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'TAKING THE BANK TO THE YOUTH': IMPACTS ON SAVINGS FROM THE GHANA YOUTHSAVE EXPERIMENT

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Abstract: This paper explores experimental impacts of in-school banking and marketing outreach on the savings performance of youth in Ghana. Findings suggest that youth in treatment schools performed better than those in control schools in terms of account opening, depositing and savings. Between the two treatment conditions, in-school banking was more effective than marketing outreach in promoting savings. These findings demonstrate that a meaningful proportion of low-income youth, in a resource-limited country, can be connected to formal financial services and save if access and opportunities are available. The results support the offering of financial services at schools as a strategy to expand youth financial inclusion. Copyright © 2017 John Wiley & Sons, Ltd.

Keywords: savings; asset building; financial inclusion; YouthSave; experiment

1. INTRODUCTION

Youth financial inclusion and asset building is receiving increasing attention. A seminal work by Sherraden (1991) posits that assets play a unique, crucial role in promoting life chances and long-term wellbeing of children and families. A growing body of evidence indicates that building assets, even at a modest level, has positive effects on youth development and wellbeing in both developed and developing countries (Chowa, Ansong & Masa, 2010; Elliott & Beverly, 2011a, 2011b; Ssewamala & Ilic, 2015; Williams Shanks, Kim, Loke & Destin, 2010). For example, Williams Shanks and her

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colleagues (Williams Shanks *et al*., 2010) have reviewed extensive research on the role of assets in child wellbeing in developed countries and concluded that assets positively influence various domains of child wellbeing such as educational, economic, psychological and behavioural outcomes in both direct and indirect ways. Chowa *et al*. (2010) have reviewed evidence on positive impacts of asset holding for children in developing countries.

Promoting savings through formal bank accounts and financial services may be an effective way to build assets among low-income children and youth (Deshpande & Zimmerman, 2010). However, many youth in less developed and resource-limited countries face barriers to saving and building assets in formal financial institutions. Barriers to access include age restrictions, lack of identity documentation, product fees, distance to branches and lack of independence to operate an account (Aggarwal & Klapper, 2013; Child and Youth Finance International, 2014; Demirguc-Kunt & Klapper, 2012; Karlan, Ratan & Zinman, 2013; Porter, Blaufuss & Owusu-Acheampong, 2007). For low-income youth, barriers are even more challenging, given scarcity of resources to save.

Structured opportunities to save can help to overcome these barriers and increase financial inclusion (Sherraden, 1991). Institutional theory assumes that low-income children are unable to save and accumulate assets because they do not have opportunities, and access to institutional support is critical (Beverly & Sherraden, 1999; Sherraden, 1991). Key structural mechanisms include access, facilitation, information, incentives, expectations, restrictions and security (Beverly *et al*., 2008; Sherraden, 1991). Access refers to the availability of a safe and affordable savings product, and facilitation refers to ease of accessibility. Incentives include monetary and other motivators. Expectations include norms and specific savings targets and goals. Restrictions include rules limiting access to and uses of savings. Security refers to safety in making transactions, safe and trusted financial institutions and low-risk investment options. Information includes financial education and other informal or formal education related to savings and savings products.

Evidence from both developed and developing countries suggests that institutional factors are associated with savings and asset building. For example, based on empirical evidence from asset-building programs and policies implemented in the United States and other industrialized countries (Nam *et al*., 2012; Schreiner & Sherraden, 2007), low-income youth can save, and accumulated assets in turn enhance youth developmental outcomes. Evidence from developing countries also indicates that institutional factors, such as proximity of the financial institution to the household, subsidized opening fees for savings accounts, low transaction costs and general information on financial institutions, and their services are positively associated with account uptake and savings (Chowa *et al*., 2012).

The degree to which each of these mechanisms independently impacts savings is not known. Based on the concept of financial capability, financial education coupled with access to safe and affordable savings products are an important combination for building assets and achieving financial wellbeing (Johnson & Sherraden, 2007; Sherraden, 2013). During the past several years, an increasing number of financial institutions in developing countries have developed financial education platforms and savings products and services designed to increase youth participation in saving and asset building (Abeywickrema, 2009; Griffin, 2014; Masa, 2009). Evidence indicates that youth will open accounts and save if given the opportunity (Karlan *et al*., 2013; Prina, 2015; Schreiner & Sherraden,

2007; Ssewamala & Ismayilova, 2009; Weidrich, Collins, Rosen & Rademacher, 2014). However, rigorous research that assesses the impact of particular product features and services on account uptake and savings performance remains limited.

In Ghana, as part of a National Financial Inclusion Strategy, the Central Bank has focused on expanding adult financial inclusion, expanding opportunities for financial literacy, branchless banking and consumer protection regulations (Alliance for Financial Inclusion, 2012). With over half of the population younger than 25 years, Ghanaian youth are an important segment in that country's national economic development (United Nations Statistical Division, 2014). An increasing number of financial institutions have also identified youth as a viable market segment. In terms of financial access in Ghana, only about 30 per cent of the population aged 15 years or older have an account at a formal financial institution (Demirguc-Kunt & Klapper, 2012), and data are not available for youth under age 15. A key barrier is regulatory policy. By law, those under age 18 cannot independently open or operate an account.

In YouthSave, Home Finance Company (HFC) Bank instituted a custodial account that was the first of its kind offered in the country, allowing youth greater control to operate their account. The bank also allows trusted adults (e.g. teachers) to cosign instead of parents or legal guardians if parents are not available. This option facilitates account opening for youth in boarding schools and those living as domestic helpers outside their home. To facilitate access for youth to open and operate their accounts, HFC implemented access strategies including direct marketing at schools and in-school banking.

This paper examines the impact of in-school banking and financial marketing outreach on the savings performance of youth in schools across the eight country regions in Ghana where HFC has a bank presence.[1] The YouthSave[2] experiment studied here tests the impact of a youth savings product and associated financial education and outreach services to youth at schools, that is, *taking the bank to the youth*. The study analyses the number of accounts opened, transaction activity and asset accumulation from product rollout in May 2012 through November 2014.

2. EXPERIMENTAL INTERVENTION

The intervention involves a formal savings account offered by a financial institution in Ghana, with two different intervention strategies—in-school banking and marketing outreach—randomly tested, where in-school banking is the more intensive, and each type of intervention is compared with controls. The experiment, conducted at junior high schools, was designed to test account uptake and savings outcomes.

[1]Out of 10 country regions in Ghana, Volta and Upper West were excluded from the study because HFC does not have bank presence in those two regions.

[2]Created in partnership with The MasterCard Foundation, YouthSave investigated the potential of savings accounts as a tool for youth development and financial inclusion in developing countries by co-designing tailored, sustainable savings products with local financial institutions (FIs) and assessing their performance and development outcomes with local researchers. The project was an initiative of the YouthSave Consortium led by Save the Children (SC) in partnership with the Center for Social Development (CSD) at Washington University in St Louis, the New America Foundation and the Consultative Group to Assist the Poor (CGAP).

2.1. YouthSave Account

The youth savings account offered through the experiment was a newly created product developed by HFC in Ghana[3] called *Enidaso*, meaning *hope* in the Twi language. The product targets youth aged 12 to 18 years with a focus on attracting low-income youth. About half of the Ghana population lives in urban areas (United Nations Development Programme, 2013). Branches of HFC Bank, the financial institution used in the experiment, are located primarily in these areas. Families who live in rural areas have greater difficulty accessing HFC services.

The account requires a minimum opening balance of 2.0 Ghanaian Cedis (GHS) [US $2.5 (USD)][4] and an operating balance of at least GHS 5.0 (USD 6.3). Savings earn interest (1 to 2.5 per cent) after the account has at least GHS 20.0 (USD 25.0). Withdrawals from the account are restricted for the first 3 months and only one withdrawal permitted per calendar month thereafter. However, the 3-month restriction was waived for the youth who reside in boarding schools because they generally need consistent access to their funds.

A parent or trusted adult of the youth must be the primary signatory for account opening and withdrawal of funds. The youth can deposit into these accounts by themselves but cannot withdraw from the account without the adult cosignatory. To protect and empower youth account holders, adult cosignatories also cannot take withdrawals without the signature of the youth. HFC issues *Enidaso* clients an ATM card upon request for a one-time fee of GHS 2.5 (USD 3.1). This ATM card enables account holders to check their balance and account statement but does not allow withdrawals from an ATM. HFC also provides savings booklets to account holders for a fee of GHS 3.5 (USD 4.4). HFC provides account statements for free once every 6 months and on demand for a fee of GHS 2.0 (USD 2.5) per statement.

2.2. Experimental Intervention

The intervention tested two treatment conditions for youth to access the youth savings account: (i) in-school banking and (ii) marketing outreach at schools. Public junior high schools were selected to participate in the experiment from the 54 districts of HFC's operational areas. Public schools were targeted because the experiment was aimed at low-income youth. The District Education Offices provided a list of 581 public schools in the HFC operational areas from which 100 schools were randomly selected, 50 for the treatment and 50 for the control group. Within the 50 treatment schools, 25 were randomly assigned to receive marketing outreach, and the remaining 25 were assigned to receive in-school banking. In this paper, all youth in each of the treatment and control schools are counted as participants in the experiment.[5]

The first treatment condition was in-school banking. The intervention included visits from the bank staff to introduce the *Enidaso* account to youth and to offer students

[3]As part of the overall YouthSave project, the financial institution conducted market research to design an accessible and youth-friendly financial product with associated services (Deshpande, 2012).

[4]Throughout this paper, the research team used purchasing power parity (PPP) conversion rates for 2011 drawn from the International Monetary Fund (IMF) World Economic Outlook (WEO) database.

[5]There is evidence that randomization was successfully conducted. Based on over 6000 randomly selected subsamples, youth in two treatment groups and control group were not statistically different in terms of most demographic and household characteristics (Chowa *et al*., 2015).

opportunities to conduct on-site bank transactions. School teachers acted as liaisons among bank staff, school administrators and students to coordinate periodic bank visits and to educate the youth about banking, budgeting, setting savings goals and the benefits of savings. The second treatment condition was marketing outreach. During marketing outreach, bank staff visited schools to open accounts and take initial deposits on site. Unlike in-school banking, youth in marketing outreach schools did not receive financial education and could not make additional transactions (deposits or withdrawals) except by visiting a bank branch.

In both treatment arms, bank staff visited schools and gave marketing presentations on the importance of savings, *Enidaso's* account features and account opening requirements. Marketing materials such as savings product fliers and posters were also displayed at the schools. As incentive to open accounts, bank staff handed out pens, t-shirts, piggy banks, pencil cases and notebooks to youth. The majority of the school teachers supported the product and HFC's visits to the school, which also facilitated interactions of the youth with HFC.

The research team tracked intervention activities for 1 year between September 2013 and August 2014 to ensure fidelity of the treatment. During this time period, the bank assigned an average of four bank staff to each treatment school to implement intervention activities (with a minimum of two and a maximum of 11 bank staff). The number of bank staff visits to in-school banking schools ranged from an average of 5.9 to 7.3 per school per quarter, while bank staff visits to schools receiving only marketing outreach ranged from 2.4 to 3.3 per school per quarter.

3. METHODS

3.1. Research Questions and Hypotheses

A main objective of this study is to examine impacts of in-school banking and marketing outreach on account uptake and savings outcomes. Using the concept of financial capability, which posits that financial wellbeing, including asset accumulation, is dependent on both financial literacy and access to financial services; the study assessed the effects of two treatment conditions on savings performance (Chowa *et al*., 2012; Johnson & Sherraden, 2007; Sherraden, 2013). To this end, this research had two main hypotheses: (i) Youth in treatment schools perform better in terms of account opening, depositing and net savings compared with those in control schools; and (ii) between the two treatment conditions, youth in schools receiving in-school banking services perform better in terms of account opening, depositing and net savings (i.e. asset building in *Enidaso* accounts) compared with those in schools receiving only marketing outreach services.

3.2. Design, Procedures and Data

The study used a randomized controlled design to test whether the access of a savings account through in-school banking or marketing outreach influences youth account uptake and savings performance. An experiment, when effectively designed and implemented, creates a treatment group that is not systematically different from a control group in terms

of both observed and unobserved factors. Therefore, any differences between the treatment and control group can be attributed to the intervention being studied (Orr, 1999).

The experiment employed a cluster-randomized design in which random assignment was at the school level. This was administratively more feasible—and we also think more ethical—than treating youth differently within the same school. Furthermore, school-level interventions reduced the risk of experimental contamination; that is, diffusion of treatment might have occurred if youth in the treatment and control groups, along with school teachers and staff involved in the intervention, were in the same school (Chowa *et al*., 2015). School-level interventions also enhanced youth compliance.

The research team obtained data on savings performance such as account opening, depositing and savings from the Savings Demand Assessment (SDA). The SDA collected data on all transactions for those who opened *Enidaso* accounts. These data also included a school attachment for each account holder, which could link the experimental design (i.e. all children in treatment and control schools) to the savings outcome measures.

Analyses presented here are based on a full intent-to-treat sample. The research team obtained data on head counts for the student body in all treatment and control schools (using best estimates where accurate counts were not readily available). All youth in treatment and control schools are included in the analysis (both those who opened YouthSave accounts and those who did not), regardless of compliance to the treatment, deviation from the experimental protocol, school attendance or any other factor. Thus, the intent-to-treat approach provides an unbiased estimate of the impact of the experiment on savings performance across the full population of schools from which the sample was drawn (Armijo, Warren & Magee, 2009).

3.3. Measures

The researchers tested the impact of the experimental treatments on three types of savings outcomes: (i) account opening, (ii) average monthly number of deposits and (iii) average monthly net savings.

Account opening was dichotomously measured (0 = no; 1 = yes). *Average monthly number of deposits* was calculated by the cumulative number of deposits, divided by the number of months an account has been open. *Average monthly net savings* was calculated as total net savings divided by the number of months an account has been open (Schreiner *et al*., 2001).

The measures of number of deposit transactions and net savings are in per-month terms because account holders in the study had their accounts for varying periods of time in the study period. The team measured the original savings outcomes in GHS and converted the amounts into USD amounts by using purchasing power parity factors.

3.4 Statistical Procedures

With the randomized design, comparisons in proportions (for dichotomous measures) or means (for continuous measures) between the treatment and control groups provide unbiased estimates for the impact of the experiment (Orr, 1999). The research team conducted χ^2 tests to compare the proportions of account opening and a series of *t*-tests to compare depositing and savings between the treatment and control schools. With clear

directional hypotheses reinforced by prior research, the team conducted a series of the 2×2 χ^2 tests and *t*-tests with one-tailed significance tests.[6]

Treatment was randomly assigned at the level of schools. Therefore, students were clustered within schools, so savings outcomes in a given school may be correlated due not only to the experimental condition but also to idiosyncratic aspects of the school itself, generating nonzero correlations between outcomes among individual students at a given school. These potential dependences may violate statistical assumptions of independence of observations, leading to underestimation of standard errors (Raudenbush & Bryk, 2002). To take this into consideration, the researchers additionally used cluster-adjusted χ^2 tests and cluster-adjusted *t*-tests (Donner & Klar, 2000; Herrin, 2002).

To calculate cluster-adjusted χ^2 test statistics, clustering correction factors are first calculated as follows:

$$C_1 = \{\Sigma m_{1j}[1 + (m_{1j} - 1)\rho]\}/\Sigma m_{1j}$$
$$C_2 = \{\Sigma m_{2j}[1 + (m_{2j} - 1)\rho]\}/\Sigma m_{2j}$$

where m_{1j} and m_{2j} are the cluster sizes within the groups 1 and 2, respectively, and ρ is an estimate of within-cluster correlation. Then, these clustering correction factors (C_1 and C_2) are incorporated into the formula for calculating standard χ^2 test statistics.

$$\text{Adjusted } \chi^2 = \left\{M_1(P_1 - P)^2/[C_1\, P(1 - P)]\right\} + \left\{M_2(P_2 - P)^2/[C_2\, P(1 - P)]\right\}$$

where M_1 and M_2 are sample sizes for the treatment and control group, respectively, P_1 and P_2 are proportions of account opening for the treatment and control group, and P is the proportion of account opening for the total sample.

To calculate cluster-adjusted *t* statistics, the design effect is first calculated as follows:

$$1 + (n - 1)\,\rho$$

where n is the average cluster size and ρ is an estimate of within-cluster correlation. Then, traditional *t*-test statistics are divided by the square root of the design effect.

4. FINDINGS

Table 1 presents account opening status by treatment condition. Among 7207 students in market outreach schools, 825 (11.4 per cent) opened *Enidaso* accounts. For those in schools that received in-school banking services, 1160 (21.1 per cent) opened accounts. Among 9760 students who attended control schools, 25 (0.3 per cent) opened accounts.

Chi-square tests documented significant differences in proportions of account opening between each of the treatment groups and the control group ($p < 0.01$). There was also a statistically significant difference between the two treatment conditions, marketing

[6]The research team additionally conducted two-tailed significance tests and one-way ANOVA with post-hoc tests, but these did not substantially change the findings at the $p < 0.05$ standard, although *p*-values slightly increased across tests.

Table 1. Account opening by treatment condition

Account opening	In-school banking	Marketing outreach	Control	Total
Yes	1 160 (21.1%)	825 (11.4%)	25 (0.3%)	2 010
No	4 341 (78.9%)	6 382 (88.6%)	9 735 (99.7%)	20 458
Total	5 501	7 207	9 760	22 468
		Impact		Statistical significance
In-school banking vs control		21.1–0.3 = 20.8 percentage points		$p < 0.01$ ($p < 0.01$)
Marketing outreach vs control		11.4–0.3 = 11.1 percentage points		$p < 0.01$ ($p < 0.01$)
In-school banking vs marketing outreach		21.1–11.4 = 9.7 percentage points		$p < 0.01$ ($p = 0.13$)

Note: p-values in the parentheses are from cluster-adjusted χ^2 tests.

outreach and in-school banking ($p < 0.01$). Alternative χ^2 tests adjusting for clustering effects found that results hold except that the difference between in-school baking and marketing outreach group becomes nonsignificant ($p = 0.13$).

Table 2 presents results for average monthly numbers of deposits by treatment and control condition. Students in schools that received in-school banking services performed best ($M = 0.05$ deposits per month, SD = 0.16), followed by those in schools that received marketing outreach services ($M = 0.03$, SD = 0.12) and those in control schools ($M = 0.0006$, SD = 0.02), which did not receive any services.

A series of t-tests indicated statistically significant differences between in-school banking and control ($p < 0.01$), between marketing outreach and control ($p < 0.01$) and between in-school banking and marketing outreach ($p < 0.01$). Alternative tests using cluster-robust standard errors showed that findings hold between each of the treatment schools and control schools, although the difference between in-school banking and marketing outreach becomes no longer significant ($p = 0.11$).

For average monthly net savings, impacts were similar to those for account opening and depositing. As presented in Table 3, average monthly net savings were highest in the in-school banking schools (M = USD 0.43, SD = 7.14), followed by the marketing outreach schools (M = USD 0.21, SD = 2.34) and lowest among students in control schools (M = USD 0.01, SD = 0.54).

Conventional t-tests showed statistically significant differences between in-school banking and control and between marketing outreach and control ($p < 0.01$). The

Table 2. Average monthly number of deposits by treatment condition

	In-school banking (n = 5501)	Marketing outreach (n = 7207)	Control (n = 9760)
	Mean (SD)	Mean (SD)	Mean (SD)
Average monthly number of deposits	0.05 (0.16)	0.03 (0.12)	0.0006 (0.02)
	Impact		Statistical significance
In-school banking vs control	0.05–0.0006 = 0.049		$p < 0.01$ ($p < 0.01$)
Marketing outreach vs control	0.03–0.0006 = 0.19		$p < 0.01$ ($p < 0.01$)
In-school banking vs marketing outreach	0.05–0.03 = 0.02		$p < 0.01$ ($p = 0.11$)

Note: p-values in the parentheses are from cluster-adjusted χ^2 tests.

Table 3. Average monthly net savings by treatment condition (purchasing power parity-adjusted USD)

	In-school banking (n = 5501)	Marketing outreach (n = 7207)	Control (n = 9760)
	Mean (SD)	Mean (SD)	Mean (SD)
Average monthly net savings	0.43 (7.14)	0.21 (2.34)	0.01 (0.54)
	Impact		Statistical significance
In-school banking vs control	0.43–0.01 = 0.42		$p < 0.01$ ($p < 0.01$)
Marketing outreach vs control	0.21–0.01 = 0.20		$p < 0.01$ ($p < 0.01$)
In-school banking vs marketing outreach	0.43–0.21 = 0.22		$p < 0.01$ ($p = 0.06$)

Note: p-values in the parentheses are from cluster-adjusted χ^2 tests.

difference between in-school banking and marketing outreach is also statistically significant ($p < 0.01$), although alternative tests using cluster-robust standard errors find that the difference between marketing outreach and in-school banking becomes marginally significant ($p = 0.06$).

5. DISCUSSION

The study finds significant effects of the experiment on savings performance. Youth in treatment schools performed far better in terms of account opening, depositing and savings than those in control schools.

Looking first at account opening, in-school banking schools had 21.1 per cent account opening, and marketing outreach schools had 11.4 per cent, while control schools had 0.3 per cent. With 21 or 11 per cent (depending on treatment) of junior high youth are 'banked', compared with less than 1 per cent for controls, offering financial services at schools proves to be a meaningful strategy for increasing financial inclusion. Turning to depositing into accounts (again with the full intent-to-treat sample), the number of monthly deposits averaged 0.05 for in-school banking schools, 0.03 for marketing outreach schools and 0.0006 for control schools. Differences are highly significant here as well.

What is the practical importance of these results? Based on the Ghana YouthSave experiment, the research team calculates that, across full school populations, the treatment intervention increased depositing into *Enidaso* accounts by 50 to 80 times compared with the control group. Among the 21.1 per cent of youth who opened accounts in the in-school banking schools, deposits averaged 0.24 per month, also about three times per year, but for a larger proportion of youth. Among the 11.4 per cent of youth who opened accounts in marketing outreach schools, deposits averaged 0.26 per month, or about three times per year. For low-income youth in a developing country, making deposits several times a year is a positive step toward financial inclusion, experiencing repeated interactions with a formal financial provider.

Average monthly net savings per student across the full school population were USD 0.43 for in-school banking, USD 0.21 for marketing outreach and USD 0.01 for control schools. These differences again are highly significant. For observers from developed countries, the amount of savings may seem small. However, it is important to recall that these figures are based on the total school populations, while 21.1 and 11.4 per cent of students actually opened accounts at in-school banking schools and marketing outreach

schools, respectively. Amounts are greater for the students who saved. For example, students who attended in-school banking schools and opened accounts had average monthly net savings of USD 2.06. On an annual basis, this would be about USD 25, and over 4 years of schooling, this would accumulate to USD 100. Given the average yearly household expenditure on secondary schooling of about USD 200 per child (UNESCO, 2011), this savings amount represents a meaningful start, about half the cost of a year of secondary schooling. Based on this savings accumulation alone, one-fifth of children across the full school population are saving in amounts that have the potential to alter their educational trajectory. If students were building similar accounts earlier, across all the primary school years, it is likely that the impact would be greater still. Evidence from the SDA that younger children have greater average monthly net savings than older children (see Johnson *et al*., 2015) reinforces the desirability of starting school-based savings early.

A few limitations should be noted. First, we did not capture savings of either treatment or control groups in other savings vehicles. The main purpose of this study is to examine the impact of the specific intervention, the Ghana YouthSave experiment, on savings accumulation. That is, this study investigates whether low-income youth could save and how much they save when the opportunity is given. Second, there could be ethical issues since the interventions were only provided to youth in the randomly selected treatment schools. However, a randomized control trail was a valid, feasible choice considering academic and practical reasons. Also, randomization was conducted at a school level to lessen ethical issues at least to some extent.

Overall, the findings of the Ghana YouthSave experiment demonstrate that low-income youth and their families, in a resource-limited country, can be connected to formal financial services and save for future development when access and opportunities are available to them. *Taking the bank to the youth* is an effective strategy for financial inclusion and potentially financial wellbeing. These results support the efforts by financial institutions to conduct financial services outreach at schools.

We cannot assess at this point how increased savings in formal institutions will affect future financial capacity, academic achievement and overall development, but findings after a relatively short period of treatment suggest that these youth will be more financially capable going forward (Chowa *et al*., 2015). In addition, there is reason to hypothesize that future school attendance and educational achievement may also improve (Elliott & Beverly, 2011a; Huang & Wang, 2013), but this research remains to be done.

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