Central bank digital currency, poverty reduction and the United Nations sustainable development goals

Ozili, Peterson K

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Peterson K. Ozili

Abstract

This paper examines the role of central bank digital currency (CBDC) for poverty reduction and sustainable development. In the paper, I argue that a CBDC can eliminate poverty by increasing financial inclusion which gives poor people access to affordable credit and other basic financial services which they can use to improve their welfare, thereby enabling them to rise above poverty, and achieve the United Nations sustainable development goal of eradicating poverty. This argument is valid only if a central bank digital currency is designed to incorporate features that increase financial inclusion. The argument may not be valid in cases where a CBDC is not designed to increase financial inclusion as is the case in some developed countries. The implication is that a CBDC can lead to poverty reduction only when the CBDC design incorporate features that increase financial inclusion. Policy makers can ensure that the CBDC used in their countries is designed to incorporate features that increase financial inclusion which is vital for poverty reduction and for achieving the United Nations sustainable development goal of eradicating poverty in all its forms.

Keywords: CBDC, central bank digital currency, financial inclusion, poverty reduction, sustainable development goals, United Nations.

JEL classification: E42, I3, Q01.

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1. Introduction

The objective of this paper is to discuss how a central bank digital currency (CBDC) can help to reduce the level of poverty toward achieving the United Nations sustainable development goal of eradicating poverty in all its forms. This topic is important to policymakers who are interested in poverty reduction. This study is also relevant to researchers conducting research on how to reduce the level of poverty toward the realization of the sustainable development goals.

Poverty reduction or poverty eradication is the first goal among the 17 United Nations SDGs. Poverty is commonly defined as the number of people living below the poverty line (see, for example, Wratten, 1995; Tilak, 2002). Poverty is multidimensional because insufficient income or lack of any income can lead to deterioration in health, education and welfare of poor people. For this reason, the United Nations is spearheading efforts to reduce poverty in countries in the global south particularly in developing countries.

Several innovations have emerged and contribute to efforts aimed at reducing the level of poverty. Some of these innovations include digital financial services, the microfinance agenda, blended poverty financing, aid allocation, among others. In the academic literature, a number of studies have examined how innovations can help to reduce the level of poverty (e.g. Johnson and Rogaly, 1997; Kelikume, 2021; Yonah and Salim, 2008; Collier and Dollar, 2002). These studies show that, with the right pre-conditions in place, digital financial services and microfinance schemes can reduce poverty to some extent.

Another emerging innovation in the economic system is the central bank digital currency (CBDC). A CBDC is a recent financial innovation in the payment system. Prior to the introduction of CBDCs, several studies in the financial innovation literature show that financial innovation, such as Fintech, can contribute to poverty reduction in many societies (Ajide, 2016; Hulme et al 1997; Michael et al, 2022). Other studies emphasize the risk of financial innovation and its implications for development (e.g. Allen and Gale, 1994; Ozili, 2022e). Although existing studies show that financial innovation plays an important role in reducing the level of poverty, the literature has not examined the relationship between CBDC, poverty reduction and sustainable development. This relationship is important because it can provide new insight about how digital innovation can support the realization of the United Nations sustainable development goals (SDGs). In this paper, it was argued that CBDC may be linked to poverty reduction toward greater sustainable development.

A central bank digital currency is money or currency in digital form (Ekong and Ekong, 2022). Interest in CBDC is growing rapidly among policy makers and central banks around the world. The economic benefits of a central bank digital currency are enormous. They include the effective conduct of monetary policy, the reduction in cash management cost, increase in remittance, low-cost transactions, increase in the level of financial inclusion, improved payment efficiency, increase in tax revenue from the digital economy, and facilitating the growth of the digital economy (see, for example, Bordo and Levin, 2017; Ozili, 2022a; Engert and Fung, 2017; Ozili, 2022b).

As a result of these benefits, many emerging and developing countries are planning to adopt a central bank digital currency such as Brazil, Peru, Ghana and India. They plan to adopt a central bank digital currency as an alternative payment solution. However, despite the potential benefits of a central bank digital currency, some developed countries are not convinced that they need a central bank digital currency because they believe they already have a very robust payments system while other developed countries, such as the United States, Canada, Australia and the UK, are presently conducting research into central bank digital currency before formally adopting it. This shows that central bank digital currency is gaining widespread attention among central banks. Some central banks are exercising caution before adopting a central bank digital currency while others have already adopted a central bank digital currency such as Nigeria and the Bahamas (Ozili, 2022a).

Despite the growing interest in central bank digital currency, there has been no attempt to assess how a central bank digital currency can contribute to poverty reduction toward achieving the United Nations sustainable development goals. To date, the literature has not examined the opportunities that central bank digital currency present for poverty reduction toward achieving the sustainable development goals. Therefore, this paper discusses how central bank digital currency can help to reduce the level of poverty toward achieving the sustainable development goals.

This study contributes to the literature in the following ways. First, this paper contributes to studies that assess the drivers of sustainable development. Studies in this literature include Sachs et al (2019), Vinuesa et al (2020) and Esquivel and Sweetman (2016). The present study shows that a central bank digital currency can be used to expand financial services and offer more opportunities to poor people, allowing them to use affordable digital financial services to improve their welfare and to rise above poverty. Second, this paper contributes to the emerging central bank digital currency literature. Studies in this literature include Davoodalhosseini (2021), Ozili (2022c), Selgin (2021) and Ozili (2022d). The study contributes to this literature by showing that a CBDC is a potential factor that could help to reduce the level of poverty.

The paper also contributes to the theoretical literature. It contributes to the diffusion innovation theory by showing that innovation adoption (e.g. CBDC adoption) for poverty reduction might take some time due to the innovation diffusion process that create early adopters and late adopters (Lee et al, 2011). This study also contributes to studies that use the technology acceptance model to explain new innovation. The technology acceptance model states that perceived ease of use and usefulness of a technological tool determines the extent of consumer acceptance (Charness and Boot, 2016).

The rest of the paper is structured in the following way. Section 2 presents the literature review. Section 3 presents the discussion on how CBDC can reduce the level of poverty. Section 4 presents the policy implications for sustainable development. Section 5 concludes.

2. Literature review

2.1. Poverty and sustainable development

An extensive literature examines the link between poverty and sustainable development. Anyanwu and Anyanwu (2017) show that the key factors that increase the level of poverty in sub-Saharan Africa are high income inequality, oil-dependence, institutionalized democracy, high prevalence of HIV among the female youth and increased civil war episodes while the key factors that reduces the level of poverty in sub-Saharan Africa are high levels of economic development (income per capita), high general government final consumption expenditure, high official development assistance and aid received, urbanization and access to improved water source. Das Gupta et al (2011), in a survey of literature, show that rapid population growth can constrain economic growth in low-income countries that have a poor policy environment. Population growth also exacerbates pressure on environmental common property resources (Das Gupta et al, 2011). Schleicher et al (2018) argue that the SDGs can provide an opportunity for better environment–poverty integration. Schleicher et al (2018) further argue that, in order to realize this goal, SDG-related activities will need to challenge the institutional status quo; transform how we measure, understand and implement development. There is also a need to design interventions that reflect local visions of development; and address ultimate drivers of environmental degradation and poverty (Schleicher et al, 2018).

Manaf and Ibrahim (2017) show that Malaysia's poverty eradication and development programs are underpinned by political stability, inclusiveness, strong political will and the overall importance it attaches to ethnic tolerance and national unity. Reed (2002) examines the factors responsible for promoting poverty alleviation and protecting environmental assets in rural areas of developing countries. Reed (2002) concludes that policy makers face difficult trade-offs that must balance the pursuit of short-term economic gains of export–led growth against long-term benefits of social cohesion, environmental stability and steady productivity gains associated with sustainable development. Reed (2002) concludes by affirming that civil society must play an expanded role in reshaping current policies and practices to support sustainable development. Kao et al (2016) show that corporations can enhance the working abilities of the poor by sharing technologies and resources and providing skills, training and education to empower them to rise above poverty. Kao et al (2016) also argue that corporations can establish poverty reduction businesses to provide poor people with job opportunities, or introduce social network resources to assist poor people in starting a business.

Bahmani-Oskooee and Oyolola (2009) examine the impact of foreign aid on poverty reduction using pooled time-series and cross sectional data from 49 developing countries. They find that foreign aid is effective in reducing poverty. Chowdhury (2009) argues that although microfinance has developed some innovative management and business strategies, its impact on poverty reduction remains in doubt. Harber (2002) examines the political relationship between education and poverty reduction. Harber (2002) argues that authoritarian rule in Africa has exacerbated levels of poverty; however, the achievement of greater levels of democracy will not be possible unless political culture and civil society in Africa become more democratic but this will depend on the spread of more democratic values and behaviors. Harber (2002) also emphasize that education must play a part in fostering greater democracy. Ogun (2010) investigates the impact of infrastructural development on poverty reduction in Nigeria. Ogun (2010) finds that infrastructural development leads to poverty reduction, and social infrastructure explains a higher proportion of the forecast error in poverty indicators relative to physical infrastructure. This suggests that massive investment in social infrastructure in cities would drastically reduce poverty in the urban areas (Ogun, 2010).

Chibba (2008) argues that evidence-based policy, sound institutions and sensible macroeconomic policies are required in developing countries, but they are not sufficient to tackle poverty and promote pro-poor economic growth. Chibba (2008) argues that solutions to address global and national poverty reduction goals require paying attention to the potential and positive impact of political economy, technology-based solutions, market-based approaches, private sector development and related interventions that are linked to inclusive development and financial inclusion. Chibba (2008) further points out that while there is no consensus among policymakers, businessmen, academics and practitioners on how best to address poverty reduction in developing countries (Chibba, 2008), there are plenty of creative and path-breaking approaches that are proving to be successful. Veen and Preece (2005) argue that adult education can contribute significantly to poverty reduction. Veen and Preece (2005) argue that successful contribution of adult education to poverty reduction programs includes agricultural extension programs, vocational education programs, community development programs and training for active citizenship.

2.2. CBDC and development

Few studies attempt to link CBDC to development outcomes. But these studies did not link CBDC to poverty reduction for sustainable development. For instance, Cukierman (2020) argues that a CBDC opens up welfare-enhancing opportunities for users due to its ability to reduce transaction costs. Cukierman (2020) further argues that governments and central banks can use CBDC to maximize national social welfare. Ozili (2022f) argues that CBDC can be used to support the transition to a circular economy by making central bank digital currency accessible to circular businesses and other players in the circular economy sector, and by designing the CBDC in a way that allows it to support circular economy goals. Ozili (2022f) further argues that CBDC creates a gateway that allows a central bank to offer financial assistance to distressed circular businesses. Other studies link CBDC to financial inclusion which is an important development outcome. Murakami et al (2022) show that CBDC can increase financial inclusion by providing a savings vehicle that allow households to smooth consumption. They also argue that CBDC adoption is more important for developing countries that have a lower level of financial inclusion. Ozili (2022d) suggests that CBDC can increase financial inclusion by improving access to digital financial services and increasing the efficiency of digital payments. Banet and Lebeau (2022) analyze the impact of a CBDC on financial inclusion, and find that a CBDC that has low transaction cost and has high interest rate on CBDC deposits increases the level of financial inclusion. Didenko and Buckley (2021) show that if a CBDC is well-designed and well-implemented, it can increase financial inclusion by bringing more people into the financial system so that they can access low-cost financial services.

3. Discussion

3.1. How CBDC reduces the level of poverty

Recall that the first sustainable development goal is to eradicate poverty. A CBDC can be used to achieve this goal by increasing the level of financial inclusion. Financial inclusion generally involves providing access to basic and affordable formal financial services (Ozili, 2018). The first step is to ensure that the CBDC is designed to increase financial inclusion. This can be done by ensuring that the CBDC has a feature for offline usage, and ensuring that the CBDC has features that allow people to hold and use CBDC for retail payments without needing to own a formal bank account. A CBDC that has these two features can increase financial inclusion by ensuring that (i) poor people that do not have a bank account are able to use CBDC and make payment up to a significant threshold, (ii) poor people are able to bypass the burdensome documentation required to open a bank account, and (iii) by ensuring that people who do not have internet connectivity can use CBDC offline for retail payments.

A CBDC opens up a lot of opportunities for poor people. It offers low transaction cost, and gives poor people access to available credit, savings and investment products that are provided by formal financial institutions. Poor people can choose from a range of formal financial services the one that meet their needs which they can reasonably afford. They can take advantage of available loan products. The loan can be paid into their CBDC accounts or wallets and they can use the loan to improve their welfare by spending on basic consumption, education, healthcare and by saving some funds for emergency purposes, thereby helping them to rise above the poverty line. This shows that CBDC can reduce poverty by increasing financial inclusion which gives poor people more opportunities to improve their welfare using CBDC-based financial services, thereby contributing to the realization of the United Nations sustainable development goal of eradicating extreme poverty.

3.2. CBDC and the role of financial institutions for poverty reduction

Once a CBDC has been issued by the central bank, the central bank can distribute CBDC to citizens through regulated financial institutions. Financial institutions can assist poor people in registering and opening a CBDC account and can provide essential customer support services to poor people during the CBDC on-boarding process. Financial institutions can use their apps and platforms to promote CBDC to retail customers. Financial institutions can use advertising materials to encourage low income and poor customers to use CBDC-based financial services such as retail loans, insurance and deposits. CBDC-based financial services can also be tailored to meet the needs of people with low income. Also, the benefits of using a CBDC for payments should exceed the cost of using CBDC at all times. The associated cost should be sufficiently low to encourage poor people to use CBDC. Finally, the cost of converting paper money to CBDC and converting CBDC back to paper money should be cost-free to encourage poor people to voluntarily use CBDC for payments.

3.3. CBDC and the role of digital technology providers for poverty reduction

Digital technology providers can play a role in promoting a central bank digital currency for poverty reduction by lowering cost, providing affordable digital devices, and providing affordable access to the internet. The digital technology partners involved in the creation of a CBDC should liaise with the central bank and suggest ways to eliminate cost structures in CBDC design that increase transaction cost which may be expensive for poor people. Other digital technology providers should develop low-cost smart phones and other digital devices that are affordable to poor people. When digital devices, such as smart phones, are too expensive for poor people to buy, it will be difficult for them to buy the digital devices they need to transact with a central bank digital currency. It is essential for digital technology providers to provide cheap digital devices as it is a major tool that poor customers need to use to transact with a central bank digital currency. Also, it is important for digital technology providers to reduce the cost of internet connectivity to make access to the Internet affordable for poor people.

4. Policy implication for sustainable development

First, policy makers should ensure that CBDC is affordable and accessible to poor people. Poor people should have access to affordable mobile phones, smart phones or other digital devices that can be used to manage their CBDC holdings. Such digital devices should be affordable to encourage poor people to own digital devices which they can use to hold and manage a CBDC. Policy makers should ensure that digital devices are affordable and abundant. This will increase the demand for CBDC among poor people and increase financial inclusion when poor people begin to use CBDC for retail transactions. It will give them an opportunity to use CBDC-based financial services to rise above poverty. Second, policymakers need to introduce digital literacy programs to educate poor people on what a CBDC is, what it can accomplish for them and how to use it. Policymakers will also need to introduce online digital security programs to teach poor people how to protect their CBDC wallets or token-based CBDC from been hacked by hackers who want to steal people's CBDC holdings. Third, policy makers should ensure that CBDC is embraced by everyone in society especially by retailers and poor consumers. Poor people mostly patronize retail agents especially road-side retail agents, but these agents may refuse to accept CBDC payments for many reasons. Policymakers should provide incentives and rewards to retail merchants that embrace and use CBDC. Such incentives or rewards are important because it may be nearly impossible for poor people to use CBDC when the retail merchants in their community do not accept CBDC payments. Therefore, there is a need to ensure that retail business agents embrace CBDC. Finally, policymakers should continuously improve CBDC design to reflect new innovation and developments that lead to greater access to finance in a sustainable way.

5. Conclusion

This paper examined the role of a central bank digital currency for poverty reduction and sustainable development. It argued that a CBDC can eliminate poverty by increasing financial inclusion which gives poor people access to affordable credit and other basic financial services which they can use to improve their welfare, thereby enabling them to rise above poverty and to achieve the United Nations sustainable development goal of eradicating poverty.

The implication of the study is that a CBDC can lead to poverty reduction only when CBDC design has features that increase financial inclusion for poor people. Policy makers can ensure that the CBDC used in their respective countries is designed to incorporate features that enhance financial inclusion which is vital for poverty reduction and for the attainment of the United Nations sustainable development goals.

Future studies should assess how CBDC can aid the attainment of the other sustainable development goals. Such studies should assess how retail CBDC can be used to achieve other sustainable development goals such as climate action, quality education and good health and wellbeing. Future studies can also assess how CBDC can be used to achieve economic development objectives.

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