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# Can complementary local currencies with universal basic income reduce inequality?

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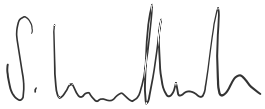
Signature 

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## 2. Introduction

Regardless of looking at it globally or locally, every economy depends on money. However, the world's financial framework has made monetary monocultures. These are by nature unsteady, susceptible against shocks and boom and bust phases. Similarly, to any natural framework, there is an advantage in variety. Complementary currencies present this strength and assist cushion the shocks that monocultures unavoidably bring. Complementary currencies aim to work along, and not replace, the national currencies. In circumstances where the complementary currency can be received without the need to trade it against the national currency, it gives purchasing power to sections of the local area that have low degrees of the national currency (Sustainable Communities Framework, 2019).

Encointer presents a blockchain stage for local community cryptocurrencies (Brenzikofer, 2018). The goal of Encointer is to give each human a digital verification of identity and a basic income in a local cryptocurrency. This implies that each member can hold precisely one digital identity and that each member receives a steady amount of digital currency each month. Unlike other known digital forms of money, Encointer issues local currencies, which implies that their distribution is locally belted (Brenzikofer, 2019). The money supply is preserved to populace size using demurrage (Brenzikofer, 2018). Encointer connects the concepts of sovereign money, demurrage, and local community currencies and puts into use blockchain technology to establish the local cash of the future (Encointer, n.d.).

This paper aims to analyze whether complementary local currencies with a universal basic income can reduce inequality. Firstly, a literature review of the Cantillon effect, universal basic income, negative interest rate, demurrage, local currency, and cryptocurrency will be summarized. Secondly, existing complementary currencies, such as Chiemgauer, BerkShares, Exeter Pound, and Sarafu Network, will be analyzed. This part will specify how they work, who the participants are, and what the benefit to the community is. Followed by the interview outcomes conducted with BerkShares, Exeter Pound, and Sarafu Network. Thirdly, an analysis for Encointer will be outlined. Here, the focus will be on the complementary currency in terms of how it acts differently than a progressive income tax, the impact it can have on inequality, and the requirements needed to ensure its success. Furthermore, according to the findings of the existing complementary currencies, participating businesses will be described and an example community for Encointer will be envisioned that could theoretically reduce inequality by adopting the Encointer local currency. Lastly, all the findings will be gathered to form a conclusion.

# 3. Literature Review

## 3.1 Cantillon Effect

The Cantillon Effect is known after Richard Cantillon. He became one of the earliest writers on economics and one of the first to try a “value-free” method, wherein he defined relationships among monetary entities in preference to moral beliefs or political plans.

Cantillon's “Essai Sur La Nature Du Trade En Général” is viewed as the primary complete monetary composition (Jaerv, 2021). His work lighted Adam Smith's compositions, and highbrow giants of the next hundreds of years from Jean-Baptiste Say to Friedrich Hayek. In Essai, Cantillon gave a high-level form of John Locke's “quantity theory of money”, zeroing in on relative swelling and the speed of cash (Chowdhury, 2019).

Richard Cantillon's essential hypothesis was that who profits when the state prints a lot of cash depends on the institutional arrangement of that state. In the eighteenth century, this implied that the nearer you were to the ruler and the rich, the more you profited, and the farther away you were, the higher the damage. In that sense, money is not neutral. This overall perception, that money printing has distributional effects that work via the price framework, is referred to as the "Cantillon Effect”. In Cantillon's day, the premise of cash was gold, so he expounded on what happened when a country state found a gold mine in its domain. Expanding the measure of gold in the domain would not only build price levels, he noticed, but also would alternate who had or didn’t have wealth. As Cantillon (1755) placed it:

> “*Doubling the quantity of money in a state, the prices of products and merchandise are not always doubled. The river, which runs and winds about in its bed, will not flow with double the speed when the amount of water is doubled*.”

He proceeded to examine how cash would stream, essentially taking note of that wealthy individuals close to the mine would invest it on eighteenth-century extravagances like servants and meat pies, provoking an overall ascent in prices. In the end, the money would get out to the general population, however till it did, working individuals would need to follow through on greater expenses without admittance to the new cash that mine proprietors had. So there would be inflation, with a lopsided appropriation of buying power (Stoller, 2020).

The Cantillon Effect alludes to the adjustment of relative prices coming because of an adjustment in money supply (Cachanosky, 2017). This adjustment of relative prices across the economy happens on the grounds that the expanded or diminished money supply occurs in explicit places in the economy (Jaerv, 2021).

Accordingly, the adjustment of relative prices happens in light of the fact that the adjustment of money supply has a particular infusion point and in this manner a particular stream way through the economy (Cachanosky, 2017). So, the Cantillon Effect doesn't relate just to an expansion in the money supply. It also alludes to the impact of inconsistent admittance to that expanded money supply as it advances into and around the economy (Jaerv, 2021). The primary beneficiary of the new stock of cash is in the convenient situation of having the option to spend additional dollars before costs have expanded. However, whoever is toward the end in line gets their part of new dollars after costs have expanded (Cachanosky, 2017).

For instance, if a national bank siphons more money into the economy, the subsequent expansion in costs doesn't occur equally. The Austrian financial analyst Friedrich August von Hayek contrasted this money-related development with honey. When you pour honey into a cup, it will not fan out equally. It will bunch in the center of the cup first prior to fanning out. This is equal to money. In the event of a monetary extension, the ones who benefit from it are the ones who are close to the money. This implies every individual who can get to the cash directly toward the start, such as big organizations, banks, and so on. They get advances and make speculations. Prices at that point begin to rise despite the fact that the remainder of the populace has not gotten any of the new cash at this point. This part of the populace for the most part isn't the one with a lot of cash. Nevertheless, they need to follow through on the greater expenses despite the fact that they have not benefitted from the expansion in cash by any means. What's more, they won't ever benefit from it in an equal manner as the ones who got the cash first. The outcome is a rearrangement from the poor to the rich (Lehner, n.d.).

## 3.2 Universal Basic Income

Universal Basic Income (UBI) can be portrayed as a type of unequivocal exchange payment to the sum of the general population. It is a plan that is accumulating increased interest in banters across the political range as a potential strategy for managing those guesses that alert against a critical eventual fate of outrageous imbalance driven by both financial and innovative factors (Chohan, 2017). Hasdell (2020) from the Stanford Basic Lab defined the features of a UBI as follow:

- **Universal**:
  It is paid to each person and not focused on a particular populace
- **Unconditional**:
  It includes no set circumstances or endorsements and is given to individuals who both have a job or are jobless. Regardless of voluntarily being unemployed or not.
- **Cash payment**:
  It is paid in real money, which permits beneficiaries to use their benefits any way they want
- **Individual**:
  It is paid on a singular person premise, versus family-based
- **Periodic**:
  It is a repetitive installment as opposed to a once given allowance

Moreover, UBI is certainly not an especially novel thought. It can be followed back precisely a large portion of a thousand years to Thomas More's 1516 “Utopia”. Since then it has been returned by great scholars of all kinds, including Thomas Paine, Charles Fourier, Abraham Lincoln, Henry George, Bertrand Russell, Franklin Roosevelt, and Tony Atkinson (Klein, 2016). Nevertheless, the long-standing presence of UBI ought not to diminish the perception that it is turning into a perpetually engaging thought in the 21st century (Chohan, 2017). Van Parijs (2004) notably described it as a straightforward and influential concept for the twenty-first century.

Furthermore, there is revived interest in UBI as a possible approach reaction to foundational neediness and growing imbalance along with new difficulties related to technological innovations and a central rebuilding of the worldwide economy. Notwithstanding many years of financial development in high-income nations, huge areas of the populace have been abandoned and disparities have expanded (Bor, Cohen, & Galea, 2017). In low-and middle-income nations, improvement has been made on outrageous neediness, yet lopsided advancement inside and between nations has created new partitions (Ravallion, 2018). There is developing uneasiness about arising dangers from innovative change and simultaneous occupation deficiencies from automation. While other underlying powers, like exchange and globalization and the union of enormous firms, have decreased

work and monetary versatility for quite a while (Hoynes & Rothstein, 2019). Disregarding the main driver for the present imbalances, there are inquiries of how efficient the present ebb and flow interwoven of social exchanges has been for reviewing industrious destitution and disparities, and whether frameworks are prepared to react to cultural changes. Around the globe, pilots and examinations are in progress trying to see how a UBI may approach these public strategy concerns. Even though definitions differ, at its center, UBI is a cash transfer made available to all individuals from a local area on a repetitive premise paying little mind to pay level and without any hidden obligations (Bidadanure, 2019). Numerous UBI advocates contend for an exchange that is adequate to take care of fundamental living expenses. Although, a significant number propose gradual levels that would work as a base for different kinds of revenue. Exchange of $1,000 every month, for instance, is frequently skimmed as a source of perspective numbers in the US. A few investigations that are right now in progress are trying differing sums (Jones & Marinescu, 2018).

Across the world governments, lawmakers, and strategy creators are looking towards a UBI as the most ideal approach to battle the difficulties presented by the 21st-century economy. In Finland, the Netherlands, and Canada, governments have appointed UBI pilot tests, while an alliance of Silicon Valley tech business visionaries and strategy creators are subsidizing comparative preliminaries in the USA. The overseeing parties in both Finland and Canada have presented a UBI on their proclamation, while Fife Gathering has communicated interest in directing the principal pilot analysis in the UK (Ross-Tatam, 2016).

Recent researches propose just a feeble connection between UBI and joblessness. For instance, a 2016 examination by specialists from MIT and Harvard discovered that cash transfer programs in developing countries had only a minor detectable effect on work conduct (Banerjee, Hanna, Kreindler, & Olken, 2016). As of now, there's little proof to propose that supplanting traditional welfare payments with a UBI would really grow employment.

A new two-year study in Finland where general essential pay viably supplanted joblessness benefits reasoned that UBI beneficiaries were not any more liable to discover new work than the benchmark group (ePressi, 2019). However, the result of the experiment also showed that the basic income beneficiaries were happier with their lives and were less likely to have suffered under mental pressure than the control group. Likewise, they had a more favorable impression of their economic welfare (Basic Income Today, 2020).

## 3.3 Negative interest rate

The idea of a tax on money was first introduced by Silvio Gesell, a German-Argentine businessman, theoretical economist, and social reformer. He suggested a libertarian economic hypothesis and political economy that pointed toward making a genuinely competitive market that would guarantee an equal distribution of income. Gesell started his self-teaching reflections on the money-related framework incited by the continuous economic and social crisis in nineteenth-century Argentina, where he had started his own business after his migration in 1887 (Ilgmann & Menner, 2011). In his presentation composition, “Die Reformation im Münzwesen als Brücke zum Sozialen Staat” Gesell (1891) presented his fundamental idea of negative interest rates on prepared money, which he later named “Freigeld” (free money). As for the practical realization of negative interest rates, Gesell argued that to stay legitimate delicate, a stamp worth a thousandth of the note's face value must be added to it once every week, adding up to a yearly depreciation rate of around 5%. In any case, Gesell not just concocted the instrument, in his primary work “The Natural Economic Order”, he likewise proposed an economic hypothesis that legitimizes and clarifies his call for taxing money (Ilgmann & Menner, 2011).

As stated in Gesell's thesis (1958), a uniform velocity of circulation of money is of big significance for a crisis-free economy. Gesell requested that cash should serve the economy just as a method for trade, yet not incapacitate it as a method for hoarding. In contrast to wares and human work, cash cannot spoil. Therefore, according to Gesell, a money owner could withhold his cash without any inconvenience. A person could stand by until merchandise was considered low-priced enough or loan fees were sufficiently high. With this analytical delay of consumption desire, the economic cycle would be disturbed. Sellers would in this manner be compelled to bring down their costs. Accordingly, they would need to take care of their expenses through credits. As per Gesell's thoughts, the cash proprietor is compensated for this need by revenue. An income where no payment was performed. In this way, as indicated by Gesell, wealth would be amassed "without service" where it isn't required. Consequently, the functioning populace would be denied of the full work yield to which it is entitled.

Gesell saw the free interchange of powers among vender and purchasers basically disordered by the market predominance of the money owner. From this, he reached the inference that money ought to relate in its substance to nature and be displayed on natural things. Money in the possession of a cash proprietor, similar to human work and merchandise, should lose value over the long haul. At that point, it would presently not have a predominant spot on the market. The money would be dependent upon a consistent strain to pass on. Each money proprietor would not keep down his money for a really long time, however would utilize it to purchase products or services, to

take care of current bills, or to loan it out without demanding interest, to avoid depreciation in value. Along these lines, money behaves as a worker of a person and not as its ruler. Gesell called this money “Freigeld” (free money). It is also known as “Schwundgeld” or “umlaufgesichertes Geld” (Demurrage). The issue of free money should be done through the state, which for this reason sets up a currency office.

In the event of a risk of inflation, the financial office should retrieve free money. On the other hand, if there is a threat of deflation, then it should distribute such money. Back then Gesell proposed to change from coinage to paper money, on which the necessary notation of a bill’s devaluation or termination could be made. Due to its deterioration, free money won’t be hoarded despite low costs and interest rates. Gesell accepted that in this manner there would be a solid and lasting supply of capital for the economy. Through secured circulation, free money would save the economic crisis and, by bringing down the overall degree of interest rates, simultaneously deal with the social inquiry.

Silvio Gesell's ideas, which were examined uniquely in the circles of his adherents in the second half of the twentieth century, are right now regaining interest in many economists. With the beginning of the worldwide financial crisis in 2009, the idea resurfaced in different spots (Scherrer, 2014). For instance, the Greek financial crisis in 2015 provoked specialists, including English economic historian and Keynes biographer Robert Skidelsky, to highlight Gesell's free money as a potential solution (Skidelsky, 2015).

The world's national banks are presently contemplating how to keep cash moving once more. National banks in Europe and Japan have been exploring different avenues regarding minuscule contrary loan costs as an approach to animate the economy. Yet the issue actually stays that individuals will begin hoarding cash if rates go fundamentally negative (Planet Money, 2019).

Silvio Gesell's free money is likewise examined with reference to cryptocurrencies such as Bitcoin. Nonetheless, regular Bitcoins are not free money. They lack circulation security that isn't accommodated in the Bitcoin framework (Sauer, 2017).

## 3.4 Demurrage

Demurrage is the expense related to buying or keeping currency over a given period. It is occasionally alluded to as a carrying cost of money. Demurrage is at times referred to as financially favorable, ordinarily with regards to complementary currency frameworks (Lietaer, 2001).

If it is paper money, the demurrage can be accounted as taxes, to be paid periodically. For example, a stamp tax on money holding is one such assessment. On account of commodity money, like gold, the demurrage is the expense of accumulating gold. The charges are typically determined based on the worth of the deposited commodity and the time frame for which it is being put away. The rate may shift each hour to per annum. Dissemination of monetary forms and commodities is significant for the development of an economy. On the off chance that somebody holds a huge amount of money for a significant stretch of time without circulating it on the market, the economy is influenced antagonistically. Cash being kept drops its speed and can't have a various impact on the economy. The demurrage was acquainted with deterring individuals from storing cash and commodity money (Gordon, 2020).

Although demurrage is a characteristic element of private commodity money, it has at different occasions been intentionally consolidated into the currency system as a discouragement to store cash and to accomplish a more productive distribution of capital in the public eye. Specifically, for long haul speculation financing, it influences the elements of net present value (NPV) computations. Demurrage is a currency system that lessens discount rates, and in this way expands the current worth of a long-haul venture, and in this manner gives a motivation for such investments (Lietaer, 2001).

In contrast to inflation, demurrage steadily diminishes only the worth of currency held. It capacities as a negative revenue, such as tax, on cash, kept versus inflation that additionally decreases the worth of savings or retirement cash reserve and expands Consumer Price Index (CPI). A positive loan fee is an endowment. Both inflation and demurrage lessen the buying influence of currency held after some time. Yet demurrage does as such through fixed customary charges, while inflation does it in an assortment of ways (Mitchell, 2010). Inflation isn't in every case simple to anticipate and it doesn't remain fixed through time. However, the degree of demurrage is fixed by the public authority (Tutino, 2014).

## 3.5 Local currency

A local currency is a currency that can be used in a specific geological territory at participating associations. A regional currency is a type of local currency which includes a bigger topographical region, while a community currency may be local or be utilized for trade inside an online local area. A local currency functions as a complementary currency to a public currency, as opposed to supplanting it, and means to support expenses inside a neighborhood local area, particularly with privately claimed businesses (Community Currencies in Action, 2015). Currencies like these may not be sponsored by a public government nor be legitimate tender (Naqvi, 2013). Around 300 complementary currencies, including local currencies, are recorded in the global database of the Complementary Currency Resource Center (2021).

Complementary currencies can adapt to a wide assortment of structures to adjust and fit explicit necessities, however, the fundamental peculiarity of a complementary currency is that it acquires zero or negative interest. It regularly accompanies an expiry date, and its dissemination is restricted to a local area. The founders of the complementary currency will choose the worth of the currency, and where and how the currency can be traded. Complementary currencies don't mean to supplant the public money but work close by it. Complementary currencies are legitimately classed as vouchers, yet are liable to tax similarly as money. Complementary currencies are intended to keep money streaming inside a specific geographic district or inside a specific network of organizations or people. They have likewise been utilized to advance ecologically friendly attitudes by urging individuals to buy local products, and along these lines diminishing vehicle expenses and outflows (Means of Exchange, 2018).

In 1932, in order to cope with the effects of the Great Depression, the then-mayor of the Austrian town of Wörgl, Michael Unterguggengerber, launched the "Wörgler Schwundgeld" or also known as “Wörgler Freigeld” experiment, which was a form of local currency (Uchatius, 2010). His source of idea came from the economist Silvio Gesell (Unterguggenberger, n.d.). The experiment had attracted worldwide attention because of its results (Poelchau, 2018). The Wörgl experiment showed significant advantages of local currencies. Such as:

- Local currencies with negative interest rates or demurrage will in general flow significantly more quickly than public monetary forms. A similar measure of money available for use is utilized more often and leads to a far more noteworthy general economic activity. It emerges a higher advantage per unit. The greater velocity of money is an aftereffect of the interest rate which urges individuals to expend their money more rapidly.
- Local currencies empower the local area to completely utilize its current useful assets, particularly unemployed workers, which catalytically affects the remainder of the local econo-

my. They depend on the reason that the local area isn't completely utilizing its useful limits, due to an absence of nearby buying power. The alternative currency is utilized to build up demand, bringing about a more noteworthy use of productive assets. Since the local economy is not operating at complete capacity, the implementation of the local currency doesn't need to be inflationary. Even if it leads to a notable expansion in total money supply and economic action.

- As local currencies are only acknowledged inside the local area, their utilization supports the acquisition of privately delivered and locally accessible products and services. In this manner, for any degree of economic activity, a greater amount of the advantage builds to the neighborhood local area and less depletes out to different parts of the country or the world. For example, development work embraced with local currencies utilizes local workers and uses to the fullest extent local materials. The upgraded local impact turns into an impetus for the nearby populace to acknowledge and utilize the scrips (Lietaer, 2001).
- A few types of complementary currency can support wider utilization of resources over a lot more extensive geographic region and help connect the hindrances forced by distance. The Fureai kippu framework in Japan issues credits in return for help to senior residents. Relatives living a long way from their parents can acquire credits by offering help to the older in their local area. The credits would then be able to be moved to their parents and recovered by them for nearby help. Airline frequent flyer miles are a type of complementary currency that encourages customer loyalty in return for flying without charges. The aircraft offers a large portion of the coupons for seats on less intensely sold flights where a few seats ordinarily go void, consequently giving an advantage to clients at a comparably low expense to the carrier (Hayashi, 2012).
- While the majority of these currencies are limited to a little geographic region or a country, through the Web different types of complementary currency can be utilized to animate exchanges on a worldwide premise. In China, Tencent's QQ coins are a virtual type of currency that has acquired a wide course. QQ coins can be purchased for the Renminbi and utilized to purchase virtual goods and services. For instant, ringtones or online computer game time. They can likewise be purchased through online trade for products and services at roughly double the Renminbi cost, directly generating extra "money". Although virtual currencies are not local in the conventional sense, they do take into account the particular necessities of a specific local area, a virtual local area. Once available for use, they add to the complete compelling purchasing power of the online populace on account of local currencies. The Chinese government has started to tax the coins as they are traded from virtual currency to real hard currency (Jodel, 2011).

## 3.6 Cryptocurrency

A cryptocurrency or crypto is a digital currency that is applied to acquire products and services. However, it utilizes a networked ledger with solid cryptography to ensure online exchanges. A significant part of the interest in these unregulated monetary forms is to exchange for profit, with speculators pushing prices up (Royal & Voigt, 2021).

A cryptocurrency generally doesn't occur in the actual structure, such as paper cash, and is regularly not given by a central authority. They usually utilize decentralized control rather than incorporated digital currency and main banking structures (Allison, 2015). If a digital currency is stamped or made before issuance or expensed by a solitary issuer, it is for the most part viewed as centralized. When carried out with decentralized control, every cryptocurrency works through circulated ledger technology, mostly a blockchain, that fills in as a public monetary exchange database (D'Agnolo, 2015). A Blockchain is a decentralized innovation spread across numerous computers that oversee and document exchanges. Part of the allure of this innovation is its security (Royal & Voigt, 2021). The first decentralized cryptocurrency was with Bitcoin in 2009. Since then, other cryptocurrencies have been produced (Sagona-Stophel, 2016). Because of Bitcoin's enormously big market share, the remaining cryptocurrencies are alluded to as "Altcoins", where Alt-means "alternative to Bitcoin" (Frankenfield, 2021).

There are many explanations for why cryptocurrencies are popular. Here are some of the well-known reasons:

- Supporters see digital forms of money like Bitcoin as the currency of the future. And because of this, they are dashing to get them now, as they think cryptocurrencies will become more profitable later on.
- Others like the way that cryptocurrency eliminates national banks from dealing with the money supply. Over the long run, these banks will in general diminish the worth of cash through inflation.
- Some supporters like the innovation behind cryptocurrencies, the blockchain, on the grounds that it's a decentralized handling and recording framework and can be safer than traditional payment frameworks.
- Other supporters like cryptocurrencies as they're going up in esteem and have no interest in the currencies' long-lasting acknowledgment as an approach to move cash (Royal & Voigt, 2021).

## 4. Encointer

Encointer connects the concepts of sovereign money, demurrage, and local community currencies and puts into use blockchain technology to establish the local cash of the future (Encointer, n.d.). Encointer intends to reverse the Cantillon Effect. Rather than distributing money at the top, as a credit to organizations and creditworthy people, Encointer distributes money at the bottom (The Encointer Book, n.d.). According to the rule of equivalent opportunity, each person gets a UBI and a digital ID without depending on central authority (Encointer, n.d.). Encointer intends to give a global UBI in the form of units of cryptography that are consistently established and delivered to people almost completely (The Encointer Book, n.d.).

Every 41 days, members are called up to be present at physical key-signing meetups with little gatherings of arbitrary individuals. Since all meetups occur as one worldwide function all around the world at a similar local time, nobody can go to two meetups (Brenzikofer, 2020). However, this prevents people with specific disabilities and those that don't have a cell phone to join the meetups. Additionally, the necessity to make a trip to the meetups also involves different expenses depending upon local populace density. This is for individuals who are located in remote areas at a disadvantage (The Encointer Book, n.d.). Amid the meetups, all members confirm each other's personhood with their standing and are remunerated with a UBI consequently. Once the meetup was successful, the participants get their UBI in their community currency to their cell phone wallets (Brenzikofer, 2020).

Encointer is one of the cryptocurrencies that rest upon public unpermissioned blockchains which are global by nature. It is distributed in equivalent nominal sums to each person. Since the issuing of Encointer includes meetups with a known location, it is possible to give local currencies that are algorithmically tied to a neighborhood with high cooperation. This would permit the UBI to be issued in a currency intended for use inside local biological systems but tradable internationally without restriction. The buying force of a unit of local Encointer currency is market-based. Its worth is dictated by its practicality as a store of value, mode of a move, or unit of record. Contingent upon public conditions, the value of Encointer can shift. Where enormous pieces of the populaces are unbanked, Encointer could supplement public money since it is available to everybody and more advantageous to utilize and store than cash. In countries where enormous segments of the populaces are unbanked, Encointer could supplement the national currency as it is available to everybody and more advantageous to utilize and store than cash (The Encointer Book, n.d.).

However, as Encointer monetary forms highlight nominal demurrage, which implies that every month the funds lose 7% of their nominal value, individuals are propelled to spend their UBI preferably sooner over later (Brenzikofer, 2020).

# 5. Existing Complementary Currencies

## 5.1 Analysis of four complementary currencies

### *5.1.1 Chiemgauer*

In September 2002, the economics teacher Christian Gelleri offered the 10th-grade students of the Freie Waldorfschule in Prien the project Chiemgauer. The Chiemgauer voucher network was made to advance the local economy and to help non-profit associations (Dieckhoff & Roth Jürgen, 2009). The first issue of about 2,000 Chiemgauer was launched in January 2003 (Gelleri, 2006). In this underlying stage, around 20 organizations and 30 customers took part in the local network. Already in its first business year, the dynamic that came to the organization could be seen. And towards the end of the first year, around 100 partaking organizations and 130 participating customers could be counted (Dieckhoff & Roth Jürgen, 2009).

The objective of the association is to advance local economic cycles in the areas of Rosenheim and Traunstein, reconnect the economy, culture, and democracy, and increase residents' participation in friendly dynamic cycles. Towards the end of 2015, around 593 organizations accepted the Chiemgauer and around 3,900 members used it (Chiemgauer, 2015). At present, Chiemgauer is the biggest complementary currency in the German-speaking nations and one of the most successful in the world (Chiemgauer, n.d.).

- How it works:

The Chiemgauer framework mainly consists of three groups of parties: consumers, organizations, and associations (Dieckhoff & Roth Jürgen, 2009).

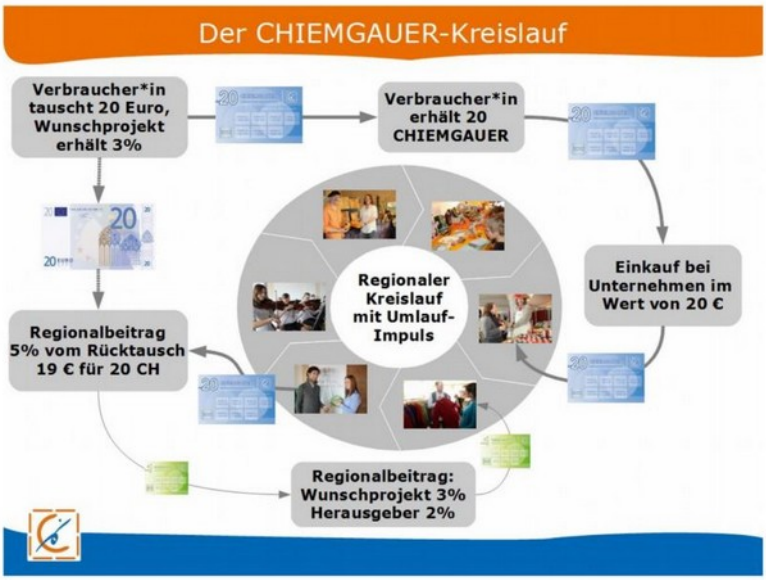


*Figure 1: The Chiemgauer Circle (Gelleri, 2018)*

The Chiemgauer is a local currency upheld by the EUR. Each individual from the association can purchase Chiemgauer against EUR in the various issuing offices, which are banks and stores. The coupling is: EUR 1 = 1 Chiemgauer. Each time the resident trades euros for Chiemgauers, 3% of the exchanged value will be utilized to assist the specified funding purpose demonstrated by the resident, with no misfortune to the buyer (Chiemgauer, n.d.). The participating organizations bear these expenses (Gelleri, 2006). When trading back into euros, an expense of five percent is added. So, you get EUR 95 for 100 Chiemgauer when you trade them back. Two euros of the distinction are paid to the supporting association for the issue and printing of the Chiemgauer, the leftover three euros go to the previously chosen charitable affiliations in the area. The vouchers lapse following 3 months. However, one has the likelihood to prolong the vouchers after one quarter for an expense. Here, the framework of the deficiency of significant worth (Wertverlust) appears, to hold the cash available for use, as it was at that point utilized with the shrinkage money (Schwungeld) of Wörgl. Thus, the bills ought not to be hoarded and if possible should be spent before the EUR.

Since the portion of Chiemgauer in the turnover of the partaking organizations is up to a modest amount of the yearly turnover, it settles and works with the endurance of the organizations, particularly in the midst of an emergency (Chiemgauer, n.d.).

- Participants:

In 2010 (Summerer), a case study was done, which analyzed the relationship between the community of Stephanskirchen and the Chiemgauer. Stephanskirchen had at that time around 9,900 inhabitants and was one of the biggest areas in the Rosenheim region. At that point, 19 organizations used the Chiemgauer. A survey of 10 organizations was made to discover why they used the Chiemgauer. Stores for daily needs, such as the supermarket “Edeka” or the drug store “Alpha San”, and other organizations from different areas, like the shoe store “Schuh Kiendl” or the hand-weaving store “Simssee-Handweberei”, were interviewed.

The motivation for accepting Chiemgauer can be extensively separated into two reasons. The shoe store and the drug store, for instance, gave client gain as the explanation. The supermarket and the hand weaving store legitimized their interest for the most part by the way that they could uphold the provincial and satisfy a social reason with associations and organizations. Concerning the number of clients who pay with Chiemgauer, it is observable that it is extremely high and progressively bigger particularly in the supermarkets and in the drug store. On the other hand, there were only a few people who paid with Chiemgauer in the electric store or the optician.

Negative aspects mentioned in the survey were that it is often troublesome as a business to keep utilizing the Chiemgauer, if more Chiemgauer were taken in then can be utilized. This was mostly

the case at supermarkets. Since numerous customers and organizations from different ventures emptied their Chiemgauer there, the Chiemgauer stacked up toward the finish of a quarter.

On the other hand, it was positive to see that the principle of the local cycles appeared to work even with a small number of participated organizations. This is on the grounds that the organizations are certainly interlinked. The proprietor of one business takes his Chiemgauer to the following industry in the area that accepts Chiemgauer and supplies himself there for his own requirements. Another study found out, that the level of Chiemgauer acceptance was high among direct marketers, natural food stores, owner-operated food markets, and owner-operated retailers. Businesses such as gas stations mostly rejected the Chiemgauer, because of low sales (Gigler-Beilner & Univ-Prof Reiner Buchegger, 2009).

- The benefits to the community:

Every group of members in the Chiemgauer framework profits by the participation and likewise benefits the overall public. The Chiemgauer consumer donates to an association of their decision without facing extra expenses. Overall, the expenses are charged to the organizations and the customer has no monetary cost as long as they don't trade more Chiemgauer than they can use in a quarter. With the Chiemgauer, the customer knows precisely to which charitable project the cash goes. For all partaking organizations and institutions, this creates a benefit in the local cycle in that customers make a three percent contribution. This is done by trading euros for Chiemgauer and by buying from organizations that will trade the Chiemgauer back if needed (Gelleri, 2018).

The more organizations and people participate in the Chiemgauer system, the higher the financial subsidies for its institution will be. Since the affiliation individuals themselves would then be able to be included as consumers in the local cycle (Chiemgauer, n.d.). For instance, if 50 individuals from an association trade EUR 100 into Chiemgauer consistently, this implies extra monetary methods worth EUR 1800 for the association in the year. Since each trade brings three percent. The calculation:

3% of 100€ = 3€ 3€ * 50 individuals = 150€ 150€ *12 months = 1800€

With next to no exertion, the association can get monetary assets that frequently comprise of modest quantities, yet which amount to a great deal for the institution. The local economy and the working class are upheld and consequently, occupations in the area can persist and be newly made. Through the local cycles, every member profits, but not just them themselves but also the social community. All of this leads to a network where everybody upholds the others. Moreover, if the business people locally have steady pay, the district can be certain that provincial assessment incomes will increment or at least be steady. These revenues advantage the neighborhood infrastructure and hence influence the populace again (Gelleri, 2018).

### *5.1.2 BerkShares*

BerkShares, Inc. is a locally incorporated, nonprofit organization that issues BerkShares. BerkShares, Inc. collaborates with participating local banks, businesses, and non-profit organizations to invigorate the economy of the Berkshire region through a regional currency program (BerkShares, n.d.). It was launched in 2006 with research and development assistance from the Schumacher Center (BerkShares, 2006). The members of BerkShares, Inc. strive to create a multi-faceted and resilient regional economy that seeks and focuses on responsible innovation and utilization. Wherein local citizens depend on the land and each other to satisfy the essential requirements of food, culture, energy, shelter, and clothing.

BerkShares has been called a "grand economic experiment" by The New York Times newspaper. The circulation of BerkShares encourages assets to stay in the region and creates stronger linkages between local business owners and their citizens (BerkShares, n.d.).

- How it works:

BerkShares is accepted for use as a form of payment in the Berkshire region. The physical currency can be purchased at any of the three participating banks. It can be acquired at a rate of 95 cents per BerkShares. The USD will be on deposit in the exchanged bank so that the citizens can exchange BerkShares at a later date at the same rate. That is, 100 BerkShares are worth USD 95, and USD 95 equals 100 BerkShares. However, BerkShares can be issued at face value. That means 10 BerkShares can be utilized for a USD 10 shop. The 5% discount is used to make it more attractive to do purchases through BerkShares instead of the USD.

For instance, someone wants to go out for a nice dinner. Firstly, they will trade their USD 95 for 100 BerkShares. Later, the total cost of the food amounted to USD 100. The restaurant takes BerkShares in full. Therefore, the person received a 5% discount, as they paid USD 95 for a USD 100 meal. At this point, the owner of the restaurant has two choices. Either, they can trade the 100 BerkShares back to USD 95. Or they could spend the 100 BerkShares to purchase products and services in the community that is worth USD 100. This way, the owner of the restaurant could also benefit from a 5% discount.

There are 400 businesses in Berkshire that accept this local currency. Businesses that are listed in the BerkShares Directory and also display a BerkShares sticker are obligating themselves to accept payment in full or in part with BerkShares. The terms on which each merchant agrees to accept BerkShares as payment will vary, resulting in certain restrictions. Exchanges for purchases made in BerkShares are principally issued in BerkShares. Customers paying with federal dollars may also request BerkShares as a change (BerkShares, n.d.).

- Participants:

BerkShares's users harness the currency with the idea of boosting the local economy. They have to take the extra step of going to the bank to exchange BerkShares, and then spend those shares at any of the participating stores. In its most common cases, that results in purchases that cost a fraction more than they would have at a department store or online. In comparison to large national or multinational corporations, locally owned businesses are more likely to contribute to local and state assets, provide better and more stable employment opportunities, and are more likely to be acquired by other local businesses. Therefore, small businesses have an important role to play in maintaining and enhancing the vibrancy of the community.

There are many reasons for a business to join BerkShares. Such as the free listing on the Berk-Shares website, which receives 110,000 clicks per year, or the advertisement in BerkShares ads in local newspapers, on the radio, and in other public places.

- The benefits to the community:

BerkShares are for the citizens and by the citizens of the Berkshires. BerkShares, Inc. is a spot-based, democratically organized non-benefit association with participation open to all inhabitants of the Berkshire area. Individuals choose the governing body, sanction significant decisions, and backing the association through their yearly membership dues of 25 BerkShares or USD 25, while likewise going about as representatives for the currency.

BerkShares transform cash into an instrument for local education and strengthening in the Berk-shires while praising their scene, legends, and artists. It is only acknowledged by locally kept or-ganizations. BerkShares ensure money remains in circulation at the local level by giving priority and more importance to local trade and local production, and by preventing or minimizing the out-flow of cash from the local economy to global companies, non-local suppliers, and major banks. Locally owned organizations have been demonstrated to be better for the climate and the economy than their non-neighborhood partners. They will in general go through more cash with regional suppliers and service workers, they keep the benefits in the region, and they pay more regional taxes. Moreover, they add to the variety of Berkshires urban areas and towns, have higher ecolog-ical guidelines, and increment social balance and political support.

BerkShares focuses light on cooperating local banks, organizations, and non-benefit associations, raising individuals' attention to the fundamental job they play in the financial and social prosperity of the Berkshire area. Thus, it assists individuals with truly pondering where they are spending their money, and fostering more grounded connections inside their local economy (BerkShares, n.d.).

### *5.1.3 Exeter Pound*

Exeter Pound was a non-profit Community Interest Organization, started in 2014 to foster the city's own money to help independent businesses and advance a greater prospering local economy. The local complementary currency was dispatched in September 2015 with 100 traders. It was run with a board of volunteer directors from all around the city. Exeter Pound CIC had gotten support from Exeter City Committee, Transition Exeter, Devon League of Private Businesses, and individual donors (Exeter Pound, 2018). It was one of the numerous complementary currencies in the UK to the official currency, the GBP. Before the launch of the Exeter Pound, local currencies were dispatched in various places in the UK, like 2012 in Bristol, or 2009 in Brixton (Hickey, 2015; Hickman, 2009).

After 3 years, Exeter Pound CIC settled on the choice to end the currency on 30 September 2018. Ian Martin, the organization's chief, asserted that societal changes toward cashless exchanges and the absence of an administrative system to foster its own digital currency were key components (Finch, 2018). Like other local community associations, Exeter Pound had been confronted and suffered from funding cuts, with a dismissal to the significance of smaller communities and merchants in a world overwhelmed by global companies (Exeter Pound, 2018).

- How it worked:

The Exeter Pound was a voucher or token that could be exchanged regionally as a complementary currency and utilized along with and not replacing, the GBP (Stoke Methodist Church, 2017). 1 Exeter Pound equaled 1 GBP. All the GBP traded were being held in a different credit association account. Their frameworks were agreeable with financial guidelines covering local currencies. Just as exchanging notes, there were electronic records accessible for people, so individuals could trade on the web and pay organizations that had enlisted with the Exeter Pound Association by text or with the Exeter Pound Application (Exeter Express and Echo, 2015).

The Exeter Pound was a local community currency that was intended to work on the neighborhood economy of Exeter (BBC West News, 2015). It planned to help autonomous regional merchants and upgrade local financial activities. The Exeter Pound Community Interest Company made a benefit by setting an "expiry date" on each note, as recognized in little print on the actual note, after which it couldn't be spent (Exeter Pound, 2018). The notes were sequential numbered, imprinted on watermarked paper, and had visualizations to forestall fabrication. This way it could be ensured that cash used in Exeter remained in the city (BBC West News, 2015).

- Participants:

The Exeter Pound was a local currency made by the citizens of Exeter, for the citizens of Exeter (Exeter Pound, 2018). The mission was to associate the citizens who lived, worked, and visited Exeter to a more extensive assortment of local, independent businesses in a beautiful and connecting way, reinforcing the city's regional economic character and building financial versatility. The citizens of Exeter were proud of their city. They previously exhibited that pride by spending in independently owned shops in the downtown area and their local area. Hence, the Exeter Pound should build that spending pattern, as more individuals could rediscover the great worth and the more grounded links they made locally from consuming in regional independent businesses (Exeter Express and Echo, 2015). The Exeter Pound Community Interest Company wanted to make people aware to shop at small local businesses instead of going to big brand names. And a way to do that, was that these businesses offered certain deals, like a discount of 5% or 10% on a purchase that was done through the Exeter Pound (BBC West News, 2015).

The Exeter Pound was intended to support every one of the individuals who worked, shopped, and played in this city. Thus, they all had a say in the creation of the artwork for the paper notes. At regular intervals, the Exeter Pound CIC held a design contest. It welcomed all people who lived, worked, or studied in Exeter to present their own ideas on how they wanted the currency to look (Exeter Pound, 2018).

- The benefits to the community:

Using the Exeter Pound, assists local organizations to remain and succeed. Each pound spent could assist with employing more individuals and re-spent more locally than to public or worldwide organizations. At the point when these local businesses paid their taxes, it led them to contribute to the public administrations in the UK. Utilizing the Exeter Pound energized a more associated and flourishing local economy, where individuals could rely more upon each other, and less on the peaks and crashes of the worldwide financial system. It also helped the economy to be more sustainable, as everything comes from the region (Exeter Pound, 2018).

Some observed economic benefits of the Exeter Pound were, for example, it increased the use and knowledge of small businesses or supported small businesses. Other social and environmental benefits were, for instance, it strengthened the sense of community (Stoke Methodist Church, 2017).

### *5.1.4 Sarafu Network*

Grassroots Economics is a non-profit association aiming to engage local communities in Kenya through complementary currency systems. These days the framework on which they spread is totally blockchain-based, and its interface runs on USSD, to reach and incorporate the poorest populace (Avanzo, 2020).

The Kenya Red Cross, the biggest humanitarian association in Kenya, in collaboration with the Danish Red Cross and Grassroots Economics, has dispatched a basic income framework named Sarafu Network to circulate the blockchain-based Sarafu token, to anybody in Kenya (Wamugu, 2021). Sarafu Network is pointed toward recreating the monetary framework, by allowing the opportunity to each local area to make its individual currency, to choose about its governance, to support it with its owned products and services, and to make it interoperable with different tokens having a similar convention. The execution of such innovation is, consequently, pointed toward conquering the dualism between local administration and worldwide adaptability and viability which influences the vast majority of the community currencies these days (Avanzo, 2020). The acceptance of the community currency has created an average of 22% increment in engaged organizations' incomes (Ruddick, Richards, & Bendell, 2015). In utilizing local areas, up to 10% of neighborhood food transactions are done through the community currency. Various research has likewise shown that Sarafu Network utilization is decidedly corresponded to expanding levels of trust among local area members (Ruddick, 2015).

- How it works:

Grassroots Economics' is building and supporting frameworks that engage local areas to virtually develop their own basic income and CIC in light of regional products and services in provincial business sectors that are built from scratch (Grassroots Economics, 2021). CICs present a replicable instrument for communities to annihilate poverty by developing connected, comprehensive, and reasonable local circled economies. CICs permit the local area to exchange among one another, expanding efficiency, advancing a steady and saving society, and the enrolled individuals can get to and manage the cost of essentials (Wamugu, 2021). Distributed ledger innovation gives fundamental conventions that permit CIC to exchange with one another straightforwardly through known reserve pools. USSD innovation empowers any cell phone access, even those without the internet (Grassroots Economics, 2021). When a new local area joins the network, Grassroots Economics usually recognizes a center like a business or a school as a starting point for coordinating Sarafu into the regional economy. The center may get support from Grassroots Economics and its contributors as a trade-off for committing to provide products and services in return for CIC tokens.

For instance, Grassroots Economics staff may utilize the assistance of town elders to urge individuals to join the organization and utilize the CIC tokens to pay for food, school charges, clinical care, and other local administrations. Registration is free and all new individuals get an immediate gift of 400 Sarafu (comparable to 400 KES, $3.60 nominal or $9.73 PPP). A significant criterion for enrolling into the network is that people should have some service or goods they can provide to the remainder of the local area. Along these lines, a solitary client can be compared to a self-claimed business. These organizations range from ladies who sell vegetables filled in their lawn to boda-boda (motorcycle) drivers, day workers, physical storekeepers, and more (Mqamelo, 2021).

- Participants:

As of May 2021, the Sarafu network has over 40K consumers across Kenya in both provincial and metropolitan areas (Mqamelo, 2021). The Sarafu Network has seen a rise of more than 500% since 2019 after the COVID-19 pandemic when it affected low-income areas in Kenya. As per Will Ruddick, there has been a massive peak in the number of individuals utilizing these blockchain-based currencies for imperative fundamentals like food and water (BitcoinKE, 2020).

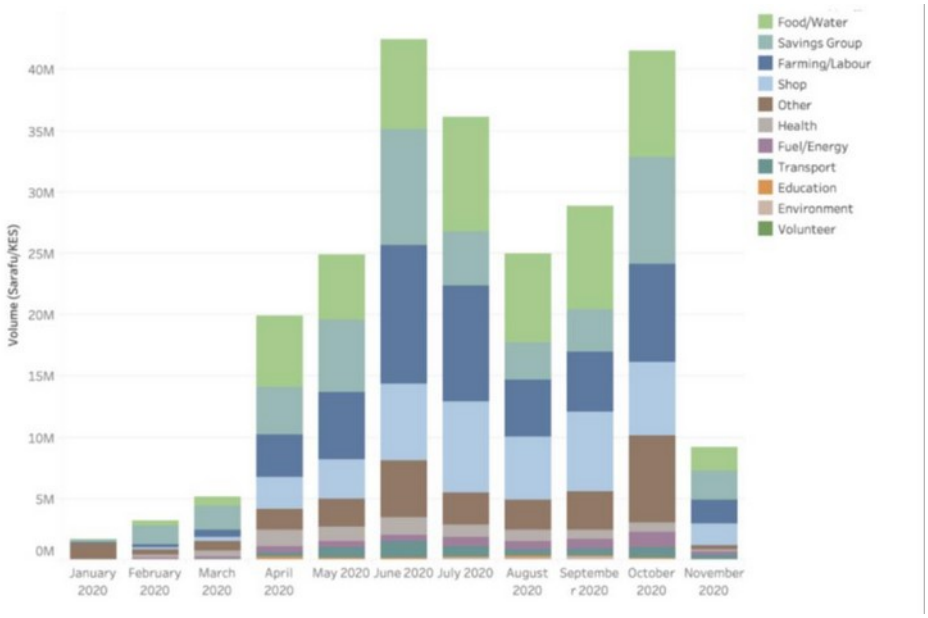


*Figure 2: Sarafu monthly exchanges (Kenya Red Cross, 2020)*

Researches conducted internally by Grassroots Economics in 2018, found that most clients live on under $1 each day (Mqamelo, 2021). Another conclusion from the Kenya Red Cross (2020) study said that most Sarafu clients are between the age of 26-36 and have a mean family size of 4 individuals. 70% of clients think that utilizing Sarafu has assisted them with getting to the merchandise they, in any case, would not have the option to purchase. And almost 80% trust Sarafu has assisted them with saving more in KES'. Sarafu Network is utilized as a top-up installment to the KES where an individual might not have sufficient cash to pay for fundamentals (BitcoinKE, 2020).

- The benefits to the community:

An owner of a shop at Kawangware has said that the Sarafu network helps her to restock her shop from a supplier who acknowledges the voucher and on the other hand assists her to purchase food. Another person, who owns a bodaboda business, has said that the Sarafu network assisted him in getting new clients. Therefore, he suggested that more organizations in Kawangware should enroll to get the Sarafu Network Token so that they can profit individually as well as support the neighborhood economy (BitcoinKE, 2018). The Sarafu Network has shown various benefits to the community. For example:

- The first Sarafu Network, the Eco-Pesa, has brought in positive economic, social, and ecological results. Displaying the capability of community currencies in sustainable advancement interventions(Ruddick & Mariani, 2013; Ruddick, 2011). The program showed the result that an expected $4,176 worth of exchange was worked through the flow of just $352 worth of Eco-Pesa (Ruddick, 2011). Moreover, the Eco-Pesa caused a 22% average expansion in the livelihoods of cooperating businesses, three youth-drove local area tree farms to be made and 20 tons of waste to be gathered.
- Another, called the Bengla-Pesa, has been profoundly analyzed since its creation. The research of Omanga showed that the Bangla-Pesa permits individuals to bargain exchange all the more adequately, working on everyday deals by expanding connections between local individuals. Additionally, she discovered the Bangla-Pesa helps the clients in expanding their savings, and in this way assists them with getting financial assistance from chamas and other microfinance organizations. At last, she underlines that the community currency builds the admittance to social administrations and local area empowerment (Cauvet, 2018).

At present, Grassroots Economics is operating a campaign to facilitate more individuals to use Sarafu to cover their everyday needs including water, food, soap, and more. The global pandemic negatively affects the economy. It has the biggest impact on the 66% of the 4.4 million individuals that live packed in Nairobi’s informal settlements without access to basic services. Community currencies are therefore helping to significantly diminish the effect of this emergency (BitcoinKE, 2020).

## 5.2 Interview outcomes

A general set of 7 questions were sent to the four defined complementary currencies. As there was no response coming from Chiemgauer, the outcomes below will only show the answers from BerkShares, Exeter Pound, and Sarafu Network. For the complete interviews, please see Appendix 1.

**1. Throughout the many years of experience, what worked well?**

| | |
|---|---|
| BerkShares | The strength lies in the partnership with 3 community banks, which helped in various ways so that BerkShares stays in the local community. Big credit is also given to the business community for circulating BerkShares earned with each other through the purchase of goods and services. |
| Exeter Pound | Exeter Pound was a tool to show the pride of the city. The notes had images of the city's monuments, such as the cathedral. |
| Sarafu Network | Working in small groups of businesses and having them develop credit against their future production. Another one would be, developing credit against the future work of cooperative businesses and social enterprises. Or building local cooperatives and capacity for collective farming. And many more. |

**2. What didn't work well? What had to be changed?**

| | |
|---|---|
| BerkShares | Consumer shopping habits aren't the same today as they were in 2006. Nowadays, people use digital forms of payment over cash and value online transactions. That is way, BerkShares Inc. is currently engaged in developing a digital format. Which could also help them with UBI initiatives or other forms of cash assistance. |
| Exeter Pound | Paper currency was in decline, however, it was faster than previously thought. And because of the lack of funding to launch a digital currency, Exeter Pound came to an end. |
| Sarafu Network | Challenges included: mass enrollments and airdropping tokens that weren't issued by the community, not having clear backing in goods and services, charging fees on usage and transactions, the requirement of internet access, and working with VC-funded/for-profit tech companies. |

**3. What kind of individuals takes part in your complementary currency?**

| | |
|---|---|
| BerkShares | Someone interested in supporting local economic activity. Tourists get and keep them afterward as a form of souvenir. The BerkShares is a point of pride for local people, as the bills highlight local heroes and artists. |
| Exeter Pound | Individuals who were proud of their city and wanted to support local businesses. |
| Sarafu Network | Individuals that want to create a stable trade in a community or fund local projects without a national currency. Or people who want to trade their goods and services with a lack of the national currency. |

**4. What kind of businesses takes part in your complementary currency?**

| | |
|---|---|
| BerkShares | Businesses that are locally-owned and independent. They see it as another differentiator from corporate chains. Included are: restaurants, retail stores, print shops, artists, lawyers, accountants, medical providers, and tradespeople. The more variety there is, the bigger the opportunity to recirculate the currency. |
| Exeter Pound | New businesses to get some recognition in the area, as well as other unknown smaller local businesses to draw attention to their shops. Overall, small businesses wanted to trade with other small businesses to support the local economy. |
| Sarafu Network | Businesses that want to create credit against their future production. |

**5. What kind of businesses didn't want to join your complementary currency?**

| | |
|---|---|
| BerkShares | Large chains/box stores that don't have local banking. Or some small businesses with high staff turnover due to seasonality of the businesses don't take BerkShares, as it takes time to train the staff, or if the conversion takes too much of a hit on their margins. |
| Exeter Pound | There were different reasons for not joining. For example, because of the paper currency, commitment to different systems, or offering gift or loyalty rewards, that could only be done through Sterling Pounds. |
| Sarafu Network | Import/Export Businesses. They don't spend money locally or have local clients. |

**6. Did your complementary currency help reduce the inequality in your community?**

| | |
|---|---|
| BerkShares | As BerkShares are backed 1:1 by USD, it does require people to have the funds to exchange into the local currency. Nevertheless, BerkShares' mission is to educate the public about the value of local spending. Therefore, BerkShares has done a great job to highlight the locally owned businesses that pay living wages, give donations to local charitable endeavors, and prioritize local procurement, all of which help build community wealth. |
| Exeter Pound | No. One needed to have Sterling Pounds to trade with the Exeter Pounds. |
| Sarafu Network | Sarafu Network helps to create a stable and more fair flow of resources. |

**7. What is your recommendation for anyone wanting to start a complementary currency?**

| | |
|---|---|
| BerkShares | Firstly, start with a leakage or multiplier effect assessment to see where money currently flows. Secondly, partner with a chamber of commerce or business group to build a critical mass of participants. Thirdly, structure it as a democratic membership-based organization to ensure participatory decision-making. |
| Exeter Pound | Offer it digitally from the beginning. Look at European examples. |
| Sarafu Network | Some recommendations are to learn from active groups using the Sarafu Network, to incorporate demurrage, to educate and empower people to issue their own currencies, to create/use infrastructure that is not rent-seeking and not expensive. And lastly, don't depend on the internet. |

## 5.3 Summary

Businesses who participated, in all four complementary currencies, were local. Chiemgauer had local businesses such as bakeries, drug stores, shoe stores, or even weaving stores. While BerkShares included local restaurants, retail stores, print shops, and more. The more variety, the bigger was the opportunity to recirculate the currency. Which helped the businesses to supply themselves with goods and services by using the Chiemgauer or BerkShares they received from their trade. Local businesses that joined Exeter were mostly new or small and wanted to get some recognition by joining this program. The reason people used Chiemgauer, BerkShares, and Exeter Pound was due to their intention to contribute and support their local economy. Moreover, the bills of BerkShares and Exeter Pound highlighted local monuments or artists, which showed the pride the citizens had for their community. The motivation for businesses to participate in the Sarafu Network was to create credit against their future production. They were mostly shops that offered daily needs, such as food and water, or farming and labor. The people in the Sarafu Network wanted to trade their goods and services and seek a stable trade in a community without the national currency. However, some organizations didn't want to join the four complementary currencies. For Chiemgauer it was, for example, gas stations because of low sales. Other businesses found it also troublesome when they received more Chiemgauer than they could spend. The reason for BerkShares was large chains/box stores that didn't have local banking. On the other hand, for Exeter Pound, the biggest rejection came due to the paper currency, which a lot of businesses didn't want to offer, as digital currencies were rising. For Sarafu Network, it was import or export businesses that didn't spend their money locally or even had local clients.

The benefit of Chiemgauer is that each trade brings in three percent that goes directly to a charitable project. Through the local cycles, every member profits, for themselves and the social community. For BerkShares, locally owned organizations have been demonstrated to be better for the climate and economy. They keep the benefits in the regions and pay more local taxes. Exeter Pound helped to make people more aware to purchase and trade locally so that the local community can continue to exist. Nevertheless, for Chiemgauer, BerkShares, and Exeter Pounds one needs to have the national currency to get the complementary currency. However, Sarafu Network lets people trade with each other without a national currency. And therefore, helps to create a stable and more fair flow of resources, which leads to reduced inequality in a community.

In contrast to Chiemgauer, BerkShares, and Exeter Pound, and like Sarafu Network, members joining an Encointer local currency don't need to have funds in national currency to get the local currency. Encointer enables a community to issue and name their own local currency.

Every individual has something to offer in a community. However, as many are deficient in national currency, they can't trade with each other. Encointer offers people in a community a UBI every 41 days, which gives them the means to purchase and sell products and services in the community to each other. Through Encointer, people in a community can supply themselves with essentials by purchasing locally, while at the same time offer their goods. Thus, Encointer helps people to meet their basic needs while at the same time makes it possible for them to save and spend their national currency where it is required. Such as, for example, critical imported goods.

# 6. Analysis for Encointer

## 6.1 Progressive income tax vs. complementary currency

Tax policy and tax progressivity have their background in Classical Economics and the compositions of Adam Smith's Wealth of Nations and John Stuart Mill's Principles of Political Economy (Mill, 1896; Smith, 1776). The meaning of a progressive tax is that it takes a bigger percentage of income from higher-paid individuals than from lower-paid individuals. Thus, a progressive tax system is solidly a way to redistribute income from the higher earners to the lower earners (Papanikolaou, 2021).

However, nearly all progressive tax frameworks are not adapted to inflation. In nations with progressive taxes, inflation expansion prompts bracket creep (Wilson, 1982). It increases the compelling tax rate for individuals who are not in the highest tax section, which results in a rise in income inequality (Sieron, 2017). Moreover, as indicated by the Cantillon effect, money isn't neutral. This leads that newly made money is not equitably nor distributed at the same time among the populace. Subsequently, the development of the money supply influences the design of relative prices and brings changes in asset allocation and distribution of income and wealth. The principal primary channel of inflationary redistribution is from the late to the early beneficiaries of recently made money. The primary beneficiaries have higher money balances, while the costs of their purchases have thus far not altered. Hence, they can buy more products and services. But as new money advances over the economy, prices are driven up, which implies that late beneficiaries face more exorbitant costs (Sieron, 2017).

In the past few years, complementary currencies have been created as instruments for stimulating the market (Corrons, 2017). Whilst official currencies may have structural defects, networks can depend on different systems pointed toward making a more sustainable society (Dittmer, 2013; Hirota, 2016). As all groups of people have something they can contribute and offer to the market to advance the prosperity of a region (Gomez, 2008; Pacione, 2011). The individuals who take part in complementary currencies find in their utilization values like equality, trust, or activity that previously has been underutilized (Richey, 2007; Garcia, 2015).

The objective of a complementary currency is to give a free of charge and simple way for low-paid earners without bank accounts to move money. Along these lines, the currency would stimulate the circulation of funds and financial development in those communities where it is the most required (Stager, 2020). The basic rule is that the circulation of the complementary currency is preserved inside the local area, as a local currency (Tremaine, 2014).

For example, inspired by Silvio Gesell's "Freigeld", the Wörgler Schwungeld created in 1932 showed numerous advantages of a local currency. The rates of unemployment diminished because of an expansion in business collaborations inside the local network, investments and work were compensated for with complementary currency and could, in the outcome, be expanded. Demurrage constrained the money to flow all the more rapidly, which prompted a social product multiple times as effective as regular cash (Lukschandl, 2020).

## 6.2 The impact of a complementary currency on inequality

Even though complementary currencies are frequently economically driven, relatively few studies display economic benefits. Just 50% of the complementary currencies have any financial effect, whilst about a third empowers admittance to products and services which would be in another way exorbitant. Just a fourth of complementary currencies increment individuals' income (Michel & Hudon, 2015). In the Worldwide South, Bangla-Pesa is a noticeable illustration of complementary currencies with clear economic advantages. Inside the Bangla-Pesa community, 83% of individuals revealed an expansion of sales, with exchanges in the complementary currency representing 22% of average everyday sales (Ruddick et al., 2015).

Grassroots economics, formerly known as Koru Kenya, discovered, while doing some research in the Kenyan Slum Bengladesh, that on some months of the year and days of the week sales decrease to an absolute minimum because of the absence of the national currency in the community. These attributes of dense neighborhood business exchanging and recurring currency shortage make informal settlements the main targets for the induction of a complementary currency. If local organizations in informal settlements are enabled to collectively establish and ensure another method for trade, it would permit exchanges of products and services to occur beyond limited national currency. Furthermore, because in these informal settlements, the vast majority maintain a few sources of income and still make barely enough to help their families' most fundamental necessities. They battle to save money and pay extra clinical and education payments. If organizations could utilize a complementary currency bargain trade between them, it would permit them to utilize their business benefits more for schooling and training, wellbeing, and savings. The utilization of a complementary currency to compensate for fundamental requirements locally liberates their KES for refinancing in their organizations and themselves. This gives them more opportunity to decide how to manage their business benefits, something most men already do because of their bigger net revenue (Ruddick & Mariani, 2013). Motivated by these thoughts Grassroots Economics developed the Eco-Pesa in 2010 and the Bengla-Pesa in 2013, which led to the creation of the community Currency known as the Sarafu Network.

Sarafu Network individuals are generally female and lack sufficient money. Thus, they are citizenry with minimal admittance to financial institutions. Research on the effect of the Sarafu Network displayed that individuals profit financially diversely (Zeller, 2020). Everyday purchases in complementary currency permitted individuals to set aside cash in the national currency which they would have used for something else (Ruddick, 2011). Participating individuals had an approximately bigger food utilization than non-participants, along with a usually bigger food budget. Additionally, sales inside the network incremented. On account of Bangla-Pesa, the complementary currency represented a 22% expansion in monthly income (Ruddick et al., 2015). With both utilization and deals expanding, it can be assumed that the complementary currency brought a shift of demand towards participating organizations and a general increment of sales (Zeller, 2020).

On the other hand, the German Chiemgauer, the English Exeter Pound, and the US American BerkShares work in a fiscally steady environment with an adequate cash supply (Zeller, 2020). People wanting to use these complementary currencies needed to have some funds, as they are traded for Chiemgauer and Exeter Pound 1:1 with the national currency (Chiemgauer, n.d.; Exeter Pound, 2018). For BerkShares, there is a 5% discount, which leads to trade of 100 BerkShares equals USD 95 (BerkShares, n.d.). The complementary currency can't work as a buffer in this environment (Zeller, 2020). Nevertheless, there are still advantages to using complementary currencies in an environment with sufficient liquidity. For example, it is a good method of keeping the money inside the locale where it was procured, rather than spending it at big global organizations, which also pay their taxes elsewhere (Gonçalves, 2021).

Thusly, it can be assumed that complementary currencies can only help reduce inequality in surroundings with deficient liquidity (Zeller, 2020). In regions like informal settlements, which have closely knit and narratively underfunded markets, similar to those in Kenya, complementary currency can essentially and productively profit a huge number of individuals through establishing networks of many small businesses. Complementary currencies could turn into a critical device for the closure of poverty by the way of upholding the social and solidarity economy (Ruddick & Mariani, 2013).

Therefore, to achieve Encointer's objective to reduce inequality, the environment in which it should be implemented should be one with deficient liquidity.

## 6.3 Requirements for the success of a complementary currency

A study in 2016 was conducted that researched the conditions and strategies required for the achievement of a complementary currency (Kim, Lough, & Wu). The research alluded to past discoveries from Collom (2005) and North (2010). Collom (2005) recognized various effective conditions for complementary currency programs. For example, communities situated in more liberal or

progressive regions, with greater income imbalance, and with a higher level of independently employed occupants. North (2010) also incorporated a few complementary currency cases in his research and distinguished other conditions. Such as a big independent businesses area of financial downturns.

The study which researched five complementary currency programs resulted that conditions related to success included being situated in less populated or geographically detached regions with relatively reduced household incomes. This could be because in smaller regions there is usually a more grounded feeling of belonging and community commitment. A manager at BerkShares noted that their success could be due to its little community, where locals are tied together, and businesspeople know one another. Findings likewise propose that families with lower levels of pay may have more noteworthy economic incentives to investigate complementary currency developments. These results are reliable with past discoveries that show that a local area's historical insight with complementary currencies and financial marginality have filled in as conditions for strong complementary currency developments (Collom, 2005; North, 2010). The study also discovered that the significance of engaging with local enterprises like local food coops or farmer's business sectors, especially in smaller networks.

The research pointed out that setting up a successful complementary currency framework demands investing critical time and resources in the beginning and upkeep of the development (Kim et al., 2016).

Furthermore, another study concluded that the people group that will utilize a complementary currency should be developed and updated consistently for the complementary currency to be successful. It is vital that the way of creating the currency is public and that everybody feels included and part of the venture. The training should consistently be maintained, and it is suggested that there be spaces accessible at which point the local area can be updated or find out about the present status of affairs (García-Corral, Pablo-Valenciano, Milán-García, & Cordero-García, 2020).

Gelleri (2020) suggested that a successful complementary currency should continuously adjust its design to aggregate objectives and challenges. For instance, the Chiemgauer is a reserve-backed framework and has begun to create a sectoral currency to advance environmental protection. BerkShares noticed a change in consumer shopping habits and is currently working on developing a digital format. On the other hand, Exeter Pound noticed a decline in paper currency and wanted to launch a digital currency. But the change was faster than they previously thought, which resulted in to end of their complementary currency (see Appendix 1).

Gelleri (2020) stated that complementary currencies may work effectively if the described requirements are met:

1. There are productive capacities that are underused or could be further developed.
2. There is a shortage of buying power.
3. A minimum amount of participation is reached, and income surpasses exchange costs.
4. An obliging/non-restrictive lawful system is in place.

Similarly, McCann, a researcher at the New Economics Foundation, thinks, that only when complementary currencies make exchanges occur that wouldn't elseways have resulted, real value for local economies can be built. Complementary currency needs to generate extra purchasing power, which is something many neglects to do (Sheffield, 2017).

Thus, the best community for Encointer should be a less populated or geographically detached area. Research and the complementary currency examples showed that in smaller areas, businesses know, trust each other, and are tied together. Another important factor is that the community needs to have households with relatively low incomes. A shortage in buying power or overall deficient liquidity is not only a key aspect for the success of a complementary currency but it would also, as previously stated, help to achieve Encointer's objective to reduce inequality in a community. Moreover, the people in the community should be trained and updated, so that they are as knowledgeable as possible and therefore also confident to trade with and believe in the value of the new currency system.

## 6.4 Participating businesses

According to the findings of the research of the four complementary currencies, one thing that can be concluded is that local businesses are the ones who participate and join complementary currencies. These businesses can vary in the products and services they offer. For example, some of them are grocery stores, while others provide services such as accounting. However, a key factor is that all of these businesses are usually small, independent, and most importantly local. Another relevant aspect is that these businesses offer their products and services to locals, while simultaneously reinvest their revenue by making local purchases. Hence, why export or import corporations, as well as global big chains, don't generally participate in complementary currencies.

The case that local businesses consume and expend in the local economy is known as the local multiplier effect (Sacks, 2002). The multiplying variable of local businesses expending for the local economy is extensively greater in contrast to global organizations because the money used continues to instigate economic movement in the local area. Thus, complementary currencies feature this local multiplier and their economic objectives (Degens, 2016).

For instance, BerkShares scheme to create a multi-faceted and resilient local economy that seeks and focuses on responsible innovation and utilization, where locals depend on the land and each other to satisfy the essential requirements such as food or shelter (BerkShares, n.d.). Similarly, two of Chiemgauer's objectives are to advance local economic cycles in the areas of Rosenheim and Traunstein and to reconnect the economy (Chiemgauer, n.d.).

Local enterprises are the main partaking group in a complementary currency program because of two reasons. In the first place, they are believed to be one of the principal groups of beneficiaries that profit from complementary currency forms. The advancement of local organizations is the main objective of complementary currency programs. Subsequently, it is presumed that local businesses are prone to participate in complementary currencies due to business-related calculations (Thiel, 2011). Organizations anticipate advancing their financial objectives through taking part in a complementary currency program that intends to fortify the local economy and form a customer inclination for locally delivered products and services. In the second place, a complementary currency program itself emphatically depends on the participation of local organizations. Owners of local enterprises would use the complementary currency earned to supply themselves with local products and services. Therefore, a circuit of complementary currency is only doable if local businesses in adequate numbers approve this type of currency (Degens, 2016).

The minimum requirement of businesses needed to start a complementary currency can vary as this can be seen in the complementary currency examples. For Instance, Chiemgauer started with around 20 businesses in 2003 and has as of now, in 2021, around 364 vendors (Chiemgauer, n.d.). BerkShares first began with about 90 participating organizations and counts now up to 400 businesses (BerkShares, n.d.). In the three years of its circulation, Exeter Pound started in 2015 with around 100 traders and ended in 2018 with 151 businesses (Exeter Pound, 2018).

As BerkShares stated in the Interview (see Appendix 1), the more variety there is, the bigger the opportunity to recirculate the currency. However, the case study of Chiemgauer of the community of Stephanskirchen in 2010 observed that the principle of the circulation of a complementary currency can work even with a small number of participating businesses. This is because businesses are interlinked with each other. For example, a business owner uses their Chiemgauer in another business, to purchase supplies they need and vice versa (Summerer, 2010).

An important aspect to determine the minimal set of businesses is to know the community in which Encointer will be implemented. The ideal community should be adequately assorted to supply the most essentials of life, but small enough to permit direct trade, community-building, and responsibility. A recommendation would be to create a plan of the reality of the desired community and to identify their needs and how they spend their money (Luna, 2012).

## 6.5 Example community

The following example community is based on the example of Brenzikofer (2020) of the city of Ouagadougou, Burkina Faso. Every person in a community has products and services to offer but is deficient in national currency to purchase from each other. Thus, as a starting point, six businesses come together, launch, and name their currency “OGU”. The members agree on how high their nominal basic income should be and set prices for their products and services. Every 41 days, they are present in meetups to testify each other’s personhood and receive the UBI, which they can use to buy products and services from each other.

- Persona 1: Florence – water seller

  Florence owns a well and sells water to her community daily. She has three children, which she needs to provide with the money she earns from her shop. Florence couldn’t earn enough before to care about all the requirements needed, as her neighbors also struggled with the national currency deficiency they had. Through OGU, she can sell water to her neighbors, while simultaneously can buy products and services from her community to meet her and her children’s basic needs. For example, she can provide food for her children by buying bread from Salif’s bakery, meat from Ousmane’s butcher, or vegetables from Djamila’s vegetable stand. Similarly, as her youngest child doesn’t go to school yet, she can bring him to Carole for babysitting. On the other hand, she sells water to Salif, Ousmane, Djamila and Carole, and many others in the community in exchange for the products and services they offer. OGU helps Florence to pay for fundamentals, while also allowing her to keep her national currency for savings.

- Persona 2: Salif – baker

  Salif owns a bakery. Throughout his years as a baker, he became asthmatic. Previously, his earnings weren’t enough to buy medicine. As he became a participant of OGU, he started being able to afford to buy the requirements he needed. He sells bread and pastries to his neighbors while using the OGU he gets from the community to buy medicine from Stephane’s drug store.

- Persona 3: Stephane – pharmacist

  As medicine is usually imported or overall comes from bigger areas and is not developed in a small community, Stephane needs to use the national currency to buy medicine for his drug store. However, his clients live in the neighborhood and had trouble affording to buy medicine. OGU didn’t only allow people in the community to buy from the drug store but it also helped Stephane to use OGU to supply himself with products and services from the community. For instance, he could use OGU to buy vegetables from Djamila’s stand. Thus, he could save his na-

tional currency and only needed to use it for purchasing imported goods such as medicine to restock his drug store.

- Persona 4: Djamila – vegetable seller

Djamila has a vegetable stand in the local market, a place that can get very loud and crowded. Before participating in the local currency OGU, Djamila had to bring her young child with her to the market, as she couldn't afford to bring her to a babysitter to look out for the child when she was working. Though OGU, Djamila can finance her child's babysitting while offers in return her vegetable to the community.

- Persona 5: Carole – babysitter

Prior to introducing OGU in the community, many people in the neighborhood had to bring their children along to work, because of the lack of money they had. This in return had a negative effect on Carole's income, which further led her to be deficient in liquidity to buy basic needs. By the participation of others and herself in OGU, people started to bring their children to her for babysitting, and at the same time helped Carole to be able to supply herself with essentials from the community, such as meat from Ousmane's butchery.

- Persona 6: Ousmane – butcher

Ousmane has a butcher store in the community. As meat is expensive, many in the neighborhood couldn't previously afford it, which almost led to Ousmane closing his store. However, by joining OGU, other members started to purchase meat at Ousmane's butchery. This kept Ousmane from closing his store and being unemployed. He can now use the OGU he receives from the community to also supplement himself with essentials, such as water from Florence's water shop.

This example community with OGU shows how Encointer can help fill the gap individuals have due to a deficiency in national currency. A stable marketplace can be created, where people can trade with each other by exchanging products and services among themselves. Members can fulfill their essential requirements by using OGU and keep their national currency for savings. The circulation of a local currency can work even with only six participating businesses. Nevertheless, a larger variety would help even more people. Thus, the members should promote their launched currency in the community to get more businesses to join. Moreover, if others in the local area see how it works and how it helped people to meet their essentials, many would want to join Encointer to also fulfill their basic needs.

## 7. Conclusion

Whether someone looks at it on a global or local level, every economy depends on money (Sustainable Communities Framework, 2019).

Encointer presents a blockchain stage for local community cryptocurrencies (Brenzikofer, 2018). Encointer intends to reverse the Cantillon Effect. Rather than distributing money at the top Encointer distributes money at the bottom (The Encointer Book, n.d.). According to the rule of equivalent opportunity, each person gets a UBI and a digital ID without depending on central authority (Encointer, n.d.). Every 41 days, people have randomly selected meetups to prove each other's personhood. Once successful, they receive their UBI in their community currency to their cell phone wallets. As Encointer local currencies highlight nominal demurrage, people are propelled to spend their UBI rather sooner than later (Brenzikofer, 2020).

Encointer local currency aims to reduce inequality through its UBI. The approach to reducing inequality is done through a complementary currency system instead of progressive income tax because the latter is not adapted to inflation. Inflation expansion leads to bracket creep. This implies that people who are not in the highest tax section get an increase in the compelling tax rate, which in return results in a rise in income inequality (Sieron, 2017). On the other hand, a complementary currency's objective is to give a free of charge and simple way for low-paid earners without bank accounts to move money. Thus, the currency would basically stimulate the circulation of funds and financial development in those communities where it is the most required (Stager, 2020).

The analysis of the four complementary currencies showed that similar to Sarafu Network and differently to Chiemgauer, BerkShares, and Exeter Pound, in Encointer people can use the local currency without having it had to trade against the national currency. This is especially important for people who usually don't have enough money to meet their basic needs. Through Encointer, they could use the local currency to purchase and sell their products and services to each other in the community and keep their national currency for savings.

Moreover, as Sarafu Network works in an environment with deficient liquidity, it helps to create a stable market and a more fair flow of resources, which helps many individuals to meet their basic needs. This showed that in regions like informal settlements, similar to those in Kenya, complementary currency can essentially help a huge number of individuals to fulfill their daily needs (Ruddick & Mariani, 2013). Whereas the benefits in Chiemgauer, BerkShares, and Exeter Pound, which are present in a fiscally steady environment with an adequate cash supply, lied in supporting and upholding the local community.

Furthermore, to ensure its success, Encointer should be implemented in a less populated or geographically detached area with households that have relatively low incomes. A shortage in buying power or overall deficient liquidity is not only a key aspect for the success of a complementary currency but it would also help to achieve Encointer's objective to reduce inequality in a community.

The research of the four complementary currencies displayed that local businesses are the ones who participate and join complementary currency programs. These businesses can vary in what they offer. However, an important factor is that these businesses offer their products and services to locals, while simultaneously reinvest their revenue by making local purchases. This is also why big chains or import/export corporations don't join complementary currency programs. Their clients are often outside the local area. The motivation of small businesses to join is usually due to two reasons. Firstly, they benefit from it, as locals will start buying their products and services. And secondly, the owners would use the complementary currency earned to supplement themselves with local goods.

The example community describes six personas with their interest and willingness to commit to delivering products and services in exchange for the Encointer local currency "OGU". Everybody has something to offer in a community. OGU helps the six personas to fill the gap they have due to insufficient national currency so that they can trade products and services among themselves. For example, Florence can buy bread from Salif's bakery in OGU by selling water in OGU. Salif is asthmatic and can through OGU afford to buy medicine from Stephane's drug store. Stephane needs to buy medicine for his store in the national currency. By using OGU to supplement himself with local goods, such as purchasing vegetables from Djamila's vegetable stand, he can keep his national currency for the imported medicines. Djmila doesn't need to bring her child to work with her anymore, as she can afford to pay Carole for babysitting. And Carole can finally purchase meat from Ousmane's butchery. Through his shop, Ousmane can buy water from Florence's water shop. The example community displays how Encointer could help reduce inequality in a community by giving individuals the opportunity to come and launch together with a local currency, which helps them to meet their basic needs.

To conclude, complementary currency with a UBI can only help reduce inequality in an environment with deficient liquidity. Real value for the local economy can only be build when complementary currency makes exchanges occur that wouldn't otherwise have resulted. Encointer with its UBI has the right approach to make it happen. However, it must be implemented in the right community. Further research could be done in the community Encointer wants to be implemented. A recommendation would be to create a plan of reality of the desired community, to identify their needs and how they spend their money.

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## 9. List of Figures

## 10. Abbreviations

| | |
|---|---|
| UBI | Universal Basic Income |
| CPI | Consumer Price Index |
| USSD | Unstructured Supplementary Service Data |
| GDP | Gross domestic product |
| CIC | Community inclusive currency |
| PPP | Purchasing power parity |
| EUR | Euro |
| USD | United States Dollar |
| GBP | Pound Sterling |
| KES | Kenyan Shilling |