of household loans irrespective of loan purpose is not proportionately lead to higher income, a further observation highlights the vital role of loan quality over loan quantity. This echo with proof from Khaleque (2011) and others who

forecasted that unless adequate targeting or regular assessment, bigger loans may lead to debt burdens or made to be poor use of nonproductive uses, limiting their impact of developmental.

Evenly, number of the household members do have an analytical significant impact on income in this example. While major households may contain more potential income holders, they also have higher consumption requirements and population dependency burden. The equilibrium between income producing capacity and demands of household consumption may neutralize the net economic benefit of additional member due to absence of a clear earning effect, at least in the short duration.

Taken all together, these understanding come to a vital point: the primary factor which are nurturing household revenue growth in credit reliant sample is not the quantity of the debt, but how it's being utilized for earning. Households will move over subsistence and toward monetary security if the concentration of efficient loans is thoughtfully allocated and appear to catalyze income generation. On the other hand, bigger or low outcome borrowing where the productive purposes are absent offers no guarantee of improved financial status and addition to it may exacerbate financial vulnerability.

Some policy implications can be directed from this result. They suggest that microcredit programs should run beyond regular access metrics and prioritizing on enabling and engaging productive use of borrowed funds, possibly through regular enterprise training, monitoring, follow up, or bundled services. Especially in low earning households, which are delicate to income shocks and credit misuse is ordinary, targeting of loan and borrower regular support techniques are crucial to transform credit into income producing and monetary resilience.

Household Income and Loan Dynamics among 75% Concentrated Loan

Households

To extend the exploration the consequence of loan type on household welfare, the investigation was narrowed to 75% of concentrated households where their majority of total debt was in one type of loan. The importance of this subsample is, it emphasizes households that are more incline on a single loan strategy, thereby amplifying the outcome of whether the dominant loan is efficient or fruitless.

Table 6: presents the OLS estimates of household income for the concentrated loan households

Dependent Variable: Household Total Income

Variables	Coefficient	Std. Error	Significance
Dominant loan type	39276.87	3943.84	Highly significant (1% level)
Total HH loan	0.005	0.00	Highly significant (1% level)

Education level of HH Head	64.42	196.27	Not statistically significant
Number of HH members	11903.63	1532.32	Highly significant (1% level)
Religion of HH Head	2918.685	4247.53	Not statistically significant
Gender	-13675.58	5165.46	Highly significant (1% level)

Observations (N): 4,740

R-squared: 0.0500

F statistic (p value): 0.000

The statistical modeling focused on 75% of concentrated households where their majority of total debt was directed in either productive or unproductive uses yields strong proof that goal of loan plays an essential role in determining household earning levels. The statistical value of dominant loan type is identifying that households mainly centered borrowing for due to productive purposes earning, on average, over 39,276 BDT more per month than those concentrated to unproductive credit. This significant understanding establishes the hypothesis that efficient loan when directed toward more revenue generating activities like micro enterprise, agriculture job, or education transforms into practical and tangible improvements in household earnings. It aligns with prior work by Imai and Azam (2012), where it observed strong income benefit tied to the gainful usages of microfinance in rural Bangladesh.

On the contrary, the total loan amount is showing a significant connection with household income which advises that increasing the amount of household loans irrespective of loan purpose is not proportionately lead to higher income, a further observation highlights the vital role of loan quality over loan quantity. This echo with earlier evidence from Khaleque (2011) and others who forecasted that unless purposeful deployment, adequate targeting or regular assessment, bigger loans may exacerbate to debt burdens or made to be poor use of nonproductive uses, limiting their impact of welfare.

Evenly, number of the household members also have an analytical significant impact on. While larger households may contain more potential labor force, they also have higher resource demands and population dependency burden. The negligent of a statistically useful relationship may indicate that the net economic benefit may diluted by intra household consumption requirements, especially in limited earning marginalized contexts.

Taken together, these findings underscore that for efficient borrowing not the quantity of the debt or number of the member is the major driver of revenue generation in concentrated households. Households that utilize loans thoughtfully for micro business, regular agriculture, or invest to

human capital receive benefit from sustained income, but similar gains not be seen for unproductive or short-term cases. The robustness of this result for both consumption and capital models repeatedly supports the hypothesis that welfare based on credit exacerbates depend on how it's being utilized for earning.

Some policy implications can be directed from this result. They suggest that microcredit programs should run beyond regular access metrics and prioritizing on enabling and engaging productive use of borrowed funds, possibly through regular enterprise training, monitoring, follow up, or bundled services. Especially in low earning households, which are delicate to income shocks and credit misuse is ordinary, targeting of loan and borrower regular support techniques are crucial to transform credit into income producing and monetary resilience.

Chapter 6

Discussion

This discussion emulates on the prime empirical findings from the regression analyses using the HIES 2022 dataset, focusing on borrowing behavior in depth the loan type and purpose of loans impacts household financial resilience in low earning marginalized households. Both the complete sample of loan taking cases (N = 4,895) and a subsample of focused loan takers (N = 4,740), households which receive at least 75% of total debt is either productive or unproductive have incorporate in this analysis. The findings open consistent and statistically vital correlations link between loan purpose and three prime proportion of prosperity: household consumption, asset accumulation, and income of household. Due to cross sectional nature of the data, causality cannot be described, but the strength and integrity of the results are prescribing meaningful relationships require further exploration.

The highlights from the analysis portrays that dominant loan type whether productive or unproductive have the most impactful predictor across all three welfares prosperity.

Predominantly productive households report:

Monthly higher consumption: 863.55 BDT in the full data and 919.164 BDT in the focused sample;

Bigger non-crop asset values: 27,044.62 BDT and 28,086.94 BDT, respectively;

Better income of household: 37,750.87 BDT and 39,276.87 BDT.

These are estimated as significant at the 1% level. Robust empirical support found in these results offer for the argument that purpose of the loan not merely access to loan motivate welfare outcomes, particularly when debt is linked with revenue producing or capital building activities.

With these patterns different foundational frameworks are theoretically consistent in development economics. First, the outcomes positively align with the poverty trap argument (Barrett and Carter, 2012), which suggest that limited earning households often keep in stuck in below capital and little income equilibria unless the investments are planned for sustained production. To escape the trap of poverty, efficient loans is one of defense mechanism, to shift households to a better productive path.

At the second point, the findings align with Sen's Capability Approach (1999), household expands human capital, enabling better assessment, consumption smoothing, and financial resilience where access to credit utilized for efficient purposes. In this model, income earning loans not only just increasing income but also enhancing the freedom of choices and pursue viable outcome, like education for children, healthcare for all, or action to entrepreneurship.

Furthermore, in the loan focused sample advised the stronger association with households who followed more portion to one type of credit displayed clearer act and financial patterns. This aligns with the similar research by Imai and Azam (2012), where it's been seen the developmental impact of microcredit is vital when loans are equipped thoughtfully and consistently for income making factors.

If the dominant loan type materialized as a regular driver of expectable result, the total loan amount presents a more subtle linkage. A modest and positive effect on consumption can be demonstrated, but asset accumulation in both the full and concentrated samples are negatively correlated. This unintuitive outcome suggests that bigger quantity of loan, when not accompanied by efficient use, may create struggle household regular expense, could be due to enhance of repayment responsibilities or loan diversion. This link with Khaleque (2011), where 68% of debts are planned for income generation but partially or fully diverted to cover the direct consumption requirements. It also creates difficulties with former findings by Imai and Azam (2012), where it's been observed that bigger high performing loans enhanced outcome. The variance in findings may reflect specific context pressure of debt and compensation of vulnerabilities in Bangladesh, specifically among marginalized or informal borrowers.

Another vital parameter is household size, which is strongly and significantly association has found in both monthly household consumption (1,803 BDT in the entire dataset, 1,810 BDT in the concentrated sample) and non-crop capital values (8,883.78 BDT and 8,937.88 BDT, respectively) and for family income values (11,780 BDT and 11,903 BDT), all at significant at 1% level. This underscore that bigger families benefit from internal resource utilization, big pool of labor, or mixed income producing strategy, that increasing their capability for both household consumption and investing the revenue. Also, continuous stability between income earners and household dependent members while one extra member may supply more workers, but that will lead to higher consumption, which may equivalent the income gains. These kinetics are aligned with the findings of Dercon and Krishnan (2016), who underline the complication of intra-household labor allocation and management of risk.

After compiling the results, there are some restrictions on the study which needs to acknowledge first. First, the analysis depends on self-proclaimed loan purpose, which could be led to misclassification, particularly in matters of loan diversion or blended usage (e.g., education or medical expenses, these both can be direct consumption and investment components). This gray area create complexity in binary productive and unproductive variance, potentially understate the extended benefits of credit tagged as unproductive.

Another vital consideration to understand the findings in the households is fungibility of cash. In real case, separation of money by purpose is not placed when budgeting the household expense. Though the loan is labeled as productive but in case of allocation the funds, some part of it may carry out to manage consumption needs, recover loan or balance the shock. Similarly, the consumption loan may also support indirectly to freeing other resources for income producing activities.

This fungibility suggests that utilization of loan may not properly observed or checked, and in practice the stated purpose of loan can be blurred. However, this study's findings also experience better consumption by households who are oriented toward productive loan. This implies that though some reallocation could be place in households but the strategy of borrowing actually valued. Families which can focus on activities to promote income appear stabilization in position and better consumption though fund adjustment can take place during distribution.

Second, the HIES dataset is not providing regular price adjusted data on land capital, which is leading to an undervaluing of total wealth of households. Land is a vital asset for many rustic families in Bangladesh; this gap in dataset limits the full assumption of asset kinetics. Addition to that, the nature of the cross-sectional data means that the outcome links correlations, not causal effects. Some household characteristics which are unobserved such as financial education, preference of risk, or absent of informal connections may also control both borrowing attitude and economic outcomes.

As the HIES 2022 data in studied in the post COVID 19, the findings should be interpreted with in that economic context. For economically disadvantages families, pandemic severely disturbed the income sources which enhance the dependence on borrowing to cover the shocks and regular consumption. In such situation, the difference between productive and unproductive loans becomes especially vital.

It's been seen that the higher levels of regular consumptions demonstrated in case of households which were had productive loans. After the pandemic, the productive loan holders gained help to restore the income though business or employment also another income generating activities. This emphasizes that, after a economic disruption, income generating loan stabilize the situation and also rebuild financial capacity of households. In other view, loans utilized in direct consumption or to full fill the emergency requirements may helped families to manage temporarily but in long run the potential of earning did not strengthen.

The comparative less effect of loan amount further points out the fact that availability of credit is not sufficient if utilization of the credit is not invested in economic growth. Resulting, in post COVID when the environment needs to recover from the shocks, the reason behind the borrowing is more vital than the size of the loan. These understandings emphasizing the necessity of productive borrowing to adopt household resilience and betterment.

At the end, sectoral and regional heterogeneity is partly pictured in this model. Big disparities in city vs. rural economic access, specific sector shocks (e.g., agriculture failure), or variation in institution in microcredit delivery could explain further to the variation in the observed effects, could suggest a further future need of disaggregated or panel data understanding.

Overall, this investigation shows that investment borrowing is positively proportionate with improved welfare outcomes, including better household consumption, greater capital formation, and enhanced household income. These effects can be pronounced mostly among households which are engaged in loan focused and thoughtfully driven borrowing pattern. On the contrary, quantity of loan and household size presenting less stable influence, emphasizing the mandatory to focus not on the quantity of credit or the process of borrowing, but how strategically and purposefully the credit been planned and deployed.

Clear implications for policy and practice can be found from these findings. Organizations that work in population development and microfinance institutions need to plan beyond of measuring access of credit alone and start to incorporate metrics for quality loan utilization, develop support systems for borrowers, and regular monitoring and follow up job. Demonstration from this study is the access to loan is not intrinsically transformative its effect depends on how the loan been thoughtfully and purposefully utilized, and whether the households enable to build or develop investment practices, rather than borrow only, to bring out of poverty.

Chapter 7

Conclusion

This investigation set out to investigate how the reason of loan which could be either productive or unproductive frames household prosperity outcomes in Bangladesh, utilizing domestically representative dataset from the Household Income and Expenditure Survey (HIES) 2022. While reduction of poverty as a key lever been viewed to access to credit, the result of this study exposes that not the access to credit alone but rather how the families utilizing the credit that specifies its actual impact. The data dependent analysis clearly present that households whose borrowing is principally efficiently used for any kind of business, agriculture sectors, or human capital; receive significantly better levels of regular consumption, capital formation, and total income of household comparing with who received the loan focusing on unproductive reasons

such as weddings, emergencies in health, or dietary consumption. These disparities continue with the loan-concentrated households, whose total borrowing is at least 75% in one loan type, focusing the relying on the seen associations.

These outcomes resemble strongly with different practiced theories ongoing in developmental economics. The outputs link with the theory of Poverty Trap, which advise that marginalized households keep going through in a round of less productivity and vulnerability unless they gain the opportunities to investment in income generating activities (Ghatak, 2015). High performing loans appear to play as an exit opportunity from such traps by incorporating funds that produce returns over period. Moreover, the Capability Approach, the theory developed by Amartya Sen, establish that actual development gain when person gain the freedom to take purposeful choices. Efficient borrowing extends these capabilities by educate households to generate capital, refine earning, and future plan, rather than barely adjust with short-time crises. Addition to that, Prospect Theory's elements provide insights into debt behavior that household choose unproductive borrowing to risk averse to manage immediate shocks, but this strategy, in the short run may seems safe but for the longer term may develop economical fragility, as reflected in our dataset (Kahneman & Tversky, 1979).

Interesting point is, the loan size is not alone a strong parameter of better welfare. In some frames, larger credit quantity been negatively associated with asset formation that led to reflect of loan misuse, burden of repayment, or inefficiencies in credit utilization. Similarly, the household head education provides limited predictive power, identifying that financial behavior particularly purpose of loan may issue more than human capital in sharpening short period household benefit. However, size of the household consistently presented a positive impact on both household consumption and assets accumulation, suggesting that bigger households can receive benefit from additional income holders, pool of shared labor, or different economic strategies.

In spite of the robustness of this analysis, the study entitles certain restrictions. The self-claimed nature of loan categorization introduces the chances of misreporting or mislabeling, particularly in cases of loan diversion. Due to lack of consistent pricing data of regional land may underestimate the complete scenario of capital accumulation. Furthermore, as the finding is depended on cross-sectional data, the outcomes mirrors associations rather than causation.

Nevertheless, the implications are substantial. Policymakers, microcredit personal, and organization that work for population development must think beyond the expanding the opportunity of credit and need to work on proper utilization of loan to generate more productive income. Also involving constructive borrowing through regular aligned training, monitoring and follow up services, and integrating with improving livelihoods interventions can bring the economic inclusion with benefits. Ultimately, this investigation confirms that all loans are not creating same in their effects. Productive borrowing enhances economic wellbeing and link with

major theories of development that emphasize investment, economic resilience, and agency delegation. As Bangladesh keep going to facilitate its monetary inclusion strategies, ensuring that loan transforms into building the capacity rather than cycles of debt; will be important to practice progressive universalism, inclusive and long sustained development.

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