



Research Hypothesis – Charitable and Foreign Aid issuance using digital currencies

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Abstract:

The delivery of financial Aid to developing countries has been controversial for many years. Experts often debate the most efficient method of distributing funds to increase the impact of existing budgets. In this paper, we provide unique research, insights, and potential solutions to traditional financial aid distribution. These methods assist decision-makers in their quest to increase money efficiency, moving forward into more challenging economic times.

We support the need for financial/foreign Aid; however, the argument must be made based on accountability that funding policies may be the root cause of health inequality, not money per se. We also argue that developing countries need help in effective policy enforcement due to inefficient processes in government and that the potential for technology to remove the responsibilities of individuals in this process is now available.

We conduct various experiments using digital currencies and multiple platforms and state our findings and arguments for adopting and utilizing this technology for financial aid distribution.

Research Question: Can the use of blockchain technology in foreign and economic Aid lead to a reduction in extreme poverty and wealth inequality in Developing Countries?

Hypothesis: The use of blockchain technology in financial Aid and grant distribution can increase transparency, accountability, and efficiency in the transfer of funds, ultimately leading to a reduction in extreme poverty and wealth inequality in the intended developing regions.

Background: Poverty is a persistent and pervasive issue that affects billions of people across the globe. Despite progress in recent years, poverty remains a multifaceted issue that requires managing and coordinated efforts to address it. Foreign and Financial Aid is an important economic tool for addressing poverty in developing countries, but its effectiveness is complex and controversial. Blockchain technology and the technologies able to be developed on such technology show the potential to significantly disrupt the traditional passages of currency flow to developing areas.

Expected Results: We expect to find that the use of blockchain technology and specifically decentralized finance in Foreign Aid and grant distribution, will lead to a much higher impact through the design of efficient money-moving platforms. Blockchain technology can also reduce poverty and wealth inequality in the intended regions via economic growth through digital stimulus packages.

Significance: This study will provide insights into the potential of blockchain technology to address poverty and wealth inequality around the World through more effective foreign and financial aid distribution. The findings of this study can inform policymakers and aid organizations about the potential benefits of using blockchain technology in their efforts to combat poverty and promote sustainable economic development.

Introduction:

The effectiveness of foreign Aid, particularly financial Aid, is a complex and controversial topic. However, social economists, such as Nobel prize winner Angus Deaton, have reviewed historical and current data and have identified a few potential issues with Financial Aid, including an increase in the wealth gap locally, collapse of local economies due to cheap imported food, and reliance or better known as "Aid dependency."

A significant portion of funding intended for developing nations often needs to catch up when using traditional banking infrastructure. This phenomenon can be attributed to several factors, including a lack of transparency and accountability in the transfer and distribution of funds and corruption and mismanagement within recipient countries.

One of the main issues with traditional banking infrastructure is the need for more transparency and accountability in transferring funds. Traditional banking systems rely on intermediaries such as banks and financial institutions to transfer funds, which can lead to a lack of visibility into how the funds are being used. This makes it difficult to track the flow of funds and ensure they reach their intended recipients. Furthermore, traditional banking systems often rely on manual processes and paperwork, which can be prone to errors and make it challenging to ensure that funds are being used as per their intention.

Digital currencies have the potential to address these issues by increasing transparency and accountability in the transfer and distribution of financial Aid. Digital currencies are programs based on smart contract technology, which can only be used according to predetermined conditions. This allows for greater transparency and oversight of how aid funds are used, as transactions are recorded on a public ledger that anyone can view.

Additionally, digital currencies can be transferred directly to recipients, bypassing intermediaries such as banks and financial institutions. This can substantially reduce the potential for corruption and mismanagement while increasing accountability and the impact of funds after that.

This technology provides more economic opportunities for those living in extreme poverty. By using digital currencies, individuals in developing countries can access financial services that they may not have been able to access otherwise, such as opening a bank account, accepting new forms of payment, and even microloans. In addition, they can save their money safely and spend it just the same. The potential to help economic development and lift people out of extreme poverty will be seen during this study.

Understanding Economic Growth Requirements:

In short, it is said that "wealth equals health" (Sir Angus Deaton) – Health, Inequality and Economic Development. In this paper, Sir Deaton discusses the correlations between the health standards of individuals and the wealth status of the participants at hand.

Residents living in a developing country have different rights to immediate access to necessities, food, shelter, and water than we do in the developed World. Income determines mortality, whereas money protects you from malnutrition, ill health, and premature death.

Income inequality has been shown to play a minimal role in poverty, regardless of other grounds. The logic is that "as long as one can maintain their income, it should not matter that of the next persons." Applying this logic seems fitting to understanding the requirements for the economic growth of a developing region. The fact is that people in developing countries are economically unequal because they lack access to opportunities to maintain their income.

The macro-outlook of most developing countries shows explosive population growth over the past 25 years. This, coupled with a lack of adequate funding for sustainable development projects such as water, electricity, and logistical infrastructure, has led to the conditions we face today.

Sub-Saharan Africa is home to over 450 million people who lack access to running water, electricity, and water, the foundation of life. Yet, with adequate access to water alone, whole civilizations rise. This is due to the conditions of having access to abundantly clean water provides.

Water allows a child to bathe, be hygienic, and be healthy; already, they are 520 times LESS likely to die as a baby from diarrhea. Water brings health, and with health comes a more effective workforce. With a workforce and abundant water supply, many more crops and higher yields become possible. With higher yield seasons come more profits at the market, allowing farmers to hire and produce even more. He pays better, and the employees live better; they spend locally, and now the circular economy is beginning. The shop owners see better income; they purchase more locally, put on more staff, stay open longer, and produce more. As this economy becomes more significant, it flows upwards in the form of taxes and duties. The government's profit or GDP is simply the taxes of those residents conducting business in the Country, which gets spent and reallocated back down in the form of infrastructure and funding. Finally, ending the circular economy with benefits resulting in better lives for the residents of that Country and region.

Except, this is different for most developing Countries. Poor policy implementation has skewed many hopes of adequate support reaching their community. Most of these governments hold little to no account of the people it represents. The reason is that the majority of the funding for developing regions and their governments comes from Aid, they need a robust taxation system in place, so GDP is difficult to create. This directly affects the

dynamics of power to the provider of such resources. This mentality should not be subjected to governments as it removes any feelings of responsibility to its citizens.

Overall, a considerable contribution to the problem of inequality is poor accountability leading to an extensive misuse of funds, whether intentional or not. Money currently flows downwards, but very little reaches the bottom where it is intentionally required to be.

Use of (GOs) and (NGOs) to distribute Aid

Wealthy Countries give, on average, 1.5% of their annual GDP in the form of foreign Aid. This amount between countries totals over 160 billion dollars. Most funds are sent directly to multilateral Organisations such as the World Bank, United Nations, and Bank of international settlements to distribute to developing countries as needed.

The distribution process begins from the top of this pyramid and begins the Aid distribution process from here. Many forms of Aid are issued with the funds such as financial, military, economic, and disaster. However, for this study, we are focusing on the Aid allocated to the ongoing efforts of humanitarianism and charity.

The cooperation between government and Non-Governmental Organizations to distribute Aid after a disaster needs to be defined clearly. With fewer GOs than NGOs, the competitiveness of those outside of government is very high, resulting in performance impediments due to reasons such as;

- Lack of logistical organization
- Cultural differences
- Mutual distrust
- And the inadequate capacity for relief

These are simply logistical problems; however, in a more complex issue, it is found that NGOs with a substantial alignment to higher bureaucratic orientation, stronger domain reputation, and those with a long-standing history of GO funding receive many times more funding than others not of these ideals.

Solutions have been avoided as the competitive arena becomes more so. Discussions of corruption and misconduct are often avoided for fear that continuing decline in public trust will occur. Though plausible in the past, society has reached a point where truth is wanted and almost craved. The younger generations of people expect higher accountability and impact, for they were raised watching frequent advertising of charity, being desensitized from those less fortunate, and eventually becoming adults with voices themselves. Change cannot be stopped, and awareness happens simultaneously over time also.

One thing is sure; technology is now reaching a point of singularity where global systems can be developed. As a result, policies from every government can be aligned further,

increasing cooperation between nations, eventually flowing down to the Corporations, Organisations, and people residing in such places.

We have an opportunity to build and work together for the first time in history; nations can be connected through every means except land. Financial borders are becoming lower and accessible to many more people, especially those living in poor regions of the World. Financial technology is merging with databases creating efficient money distribution platforms, which is the key to bringing extreme poverty to a close.

The current outlook of the digital economy in Africa:

Africa is an obvious example of the need for a more transparent natured financial system. Nigeria, since 2021, has been piloting the eNaira, a digital (CBDC) designed for use throughout the vast Country. (BIS 2021)

A central bank digital currency is a native Country based dollar that never moves accounts. Instead, access to the dollar moves by the very nature of a distributed ledger. Essentially, you give away access to the money, not the money itself. The technology is similar to the blockchain, though verifying the transactions is slightly different. A treasury controls this currency; every dollar is visible and programable. It provides the ultimate economic control from a policymaker's position.

Like most developing countries, Nigeria has a weak taxation system, and it makes sense to become one of the first to pilot the new system. By adopting digital currency, the Nigerian government can quickly implement a robust taxation system using smart contracts. The tax could be taken as the purchase is made, removing the need for even annual tax filings.

However, concerns are being faced by central banks in their efforts to implement such concepts. The requirements for the banking infrastructure are high and partial to why most Africans are under or completely unbanked. Identification and KYC are extremely low in developing regions and therefore create the need for a "two-tiered financial system."

One with complete identification requirements and full access to financial products. The other must be limited to lower the risk to others in the greater financial system. This is where decentralized finance can be of great importance. Central bank currencies may be unable to lower their policy standards to the level of "zero KYC," but (Defi) is already there.

By utilizing decentralized finance, identification can still be forgone, and money still flows into poor regions; however, come a time when a person can rise from extreme poverty enough to warrant further financial inclusivity, they have the opportunity to seek formal identification and access to the greater financial system. If they need a decentralized stablecoin to barter, the benefit remains local and still benefits the person's income status.

The current outlook for digital currencies in Africa needs to be more transparent. However, research has already been conducted, collated, and structured for us to interpret. Adoption of such technology and financial inclusion are correlated and, as such, carry problems we must overcome. The five most challenging aspects of financial inclusion in such places are.

- Access to smartphones for digital-only banking
- Adoption willingness
- Security risk
- Privacy concerns and
- Fear of 'disintermediating banks'

Overall, the determining factor for adopting digital currencies in Africa is policy, not efficiency or availability of technology, which can be seen throughout the study.

Experiments conducted:

Over 12 weeks, we collected data from 900 retail users and 75 charity directors who signed up, downloaded, and used the Charity Token mobile application. At that time, approximately USD 4,000 was donated across the platform. We monitored usage, transaction/donation volume, and other metrics to help us conclude our initial study findings. Below is an outline of the general and application-specific experiments that were conducted:

Difficulty Experiment: During each transaction, we monitored the user's difficulty navigating the processes required to withdraw value from digital currencies as opposed to traditional means. As this technology and way of sending value are new, it must be considered that the means of moving valuable data attracts some uncertainties.

Charity Directors who successfully applied were issued a Charity Token account to receive both direct and passive donations via our smart contracts. In addition, the account could receive a stablecoin (USDT) and two price-fluctuating tokens (Matic & CHAT). However, these tokens were only available to be sent over the public polygon blockchain network.

Due to the polygon's lack of fiat-to-crypto off-ramp integrations, there is still a significant difficulty in selling tokens for fiat currency in developing countries. This hinders our results as a beneficial technology due to having almost every other advantage over traditional finance except the means of withdrawing the value.

This experiment was monitored with direct feedback from directors withdrawing tokens in exchange for local currency. The feedback was consistent with our findings of "a lack of exchange infrastructure in the local region." However, if digital banking were utilized where stablecoins representing local currency could be swapped, this problem would not exist. It would improve the efficiency of digital currencies in the region by many times.

In places such as Nigeria, cashless laws are already appearing, with an approximate timeframe of fewer than 12 months until regulatory approval of such systems is finalized.

Speed Experiment: This experiment compared the speed of traditional banking and decentralized financial networks. The test was simple and involved using cryptocurrency exchanges and traditional banks.

We donated funds to several charities via their donation accounts on various platforms with direct access to their local banking institutions. In addition, we sent funds via credit card and monitored the time it took for the funds to be received in the nominated bank account. This time ranged from 3 to 5 days, with the longest time being in sub-Saharan Africa.

We also donated stablecoins and other digital tokens via a digital exchange. Funds were transferred from our bank account to the exchange, where we purchased several digital tokens on various networks and distributed them to selected charities. Funds were received within seconds and could be withdrawn from the recipient's exchange account and transferred back into their nominated bank account. The total time from an exchange to the recipient's bank account was under 24 hours, with most of the time spent waiting for the local banking infrastructure to clear the funds the director had withdrawn.

We also performed the same tests using our custom payment gateway and mobile application. The application was designed to accept funds from any account on the same network and enable users to donate these funds using digital tokens or currency. The results showed a decrease in time to receive tokens in the recipient's bank account by over an hour and a complete account of the funds on the public ledger.

The conclusion is that the speed and efficiency of digital currency are unparalleled by fiat currency. Money settles within seconds and moves directly from one person's account to another without an intermediary banking institution.

Cost-benefit Experiment: One of the highest costs of moving money is the administration costs and fees associated with the systems in place for grant management, funding, and oversight. The current need for personnel to manage this process is high, though it could be significantly reduced using smart contracts and digital currency.

During the transactions, we calculated the costs of moving funds from one account to another. These findings aimed to determine the most cost-effective method of distributing funds to developing countries.

We donated money to several charities in Africa using fiat and digital currencies. International banking transfers use the swift banking infrastructure and cost AUD 6 online or AUD 30 in person through a major Australian bank. So, for example, when we donated AUD 100, the recipient received the equivalent of just over AUD 92 in their bank account after fees.

Secondly, we transferred the same AUD 100 funds to a digital currency exchange. The funds were converted into USDT (USD equivalent) and sent to the Binance public blockchain. The fees were a 1% exchange fee and approximately AUD 0.02 in blockchain transaction fees, giving us a total of AUD 98.95 in the recipient's wallet. Furthermore, an additional

withdrawal fee of 1% was applied at the receiving end, leaving a total of AUD 97.95 received.

This cost experiment concludes that currently, fees are six times cheaper via digital networks, even though they are fragmented and in early-stage development. The use of decentralized networks is still far more affordable than traditional means.

Economic benefit Experiment: The goal of the above experiments is to improve the economic conditions in the poorest regions of the more affordable used various metrics to measure this, such as direct feedback, assessments of living conditions, current and future funding achievements, evaluations of local infrastructure before and after, and the overall impact on the community from the services provided. Unfortunately, we had only a limited amount of funding to reach these areas, resulting in a slight improvement in living conditions. However, the potential seen in the above experiments suggests that significant improvements in living conditions are primarily a matter of funding and awareness. Providing remote communities with greater access to funding through efficient on-chain reporting systems could alleviate extreme poverty and the associated struggles in these regions. The economic benefits are yet to be confirmed, and we will continue to monitor them over time as we continue our work in these regions.

Benefits:

- Benefits to donating via digital currencies: During the 12 weeks, we monitored retail usage of the platform through various google and blockchain statistics. Using the charity token platform and other means to donate digital currencies created some unexpected results.
- Users can donate less, more often. For example, using digital currencies, users could donate as little as 1/25 of a cent, with only a transaction fee of, on average, \$0.02c accompanying the donation.
- Donations were sent peer to peer and received in under 5 seconds.
- A Qr code reader and scanner were introduced to allow recipients to distribute funds at the recipients' end with others local to their community. This sped up transaction administration and trust by automatically inputting the recipient's account details ready for the user to hit "send" almost instantly.
- Every transaction is reported on the blockchain, and if the blockchain is public, we can view every transition significantly accounting for the allocated funding.
- Cost benefits are a significant finding as they reduce the cost of distributing funds. Blockchains also allow "airdrops," where a payment can simultaneously be sent to hundreds or thousands of accounts.
- The process bypasses traditional intermediaries and authoritarians involved in the allocation and distribution of funds in local and state governments of developing countries. Often this is considerable friction for the movement of money into developing countries as the corruption of officials is very high in retrospect to developed countries.

Disadvantages:

- Inconsistent access to digital exchanges and digital infrastructure, such as smartphones
- Trust remains elusive though the potential of funding sometimes overrides this issue.
- Fees are still relatively high at several % per transaction. As exchanges charge 1%, transaction and withdrawal fees also reduce impact. These fees could be much lower if the volume of services were higher.
- Access to the various platforms can be challenging to understand, and the barrier to entry still needs to be reached for people in developing regions. In addition, user interfaces and experiences should be adjusted to suit a less technologically knowledgeable demographic.

Summary and findings of experiments:

In summary, the experiments conducted over 12 weeks suggest that using digital currency to improve economic conditions in developing regions is a highly viable option, despite some difficulties and shortcomings. The efficiency of digital currencies is high, but there currently needs to be more regulations in place to support them as tangible assets or currency. In addition, they offer little to no user protection and can be volatile in price and liquidity.

The potential for digital currencies to serve as financial aid tools is high due to the ability to report accurately and without tampering. However, more time and resources must be allocated to finding real-world solutions for disseminating significant funds for financial Aid. Public blockchains offer a "level playing field" for those with little or no access to traditional banking, such as those living in sub-Saharan Africa. The aim is to provide private access to databases through an additional decentralized app (dApp) that allows purchasing digital currencies specifically for charity purposes.

Additionally, through our understanding of the frictions hidden within the distribution process, we could determine a further use for the digital technology that these currencies are built upon smart contracts. Smart contracts offer us an opportunity to program certain conditions which approve the transaction. For example, a transaction could be as simple as a vehicle purchase or an escrow account releasing funds at intervals over time.

With the additional programming and integration of further smart contracts, money distribution becomes efficient and reduces the majority of the costs associated with distributing financial Aid.

Using a CBDC for each Country could create an unorganized mess of currencies, though a powerful tool if used correctly. Simply put, central bank currencies require very high security and safety standards. If they lower the standards too low far, they risk many additional

problems. However, by allowing decentralized, regulated stablecoins and other digital currencies to aid the populations in regions lacking traditional banking infrastructure, regulators could provide securitized gateways (digital exchanges) in and out of the 'two-tiered system.'

Digital exchanges offer this advantage and require simple KYC procedures. Platforms found on google play and apple require less again, allowing users to sign up for an account with no KYC. While initially, this may seem reckless, decentralized finance offers a unique opportunity to stimulate some of the poorest regions in the World that lack identification.

Of course, every aspect of this requires hefty regulations though only in the operating jurisdiction of the exchange or currency provider. The user of a digital exchange requires only a driver's license or formal ID, equivalent to 70 points of identification, as opposed to banks requiring a total of 100 points. Users of mobile banking applications in underdeveloped areas could self-identify, or begin their identification process from nothing, to house a database of under-identified people to help. This is, of course, one of our goals here at Charity Token.

Whatever the course of action, data and its collection are of the utmost importance moving forward.

Conclusion:

While generally speaking, Financial Aid and the problems associated with distributing such Aid are perfunctory. The actions taken by GO and NGOs have been temporary and superficial, with a lack of sustainable development being conducted with the many billions over the past 100 years.

With the addition of more service providers year on year, the requirement for more capital to be used in administration grows. With such advancements in financial technology, we no longer need 40,000 US citizens to organize Aid for Haiti. The age of empowerment through technology could leapfrog our efforts forward by many decades at today's effort capacity.

Utilizing technology moving forwards seems needed. By calculating the impact of delivering money, we could empower local communities and help stimulate local economies to self-reliance. Delivering imported Aid is necessary, but only when a disaster strikes, leaving no local resources to purchase. Outside of this, delivering imported goods has only been shown to destroy and unhinge local industries and whole economies. One example is Haiti; in 1970, Haitians produced and exported surplus rice of over 35%; disaster relief after every local calamity since has destroyed the local rice production to the point where they now must import over 80% of the rice needed for just locals to survive.

We are not dealing with tribal communities from the pre-1900s anymore, and as such, require us to empower rather than disempower such communities. Like that of an infant, once they can afford the ability to look after themselves, we must let go and guide the

person. Correcting and continuing through the progress of education and knowledge and allowing them to make mistakes is human nature.

Financial technology can allow this flexibility to give such opportunity to those in developing Countries. We can provide the local people their right to decide, their right to a better life, and we can do it quite easily if we allow it.

We could use blockchain technology to manage financial spending and grant manage and distribute funds using the same global database. We should focus on accurate reporting data to save organizational time and money. By funding local charities directly, we bypass the potential for misuse and skimming of funds. We can account for every dollar and even pre-allocate funds instead of issuing large unaccountable budgets.

The future has many more financial opportunities, especially for those in developing Countries. Policymakers can now have a more robust reporting arsenal, and the administration avoids distributing funding more accurately, allowing for a much higher impact rate for funding.

Finally, we now live in a time where there is an abundance of local charities in nearly every region of the World. The people who direct these organizations are caring, compassionate people who desperately want change for their community. They have gone through the process of formally registering their organization and seeking out needs from their community daily. They understand the requirements to better the local community and, most times, have already received quotations for every development they require, e.g., water bores and labour force requirements.

Efficiently utilizing this vast network only requires the use of efficient administration software. We previously had the databases for this but not the financial instruments to distribute and account for the Aid. Well, now we do.

References:

Deaton, A. (2003). "Health, Inequality, and Economic Development." *Journal of Economic Literature* 41 (1): 113–158.

Ntouda J, Sikodf F, Ibrahim M, Abba I. Access to drinking water and health of populations in Sub-Saharan Africa. *C R Biol.* 2013 May-Jun;336(5-6):305–9. doi: 10.1016/j.crvi.2013.06.001. Epub 2013 July 18. PMID: 23916208.

BIS Papers No 128 Central bank digital currencies in Africa by Enrique Alberola and Ilaria Mattei

Ozili, P. K, Central Bank Digital Currency Research Around the World: A Review of Literature (January 5, 2022). *Journal of Money Laundering Control*, Available at SSRN: <https://ssrn.com/abstract=4001852>

Charity Token Economic Report 2023 – Distribution Model for Financial Aid in developing countries. (10/01/23) By Christopher Manski <https://charitytoken.online/wp-content/uploads/2023/01/Charity-Token-Economic-Model.pdf>

Relief goods distribution problem: Considering donation strategies, fairness, and interventions, *Progress in Disaster Science*, Volume 12, 2021, 100198, ISSN 2590-0617, <https://doi.org/10.1016/j.pdisas.2021.100198> - Yingzhen Chen

Evidence on Corruption and Humanitarian Aid – Paul Harvey, *Humanitarian Outcomes* (2015)

Case, A, and A Deaton. 2005. "Health and Wealth Among the Poor: India and South Africa Compared." *American Economic Review: Papers and Proceedings* 95 (2): 229–233.

Resources:

Charity Token Mobile application – (<https://play.google.com/store/apps/details?id=uz.qubit.charity>)

Charity Token Pty Ltd:

Charity Token is an Australian-based start-up Company aiming to improve the lives of millions living in some of the poorest regions on Earth. They have developed a peer-to-peer blockchain application to build a network of charities located primarily in underdeveloped countries. With strict criteria, such as every charity must be locally registered and in service, we now have over 75 charities situated in parts of Africa.

The purpose of this platform is to utilize blockchain technology for moving charitable funds across borders using only telecommunications networks to stimulate whole communities.

With over a million local charities providing services to those most vulnerable, technology could be responsible for many developing communities being lifted up and out of extreme poverty. In addition, local charities, with their drive for change, expertise in identifying needs, and local knowledge, have the potential to drive significant economic progress in their communities.