Monetary Autonomy as a Driving Force for Poverty Reduction in the Franc Zone

An Abstract of
A Thesis

Presented to the
Department of Economics and Decision Sciences
Western Illinois University

In Partial Fulfillment
Of the Requirements for the Degree
Masters of Arts in Economics

By
Hossou C. Boniface Zounffa
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ABSTRACT

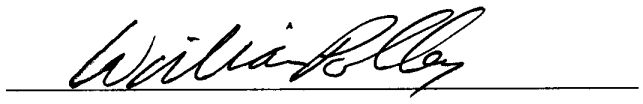
The thesis takes as its point of departure the “long-run monetary union” between France and fifteen French-speaking African countries to provide insights into how the rules, mechanisms and practices underlying the monetary dependence of these African states operate. The main objective of the study is to contribute towards a better understanding of the institutions and principles governing the CFA franc zone with the intention of helping policy-makers to take optimal decisions.

A well- designed monetary policy could generate employment and pro-poor growth. But designing and administering a good policy will depend on the objective of policy designers. In principle, monetary authorities could choose between a fixed exchange regime and a flexible exchange regime. Of this, the above African countries adopted a managed regime with France since 1945. In this study, I examine the relationship between monetary autonomy and poverty reduction in the Franc Zone. The discussion focused on the impact of monetary independence on poverty incidence and poverty gap in the fifteen African nations.

I utilized two OLS model equations. The functions were estimated using data from a panel of 14 countries (the exception being Equatorial Guinea because insufficient data were available) in the CFA franc zone and covering the 1984-2011 period. Seven predictor variables were forced into the models. With regard to the findings, only four of them such as inflation and, more importantly, credit to private sector, centralization rate, exchange rate and gross national savings are important to headcount index and the depth of poverty reduction in the CFA franc zone.The results therefore suggest that monetary sovereignty measured by the specified variables is a driving force for poverty reduction in the CFA franc zone.

APPROVAL PAGE

This thesis by Hossou C. Boniface Zounffa is accepted in its present form by the Department of Economics and Decision Sciences of Western Illinois University as satisfying the thesis requirement for the degree of Masters of Arts.



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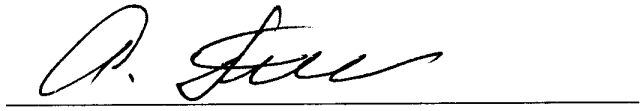

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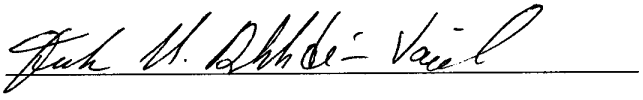

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Finally, I am thankful to my fellow graduate students who provided me with help when needed. Special thanks to my fellow graduate assistant students. We worked closely as brothers and sisters at the Econ Lab throughout several semesters. I wish to thank Mrs. Anne Bollati from Black Hawk College who introduced me to the Economics and Decision Sciences of Western Illinois University.

DEDICATION

I dedicate my thesis to my large family in Benin. A special thanks to my Mom, Hounga Catherine and my Dad Zounffa Isaie. You have believed in me and allowed me to study and achieve my potential even far away from you. I had always wanted to further my studies in economics and in a best school. Thanks for helping to make my dream come true.

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Introduction

The issue of poverty remains the worry of many people in the world. The problem is worse in Africa, especially in the Franc Zone where still a number of Africans are living on a few dollars or less a day. Poverty is generally defined as a state of being without essential goods such as food, shelter or clothing etc.

When it comes to providing essential elements of well-being such as food, clothes, and shelter for our children, to purchase our clothing and sandals, and to rent or buy our apartment or our house, it takes revenue and money. Further, money and revenue come from job while the employment creation calls for good policy by economic agents. In other words, to meet these basic needs, we need to be sure that the policy makers are not implementing the worst policy**.** If, for example**,** credible and fair monetary policy is not maintained in the economy, it would not be possible to combat unemployment which leads to high poverty in Francophone Africa. There is evidence suggesting a relationship between monetary policy and employment, employment and growth, and growth and national poverty. For instance, research done by Toye (2007) shows that poverty could be reduced with a proper monetary policy.

In order to better understand the monetary tools that could help reduce large scale poverty in African countries, this study focuses on the following topic: *Monetary Autonomy as a Driving Force for Poverty Reduction in the France Zone*. The CFA franc zone is a monetary union and consists of 15 African countries and France. The 8 countries in West Africa include Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal and Togo. The 6 countries in Central Africa are Cameroon, Central African Republic, Chad,

Congo, Equatorial Guinea and Gabon. The Islamic Federal Republic of Comoros located between African coast and the island of Madagascar is also a member of the CFA franc zone.

The CFA and Comorian francs are the national currencies in circulation in Francophone Africa. Both of these currencies were created on December 26, 1945, the day France ratified the Bretton Woods Agreement and made its first statement of parity to the International Monetary Fund (BCEAO). Four fundamental principles underlie the monetary union agreement between France and African nations: (1) guarantee by the French Treasury of the free convertibility of the CFA franc into euro; (2) fixed parity with the euro; (3) free capital mobility between African countries and France; and (4) the pooling of foreign exchange holdings by each African region to an operations account with the French Treasury. I will discuss these principles, along with the issues underlying monetary dependence, regulation and institutions of the CFA franc zone in another section of this thesis.

In the past decades, several African governments have set a goal to reduce extreme poverty, hunger and malnutrition and promoting social and economic rights. The countries' citizens are fighting and working hard to combat poverty they are living in. Private sector has not done much though in overcoming poverty and supporting economic growth in Africa, particularly in French Africa. Despite the international partners' commitment to end poverty, it continues to harm African countries members of the Franc Zone. The existing strategies to reduce poverty in French-speaking Sub-Saharan African countries have not succeeded in lifting a significant number of Africans out of extreme poverty and misery.

Furthermore, a number of empirical studies on poverty reduction in Africa have been conducted, but only few focused on the Franc Zone in Africa. The work of most scholars in the area concentrates on the determinants of poverty reduction in general rather than on monetary connection to poverty. This study will analyze the effect of monetary independence on poverty reduction in African countries-member of the Franc Zone, using Ordinary Least Square regression.

The remainder of the thesis is organized as follows. Section 1 discusses in detail the practices and mechanisms underlying the issue of monetary dependence of African countries in the Franc Zone. Section 2 analyzes monetary sovereignty and exchange rate regime of the 15 African countries in the CFA franc zone. Section 3 presents the empirical analysis and results. Finally, Section 4 concludes the thesis and provides some recommendation.

Section 1. Practices and Mechanisms underlying the Issue of Monetary Dependency of African Countries in the Franc Zone.

1.1. Presentation of the Franc Zone

The CFA franc zone is an economic, monetary and cultural area that is very unique and one of a kind in the world. Its mission is to promote monetary stability, ensure monetary solidarity and macroeconomic convergence between states through sound monetary policy, deeper co-operation, so that African countries emerge as a competitive and effective player in international relations and the world economy. The monetary cooperation would permit African nations to promote growth in the economies' output with which to tackle large-scale unemployment and poverty in the long run.

Today, there are 16 Member-States in the Franc Zone: eight countries in West Africa, six countries in Central Africa, the Islamic Federal Republic of the Comoros and France. These Western and Central African countries belong to two separate economic and monetary unions- the West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Community (CAEMC). The members of WAEMU are Benin, Burkina Faso, Ivory Coast, Guinea Bissau, Mali, Niger, Senegal, and Togo. The members of CAEMC comprise Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon.

Since their creation in 1945, the CFA and the Comorian franc are the official currencies in the African States. The CFA franc was an original abbreviation for "franc of African French Colonies." Later the currency assumed the name of "franc of African Financial Community" for the Western African Economic Monetary Union (WAEMU) and "franc of African Financial Cooperation" for the Central African Economic and

Monetary Community (CAEMC). The Comorian Franc (CF) is the national currency in the Comoros and has no connection to CFA franc.

Even though the name of the currency has changed, it seems that the principles governing the CFA franc, as we will see later, have not changed since its inception in 1945. The CFA francs in WAEMU and CAEMC were to have legal tender and to be freely convertible currencies (Agbohou 2012). In reality, the two currencies are interchangeable. Put it simply, there are two CFA francs in circulation. The CFA franc issued by the Bank of Central African States, and the CFA franc issued by the Central Bank of West African States. Even though both CFA francs have always been at the same parity with respect to the French franc or euro and have always the same monetary value, they are in practice separate currencies. For example, in the two regional zones, two bills having the same value differ in color from one region to another. More importantly, a Beninese trader who wants to purchase goods from Cameroon should always buy the CFA franc issue by BEAC to be able to complete his transaction vice versa.

1.2. The Colonial Pact and the Core Principles of the CFA Franc Zone.

This section explains the main features of the colonial treaty and the four principles that laid down the foundation for the CFA franc zone.

The history of the 15 countries in this study includes colonization, neo-colonization, and decolonization. The Petit Larousse dictionary defines the term “colonialism” as “the Doctrine which aims at legitimizing the occupation of a territory or a State, its political dominance, and its economic exploitation by a foreign country.” The same dictionary defines neo-colonialism as “policy undertaken by certain developed countries which aims at instituting, in new forms, their domination on independent States in the Third Word once

colonized." According to the Cambridge online Dictionary decolonization means "the process in which a country that was previously a colony controlled by another country becomes politically independent."

"The Colonial Pact Treaty" between France and the 15 African countries was signed and ratified in 1945. By this Treaty African countries agree to supply raw material and other strategic products to France in exchange for defense from foreign invasions.

With a view to strengthening the monetary and economic relations, WAEMU, CAEMC and France, adopted four fundamental principles: (1) guarantee by the French Treasury of the free convertibility of the CFA franc into Euro; (2) fixed parity with the Euro; (3) free capital mobility between African countries and France; (4) the pooling of foreign exchange holdings by each African region to an operations account with the French Treasury (United Nations University).

First Principle: ***Guarantee by the French Treasury of the Free Convertibility of the CFA franc into Euro.***

The CFA franc arrangements stipulate that the French Treasury guarantees the convertibility of the CFA franc into the French Franc prior to the adoption of the euro and into euro now. In practice, the CFA franc enjoys free convertibility within CFA area only. But even this convertibility often undergoes an extended and costly administrative procedure, which sometimes results in widespread loss in terms of CFA franc or just in plain refusal, by making it difficult for small financial institutions to bring additional funds into the marketplace.

Second Principle: Fixed Parity with the Euro (Fixed Exchange rate with the Euro).

The CFA franc is pegged to euro at fixed parities with no limit on amounts. Within the fixed parity arrangements African central banks are responsible for conducting the monetary policy in their respective regions, for implementing banking supervision at the regional level. These central banks have different views on how this parity should work though. The Bank of Central African States (BEAC) believes the parity is working to the advantage of the countries while the Central Bank of West African States (BCEAO) believes the fixed parity hinders the development of the African States. The Governor of BEAC, Nchama (2014), states that pegging a national currency to another major international currency was a political choice. On the other hand, he claims it has played a key role in ensuring sound economic growth of the African countries-members of the CFA franc zone.

This fixed exchange rate with the euro expected to lead to a stable investment climate for domestic and foreign investors, thereby stimulating economic growth (Devarajan and de Melo 1990). In reality, European and French investors in particular prefer to invest in Nigeria, Morocco and elsewhere outside of the CFA zone. Obstacles to foreign investment often arise from several reasons. First, national policies are sometimes inconsistent with international businesses objectives. Further, investors point to a fragile regional banking sector. In particular, investors are more incentive to risk minimization as a result of the Basel III requirement upon European industries.

This fixed exchange rate with Euro expected to facilitate access of African products to the European market. In practice this access remains restricted by the protectionism measures in the European Union by the WTO agreements.

Third Principle: Free Capital Mobility between African Countries and France.

By the monetary cooperation agreements between African republics and the Republic of France ratified between 1972 and 1979, capital movements become free within the area. The usual argument is that free capital mobility offers investors more incentive to buy financial assets and to build factories in developing countries. In practice, though, the principal of free capital movement within the CFA franc zone has been restricted by legislation and regulatory problems. For example, it is very hard to obtain credit (a loan) by an African entrepreneur because the funds are controlled and often restricted by the French Treasury. Financial markets are underdeveloped because of the weak capital savings. Under-developed financial structure in combination with free movement of capital leads to continuous capital flights that destroy national savings and further undermine weak capital structure.

Fourth Principle: The Pooling of Foreign Exchange Holdings by each African Region to an Operations Account with the French Treasury.

The CFA zone members agree to centralize all or part of their foreign exchange holdings and other international payments in an operating account with the French Treasury. This centralization of the BCEAO, BEAC and BCC reserves was created to give African countries the opportunity to manage their deficits. African leaders believed that the participation in the operations accounts would lead to a stable investment climate for domestic and foreign investors, stimulating economic growth and reducing extreme poverty. In practice, the principal purpose of these strategic funds is to give the French

Treasury a powerful financial tool to manipulate the money supply in the countries members of the franc zone.

1.3. History and Evolution of Central Banks and Banking Institutions in the Franc Zone.

The CFA franc was created in 1945 following the end of the Second World War. Previously, French colonies had their currencies pegged to the French franc, but the Bretton Woods Agreement ratified in 1945 had the French franc pegged to the dollar, devaluing the French franc. By creating a new currency, the CFA franc, France was able to avoid devaluating currencies in its colonies.

Fassassi (2013) found that before CFA franc was introduced in West Africa shell, vanilla and gold were used as currencies. Shell and gold served in regional markets as currencies and triggered the creation of the depository banks which were similar to the modern banks (The Bank of Senegal and the Bank of Oriental Africa) introduced in Africa by France later in the 19th century. Gnansounou (2012) in his book "*Put an End to the Franc of African Colonies,*" describes how The Bank of Senegal and the Bank of Oriental Africa were established in Senegal between 1853 and 1895 by France. At that time, General Faidherbe, the Governor of Senegal, led his colonial quest for West Africa. Creation of monetary union with the colonies coincided with the French Revolution and the abolition of slavery in the colonies and territories conquered in 1848. Gnasounou (2012) points out that when it came the time to abolish slavery, African slave owners claimed that the decree abolishing slavery was unlawful and therefore they should be compensated. Following the claim, France decreed on November 24, 1849 that slave owners should get their money. Although, the slave owners could not be paid into cash, Gnansounou (2012) assumes that

12.5 percent of the money served to create the Bank of Senegal against a promise to repay the remaining.

According to Fassassi (2013) upon the introduction of the CFA franc on December 26, 1945 by the Général Charles de Gaulle some countries of northern Africa had decided to leave the CFA franc zone to form their own independent monetary State: Guinea (1958), Morocco (1957), Tunisia (1958), Mali (1962)[1], Algeria (1963), Madagascar (1972), Mauritania (1973), Saint-Pierre and Miquelon (1974), and Mayotte (1976).[2] This decision created confrontation between France and some of these countries such as Algeria, Vietnam, and Cambodia etc. Though, some West and Central African countries and France decided to stay within the union.

Today the CFA franc zone consists of the following institutions: the Conference of Heads of State, the Council of Ministers, the banking committee, the committee of WAEMU and CAEMC, and the three central banks (BCEAO, BEAC, and BCC).

The Conference of Heads of State is the supreme authority for each sub-area. It settles all issues that have not been resolved by unanimous agreement within the Council of Ministers. It decides on the accession of new member countries and approval of the withdrawal or exclusion of participants (Banque de France).

The Council of Ministers sets monetary and credit policy in order to safeguard the common currency and finance the economic activity in Member States. Also the Council of Ministers observes and set the exchange rate with Euro (Banque de France).

---

[1] Mali returned to re-join the CFA franc zone in 1984.

[2] This list is not exhaustive.

The Banking Committee is responsible for developing prudential regulations applicable to financial institutions of the Union and for managing and arranging the supply of newly printed of CFA franc from France to African countries. The Commission members are Africans and French (Banque de France).

The Committee of WAEMU and CAEMC answers to the Conference of Heads of State and sends recommendations to the Board of Directors and looks after the preservation and development of the Union. It is responsible for the budget of the union. It settles disputes between country-members in accordance to the WAEMU and CEMAC Treaties. The Commission is part of the institutional structure and oversees macroeconomic policies (Banque de France).

The Central Banks (BCEAO, BEAC, and BCC) are run by the governors, the national committees of the credit and the board of governors in each area. Under the control of the board of governors of each central bank, national committees regulate national credit and its volume. Each central bank has a board of Directors. The Board of Directors determines and implements monetary policy (Banque de France).

The Board of Directors of the African Central Banks consists of both Africans and French directors. BCEAO's Board of Directors consists of 18 members (16 from Africa and 2 from France). The governor of the Board is appointed by the Council of Ministers and chairs the Board of Directors. BEAC's Board of Directors consists of 14 members (2 from France, and 2 from each African State). The Board develops and implements monetary policy. There is also National Monetary Committee that is dedicated to examining the financing needs by States. BCC's Board of Directors is composed of 8

members, including 4 appointed by France and 8 appointed by the Islamic Federal Republic of Comoros (Banque de France).

The way the current banking system is established gives the French Treasury almost 100% control over CFA and Comorian franc in African countries. That is to say, this system does not give African countries power over their currencies and monetary instruments.

When a nation is in control of its own currency, then an aggressive monetary policy (quantitative easing, for example, in U.S. or European Union) would help economy to recover from a recession or could prevent one. But when a country is not in control of its own currency (African country in CFA franc zone) it cannot support its growth or prevent it from sliding into a recession.

1.4. Terms and Conditions Governing the Operations Account of the CFA Franc Zone

Principles of monetary cooperation between France and the African countries of the Franc Zone established that each African central bank must deposit part or all of its foreign reserves in an operations account held by the French Treasury. This section addresses motivations for creating this operations account, its features, functioning, and implications for economic policy in the African countries.

The key motivation for the establishment of the operations account was to mobilize foreign reserves allowing the African countries to import equipment, sell goods and services across national boundaries and support investment. At the same time, leaders of the CFA franc countries complain that the French Treasury has traditionally used these accounts to expand its investment portfolio. They point out that rules governing the

operations account in the CFA zone were designed by France with the purpose of controlling the money supply of the African countries.

One principle characteristic of this account concerns deficits and surpluses in the balances. For example, when the operations account has a positive balance, deposited reserves earn interest paid by the French Treasury. If the account has a negative balance, interest is to be paid to the French Treasury by the African central banks[3]. A major characteristic of the account is that it provides unlimited overdraft facilities to each central bank. In practice, this financial maneuverability is reduced by such obstacles as, for example, annual interest rates are to be paid to the French Treasury. Apart from interest rates that are to be paid to the French Treasury, the drawdowns on the overdraft facilities are subject to the consent of the French Treasury. Further constraint concerns the prohibition on states borrowing from central banks. Credit obtained by each government can be no larger than 20% of its fiscal revenue in the preceding year.

Despite financial constraints, the CFA countries would be able to attain financial goals thanks to fiscal discipline. In order to achieve macroeconomic convergence, each central bank of the African countries is obliged to deposit at least 50 percent of its foreign

[3] Take the operation convention between France and the Bank of Central African States as an example. Pursuant to article 6 of said convention, in the case of a negative balance of the operations account, interests of 1%, 2% and 3% are to be paid by BEAC, depending on the amount of overdrafts. On the other hand, in the case of a positive balance of the operations account, the balance of the operations account is remunerated at the marginal lending rate of the European Central Bank.

assets in its operations account with the French Treasury, as well as an additional 20 percent to cover financial liabilities. As a result, BEAC, BCEAO and BCC agreed to maintain at least 70 percent of their foreign exchange reserves in these accounts (Fassassi 2013). Further, cooperation conventions provide that, for more than one quarter, if the reserves are below this level, or if the operations account is in debit, the central banks must take corrective measures such as interest rate increases, credit rationing, and seizure of foreign exchange available in the zone (Banque de France).

These practices suggest that the operations accounts operate outside the control of African countries and prevent credit institutions from financing investors. Bush (2011) found that the French Treasury has invested the foreign reserve holdings held by BEAC, BCEAO and BCC in the name of France on the Paris Bourse.

In 2008, Abdoulaye Wade, former president of Senegal, disappointed by the CFA franc system, appealed to the French authorities' sense. The question Wade posed on "operations accounts" therefore seemed radical, "we do not know the exact money stacked in the French Treasury; why should France continue to invest our billions and billions on foreign stock markets while partner states are struggling to finance African countries that go beg for money?" Busch (2012) claims that the few high officials in the French Treasury who understand the system and know the amounts in the operations accounts are prohibited from disclosing any of this information to the CFA banks or the central banks of the African States.

In conclusion, the rules governing the operations accounts suggest that the CFA countries lack both monetary and fiscal policies to finance their economies, promote employment and reduce headcount, as well as poverty gap.

Section 2. Monetary Sovereignty, Exchange Rate Regimes for Small Open Economy: Theoretical Analysis of Fifteen African Nations in the Franc Zone.

2.1 Measuring Monetary Independence in the CFA franc Countries

The purpose of this section is to critically analyze the monetary sovereignty of the Franc Zone countries. I will discuss regulations passed by France establishing the coinage of the CFA and Comorian franc and placing the mint at the seat of the Banque de France. I will also examine all the de facto characteristics of the ownership right of these currencies. Finally, I will describe monetary dependence of the CFA franc member countries upon the French Treasury.

Under title II, article 9, the Constitution of the Islamic Federal Republic of Comoros provides that monetary policy should be under the exclusive competence of the country itself. To consider another example, Part IV, Article 45 of the Constitution of Cameroon states the following shall be reserved to the Legislative Power: rules governing the issue of currency. It means that the coinage and issuing of money is the full responsibility of the states (National Central Bank). For example, 51% of the French overwhelmingly voted for euro against French Franc in 1999 (Agbohou 2012). By contrast, the CFA franc was created in France in accordance with the provisions of Article 3 of the decree 45-136 of December 25, 1945 under Charles de Gaulle then interim president, René Pleven, former French finance minister, and Jacques Soustelle who was minister of the French colonies (Fassassi 2013).

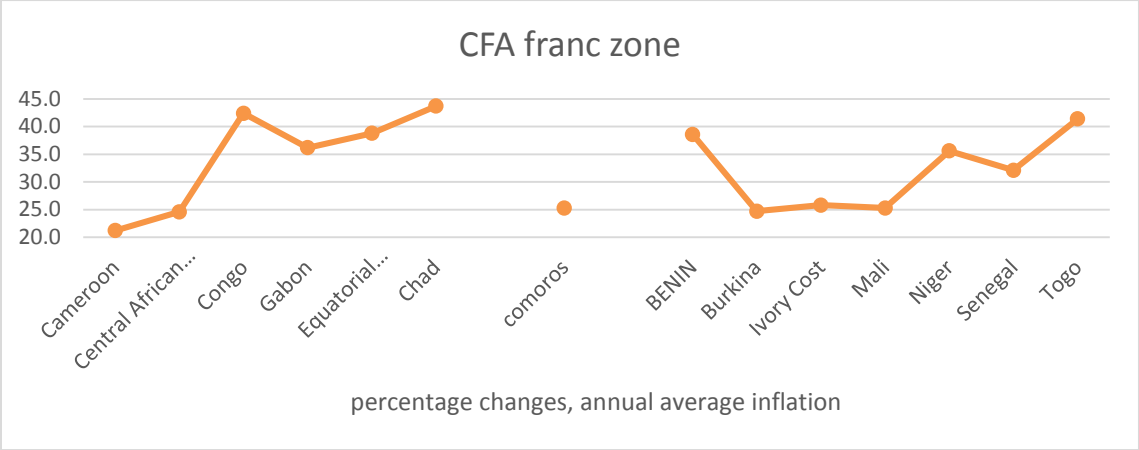
Partnership and cooperation agreements between France and the former colonies provide that the African Council of Ministers have the exclusive power to revalue or devalue the CFA or Comorian franc. On the other hand, the French Prime Minister,

Edouard Balladur argues that, “the CFA franc was devalued in 1994 at the behest of France because we thought it was the best policy we could have to implement in order to help these countries move forward.” Moreover, property right characteristics are a bundle of features that convey mainly three powers to the owner: the right to enjoy, the right to use and the right to destroy. It seems that the CFA franc countries do not possess such rights upon their currencies.

First, creators have the right to abuse or destroy their property. Fassassi (2013) finds an analog to this destructive intent among certain high authorities. He refers this crucial characteristic of ownership right to the devaluation of the CFA and Comorian franc in 1994 when some French high officials gathered African leaders in a hotel in Senegal and informed them that their currencies were devalued by 50% in WAEMU and CAEMC areas and by 33 % in the Islamic Federal Republic of Comoros (Fassassi 2013).

In 1994, Gnansounou (2012) witnessed a devaluation that had devastating consequences for economies in the CFA franc zone. Against -5 percent in 1993, average annual inflation was about 33 percent for the zone with performance being worse in the Central African countries as compared to performance in West African States and Comoros (Clement et al ; and figure 1).

Figure 1: Inflation in the CFA franc zone in 1994



Source: Author calculation and data provided by BEAC; and Jean A.P. Clement et al.

On a December- to- December basis, prices ranged from about 30% in Burkina Faso to about 65% in the Congo (Clement et al 1996). The UNU World institute for development economic research (2002) found that the high inflation of the 1994 devaluation was an exceptional event.

The depreciation of the CFA and Comorian franc in nominal terms during 1994 is estimated at 39 percent for the zone: 45.6 percent for the WAEMU countries, 44.4 percent for the CAEMC countries and 27.4 percent for the Islamic Federal Republic of Comoros (Appendix B, C, D and figures 2, 3 and 4). Examination of the data (Appendix F) has shown that the 1994 devaluation has a negative impact on GDP per capita within the area during the same year and thereafter.

A further useful example why France disposes the right to abuse the CFA franc is when she had directed the commercial banks to close their doors in Ivory Coast during the civil war within the country in 2011. Agbohou (2012) claims that France has a stake in

destroying the CFA franc in terms of devaluation. There are many specific ways in which France could benefit from such a currency depreciation.

Namely, according to the CFA zone agreements, African countries agree to sell any strategic goods to France before turning to the rest of the world. The exports of these countries being comprised essentially raw materials. In this respect, any devaluation could translate into increased exports, thereby increasing strategic goods flights rather than promoting competitiveness of finished goods when free market is permitted to operate. Take as an example when the price of the CFA franc in terms of euro goes up. The CFA countries' goods become cheaper to the European consumers. In particular, if the market price of 1 kg of cocoa prior to devaluation is set to be 655, 97 CFA francs, the Europeans could buy 1 kg cocoa in exchange for 1 euro, all things being equal. Now that 1 euro is exchanged for, say, 1311.94 CFA francs, suggesting a 100 percent depreciation of the CFA franc, then France could double its quantity of cocoa with the same amount of euro.

Another priority that devaluations could offer is the easy repayment of the debt. In the present instance, that is if no CFA franc devaluation occurred, assuming the operations accounts (described in section 1), under its current form, contains XOF[4] 655.97 billion held at the French Treasury by the CFA countries is to say that France would repay to these countries an equivalent amount of 1 million euro. On the other instance, meaning if a 100 percent depreciation occurred, France would cleverly repay only 0.5 billion euro, suggesting a painless reduction of the same debt.

[4] "XOF" is the ISO currency code of the CFA francs issued by the Bank of Central African States (BCEAO).

Last but not least, when French investment and industrial holding groups such as Bolloré which operate all across the CFA countries suspect, for example, a sort of currency depreciation, they might hold foreign reserves, resulting into national capital flights from the zone. One such devaluation is forecasted: by the time France has to return property (CFA and Comorian franc) to owners (African countries), she might devalue these currencies by an unbearable rate to compensate for the loss, for no compulsory regulations restrict this.

Second, the right to enjoy refers to the enjoyment of the property (Fassassi 2013). The owner can transfer or sell the property to other second parties; or a proprietor may also lease property to other parties and obtain profit from this (Fassassi 2013). The precise nature of such enjoyment dives deeper into the operations accounts and one could think of several possible scenarios. Fassassi (2013) provides one possible enjoyment from these accounts. He shows that only France truly enjoys benefits from the CFA and Comorian francs because all international financial transactions of the CFA franc countries must go through the operations accounts. For such a line of argument to be convinced, he describes that 12,000 billion CFA franc invested at 3% on the Wall Street stock market earns 360 billion CFA francs in terms of interest which goes into the French vault while France in return gives Africans countries loans that bear 5% of interest to be paid to the lender (French Treasury). From this strong remark, he has advanced the idea that the operations accounts held by the central banks of the African countries are equivalent to a checking account held by savers in a bank. He concludes by claiming that banks manipulate our (lenders) savings and proceed to boast that they have created money out of thin air. When

the banking environment was such a mess in the U.S., President Franklin D. Roosevelt offered a few examples of such money manipulation.

> When you deposit money in a bank, the bank does not put the money into a safe deposit vault. It invests your money in many different forms of credit (in bonds, in commercial paper, in mortgages and in many other kinds of loans. In other words, the bank puts your money to work to keep the wheels of industry and of agriculture turning around. A comparatively small part of the money that you put into the bank is kept in currency) an amount which in normal times is wholly sufficient to cover the cash needs of the average citizen. In other words, the total amount of all the currency in the country is only a comparatively small proportion of the total deposits in all the banks of the country.
>
> *Roosevelt (1933)*

In light of this quotation, it follows that France may invest the money stacked into the operations account, preventing these countries from participating directly in the global financial market.

Third and lastly, the CFA and Comorian francs pegged to the euro are under the control of France and the European Union. Gerlitz (2012) points out that a nation with monetary sovereignty has control over monetary policy in four ways: the central bank of the nation has monopoly to coin and issue the bank note for the state, the currency issued floats on the international market, the central bank of the State sets the interest rate, and the central bank has not borrowed heavily in a foreign currency. For other thing, Robinson (2012) found that there are only four basic ways to solve its economic problems that is, increase income by raising taxes of the citizens, cut spending by reducing benefits, borrow money through the issuance of government bonds, and print money. Although the African central banks have the power to issue the CFA and Comorian franc, they cannot print money at will and make an objective aggressive monetary policy. Additionally, France

controls the money supply, the purchasing power of the CFA and Comorian franc by participating in the council board of the central banks of these countries. By adopting managed exchange rate regime, the CFA countries have abandoned the flexible regime. (Devaranja and de Melo 1990) demonstrate that increased export can translate into faster growth and thereby reduces extreme poverty. When countries such as the CFA countries peg their currency to another currency, it suggests that the competitiveness of these countries will be undermined by the continued depreciation of their neighbors 'currencies.

All in all, the CFA zone linking Africa to the ECB prevent these countries from creating their own Central Bank. It is critical to return the authority of the central banks of Francophone Africa to their individual country in order to foster economic development. There are three ways to accomplish this: France must abandon its right to vote as well as its veto power in all entities of the African central banks, it must abandon its right to demand these poor countries to deposit 50% or more of their foreign assets in the operations accounts, and it must abandon its right to participate in the council board of the African central banks. It is absolutely impossible that small countries like CFA nations real reach development by means of industrialization under fixed exchange rate regimes in the context of the French zone.

2.2. Advantage and Disadvantage of Fixed Exchange Rate regime

The concept of a fixed exchange rate regime entered the academic literature in Francophone Africa in 1945 when France created the CFA and Comorian franc as substandard French currency to be used exclusively by the colonies. Since then, these currencies were pegged to the French franc or the euro. What does "fixed exchange rate" mean? It comes back to which side of the monetary fence you sit on. Thus, this concept

can be explored by discussing pros and cons of the fixed exchange rate adopted by the CFA franc countries.

Supporters offer several significant advantages to the CFA franc countries that peg their currency to the euro. They point out that the peg of the CFA and Comorian franc to the euro has promoted investment climate for investors, thereby stimulating growth. A key benefit for these countries pegging their currency to the euro includes macroeconomic convergence[5]. Two reports published by the Banque de France suggest that the CFA zone achieved economic convergence in 2013. Zinsou (2014) found that fiscal policy has become powerful under the "long run fixed exchange regime" in the CFA area.

Critics of the fixed exchange regime claim that the CFA countries abandoned monetary sovereignty because they pegged their currencies to another currency. As described previously, the central banks of the CFA members have no monetary policies of their own. While reviewing the CFA countries' economic performance, I found that fiscal policy has become powerless under the "long run fixed exchange regime," I view this as a negative point, not a positive. The fixed exchange rate system exposes domestic industry

[5] Economic convergence criteria include: (1) the ratio of the underlying budget balance to nominal GDP must be greater or equal to 0%; (2) annual inflation rate is less or equals 3%; (3) States must not accumulate any domestic or external arrears and Member States must clear all remaining arrears; (4) Prohibition on accumulating internal and external arrears, and the ratio of outstanding domestic and foreign debt to nominal GDP is limited to 70 percent or less.

to excessive competition, making the CFA countries' market increasingly less competitive (Ikiei 2010).

2.3 Overview of African Economies under Fixed Exchange Rate Regime

One of the major objectives of macroeconomic policies is to achieve low, stable, and predictable inflation rates and is, therefore, fundamental for policymakers. Fixed exchange rates bring such price stability to countries who cannot hedge against exchange rate changes. It is widely accepted that policymakers, specifically central bankers should concentrate on policies that keep the target of inflation, which may be helpful for the achievement of long-term economic growth which is another major goal of macroeconomics.

In this context, the CFA countries have adopted fixed exchange rate regime with France since 1945. This fixed exchange parity was to provide low inflation rate which in turn boost the economy growth in the CFA franc zone. Hadjimichael and Gady (1997) suggest that, under managed exchange rate, the CFA economies achieved a reasonable inflation rate during the period from the early 1950-1980s. They found that this economic performance of the CFA franc countries compared favorably with that of other countries in Africa during the same period.

However, successful development requires more than attacking inflation. In a further section, I cover the relation inflation-poverty from 1984 to 2011 to access the impact on a typical citizen in the CFA zone.

The fixed exchange rate also would provide price stability and eliminate uncertainty, which in turn would encourage investment. Over the period 1950-1980, Gnasounou (2012) found that both inflation and investment remained low. Furthermore, he suggests that

investment is driving in the CEMAC countries because of oil production not because of the fixed exchange rate.

If implemented the CFA franc zone monetary policies, capital flight would be reduced and resource accumulation would be encourage. On the other hand, capital flight increased over the last 30 years in the zone according to Fassassi (2013). He associated part of the economic performance of the sixties and seventies to two factors. Economic growth is to be linked to the achievement of political independence by the African countries between 1958 and 1960. The slowdown in inflationary pressures was mainly due to the improvement of economic fabric, as well as rigorous monetary policy imposed by the CFA central banks that have emerged between 1959 and 1972.

After relatively good performance in the sixties, CFA countries have experienced a decline in GDP per capita in the seventies and the eighties (Andre, F. et al. 1988). This mainly reflected the worsening of the terms of trade to about 40% combined with stringent fiscal policies. Mainly, Gansounou (2012) under the long run fixed exchange rate, monetary supply in the CFA franc area is controlled by the interest charged on overdrafts of the operations account, by the restriction on credit expansion when the balance in the operations accounts fall below target levels, and by limiting credit to the public sector in each country to 20 percent of the previous fiscal year' receipt. This prevents the CFA countries from implementing sound monetary and fiscal policies.

The absence of foreign exchange costs between the CFA countries would aid augmented regional trade Ikiemi (2012). This has not been seen over the period 1945-1980. Officially recorded trade within the CFA franc zone has always been low. As an example,

only 7.5 percent of total official trade in the CFA franc zone was within the region from 1985 to 1987 (Hadjimichael and Gady 1997).

2.4. The Collapse of the Franc Zone

This section will begin with a look back at the Nazi system. Then I will examine how the Nazi system is related to the CFA zone's system. Finally, I will describe how the *Françafrique* has contributed to the growing of the CFA and Comorian franc, followed by discussions of the probable collapse of the France Zone.

History reminds us that when Nazi Germany invaded a country, it did four things (Agbohou 2012). First Germany took control over the financial system of the country. Second, Germany replaced local currency with their colonial currency. Third, Germany created an account in the German Treasury where all the country's financial transactions are done. This account was meant to be the only account that the occupied country was to use for all of its external financial transactions. Fourth, Germany devalued the country's currency unilaterally.

In 1940, Nazi Germany brought war to the Europe and Soviet Union with the goal, among others, of conquering and obtaining oil from the East. Smith (2010) documents that French occupation, for example, by Germans was built around the idea that France should support Germany. When France was invaded, however, the first step the Nazi occupiers took was to transform France into a controlled economy, safeguarded by a system known as "ravitaillement," which means that the desired goods were produced and sent back to Germany (Smith 2010). Then in order to ensure the requisitioning of goods, Nazi Germany established an account for France in the German Treasury. Further, Germany created

counterfeit Deutschmarks which had legal tender only in France (Agbohou 2012). As a result, with a few Deutschmarks, a German citizen could buy a huge amount of land, real estates, properties, businesses and goods for cheap. The scheme essentially allowed Germany to tap into the French agricultural and other important resources. This was the economic template of occupation that Nazi Germany would use for all the countries it occupied during WWII.

Professor Agbohou (1999) claims that after France was liberated in WWII, with the help of some African soldiers, it applied the same system learned from Germany to its colonies. Taking the historical context of the Franc Zone into account, the CFA and Comorian franc were established overnight against the background of a repressive system that Nazi Germany handed off to France in 1945. For example, after the establishment of the CFA and Comorian franc, France created an account for the CFA countries (its former colonies), one for each, in the French treasury called operations account. I describe this operations account in the previous sections.

Created by Charles de Gaulle after the Africans independence in 1960, this occult politic known as *Françafrique*[6] aims at firmly transforming the French former colonies

[6] The concept of the *Françafrique* dives deeper into confusion. It comes back to which side of political fence you sit on. If you are African, it means personal relationship, as well as political, economic, military, cultural and diplomatic mechanisms that allow France to maintain its African colonies, as well as a number of other African countries under French domination. If you are French it means an institution created in 1960 by de Gaulle in order

into controlled nations in order to exploit their important raw material and mainly oil. When de Gaulle created the CFA and Comorian franc in 1945, he had to ensure the longevity of these currencies. To quote President James Garfield, for example, de Gaulle understood that, "he who controls the money supply of a nation controls the nation." To accomplish his goal in the best interest of French, de Gaulle coined the *Françafrique* which has contributed to the growing of the CFA and Comorian franc.

The CFA franc system as described above is widely unknown to the majority of the population in Africa, including leaders and economists. Two things in particular can be pointed to as the reasons for this ignorance. The first reason is advanced by Pouemi (1980) who points out that money as explained, for sure, by its complexity is a phenomenon; there was, however, an intellectual heritage, exported abroad, double checked by a technical and mysterious language sometimes quite incorrect of economists who to a large extent upset the understanding. The second is that the few high officials in the French Treasury who understand the system are afraid to speak up. They are prohibited from disclosing any of this information to the African countries. In an interview with the journal "*Jeune Afrique"* in 2010, former French minister of economy, industry and employment, Christine Lagarde declares, "we must not say whether or not the CFA system is good; these African countries should take their responsibility." There can be no development and reduction of large scale extreme poverty without financial support and industrialization. Monetary independence

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to improve relationship between France and its African colonies in order to help them develop.

will help finance a multi-pronged poverty reduction scheme in the countryside area of the African cities.

Although few people were concerned over the past decades, the question of whether the French Zone is about to come to an end has gained much attention in the present conversation. The answer to this question is twofold. Proponents argue that the CFA and Comorian franc will go on forever. For example, David Fielding, Kevin Lee and Kalvinder (2005) Shields say that the Franc zone enables the African countries to move forward on the development path faster than they could do alone. Also, they point out that it is difficult, for economic agents to shift a currency which is widely used in the regional or global economy. Opponents foresee the end of the CFA and Comorian franc. For example, Agbohou (2005), Gnasounou (2012) and Fassassi (2013) have pointed out that the collapse of the CFA franc zone would contribute to the establishment of the African Monetary Union with the goal of combating inflation, promoting employment, as well as pro-poor growth. They believe that though it is difficult to shift a currency, it is not impossible to shift the CFA and Comorian franc. Also, they claim that since its accession into the European Union, it became suspicious that France would not be able to respect its obligations vis-à-vis the African countries. Obviously, it would difficult, for France to guarantee free convertibility of the CFA and Comorian franc because it has abandoned its own monetary sovereignty by giving the power to Germany to create the Euro out of nothing. Others advance that strong decisions need to be made by these nations to close the CFA franc zone window. Herbert Stein said, "if something cannot go on forever, it will stop." This is to say that the CFA franc zone cannot go on forever, it will stop.

Coovi (2012) attributes the end of the CFA franc zone to the collapse of the *Françafrique*. He claims that the *Françafrique* is about to become dethroned, as the French instrument to maintain the African countries under domination. There are two reasons for this to happen. A major reason is that the mystery behind the *Françafrique* was exposed by some high official French such as Jacque Chirac, former president of France, as well as African leaders including Mamadou Koulibaly, minister of economy in Ivory Coast. There is a vision that sets the tone for the new emphasis on collaboration which will establish the African Monetary Union with the purpose of financing the economy, support domestic investment, confront various development challenges, and reduce poverty. The second reason is that the African dictators imposed and supported by France are becoming increasingly unpopular in Francophone Africa.

To sum up, there are two opposing views about the future of the CFA franc zone. Supporters predict a long life for the CFA franc zone. They attributed its longevity to macroeconomic stability in the zone. Critics associate the collapse of the French Zone to the collapse of the *Françafrique*. Moreover, dictators of the African States are becoming increasingly powerless. France increasingly lacks the power to implement its policy all across the Francophone Africa. Nevertheless, let us investigate this question and let the data speak.

Section 3. Empirical Study

The present chapter is organized as follows. Section 3.1. reviews the relevant literature on poverty and monetary sovereignty. Section 3.2. presents the methodology of research. Section 3.3. provides a description of variables and data sources. Section 3.4. specifies the model and describes the data for analysis. Section 3.5. presents the descriptive analysis. 3.6. gives the analysis of empirical results. Finally, section 4. Concludes and gives some recommendations.

3.1. Literature Review

In this subsection, I present the theoretical and empirical arguments of the relationship between monetary independence and poverty.

> Poverty reflects the state of being poor, and it can not only be identified by the monetary dimension, but also by the non-monetary dimensions. The monetary dimension is considered as "money" income, and it is quantitative information, while the non-monetary dimensions are generally regarded as qualitative information.
>
> *Panupong Panudulkitt (2008)*

As the above quotation suggests, poverty is a multidimensional phenomenon. Economists usually analyze the state of being poor people through quantitative and qualitative dimensions. However, in light of the topic of this thesis, *Monetary Autonomy as a Driving Force for Poverty Reduction in the CFA Franc Zone,* the discussion expands only on the quantitative approach of poverty. This approach involves measuring poverty as to what proportion of the population living below the $1.25 a day poverty line and further, how far below the poverty line the income per capita of a specific household is (MBULI 2008). These two measures of poverty are presented as the headcount ratio (P0) and the poverty gap (P1). They are all derived from the so-called FGT family (Foster, Greer

and Thorbeke). There are many other measures and indicators of poverty that can be computed. However, the poverty measures retained in this study will be limited to only the head count ratio (P0) and the poverty gap ratio (P1). The following formulas are usually used to measure poverty incidence and poverty gap (Panudulkitti 2008):

Let n be the size of the population, z the poverty line and y_i the income per household i. The number of the poor is given by the following equation:

$$q = \sum_{i=1}^{n} I_i [y_i < z]$$

Where I is a dummy variable, taking the value 1 if $y < z$ and 0 otherwise.

The incidence of poverty is $P0 = \frac{q}{n}$ where q is the number of poor and n is the total population and $0 < P0 < 1$.

Poverty Gap measures the degree of how the mean aggregate income or consumption of the poor differs from the established poverty line. The P1 formula is as follows:

$$P1 = \frac{1}{n}\sum_{i=1}^{q}\frac{z - y_i}{z} \quad \text{for} \quad y_i < z \text{ ; where } y_i$$

is the income of the i^{th} poor person and z is the poverty line.

Both of these versions of the FGT measure treat all the individuals under the poverty line equally. MBULI (2008) argues that even though the poverty incidence is the most widely used, it does not take into account the depth of poverty, and that poverty gap does this, but does not take into account the inequality among the poor that is treats equally.

Using the World bank POVCAL, an interactive computational tool, to replicate the headcount index and poverty gap estimates, Kiendrebeogo and Minea (2012) find that over the period 1981-1993, the population living below the poverty line ($ 1.25 per day) increased from 46.95% to 52.47% of the total population in the CFA franc zone. Moreover, they empirical results suggest that CFA countries development, measured by private credit,

among others, is conducive to poverty reduction. Kiendrebeogo and Minea (2012) further find that the bank credit market is accessible to only a fraction of the population in the CFA franc economies while Fassassi (2012) argues that part of the lack of financial instruments in the CFA franc zone is associated with monetary dependence.

In the empirical literature, very few studies have analyzed the measurements of monetary autonomy. A major study done in this area is (Cuaresma and Wójcik 2014). They found that monetary independence can be measured by policy maker's statements, use of short term interest rate, exchange rate regime and total reserve growth. Furthermore, their study suggest that under flexible exchange rate regimes, countries are free to conduct monetary policy (that is, choose the optimal levels of inflation and interest rates) while they are forced to import monetary policy from abroad under fixed exchange rate regimes.

Furthermore, the CFA franc countries' central banks have set the goal to combat inflation (BCEAO, BEAC and BCC). Empirical work by Talukdar (2012) suggests that in most cases, inflation is positively correlated with poverty. In addition, he found that some of the results lose their statistical significance. His findings also show that in some circumstances, general price level impact on poverty is twofold. Following Talukdar results, inflation has both a positive and negative relationship with poverty in developing countries.

While Mundell (1999) argues that a country may simultaneously choose any two, and not all of the following policy goals, managed exchange rate, free capital mobility, and an independent monetary policy, Cuaresma and Wojcik (2014) based on study by Milton Friedman (1953) postulate theoretically that flexible exchange rates allows countries to pursue independent monetary policies. The "Trilemma triangle of Mundell" is illustrated

in Figure 5. In Pouemi (1979) words monetary policy dependency in the CFA countries is the adjustment of the money supply of one state (anchored country) by another state (anchor country) in order to achieve macroeconomic goals in both s

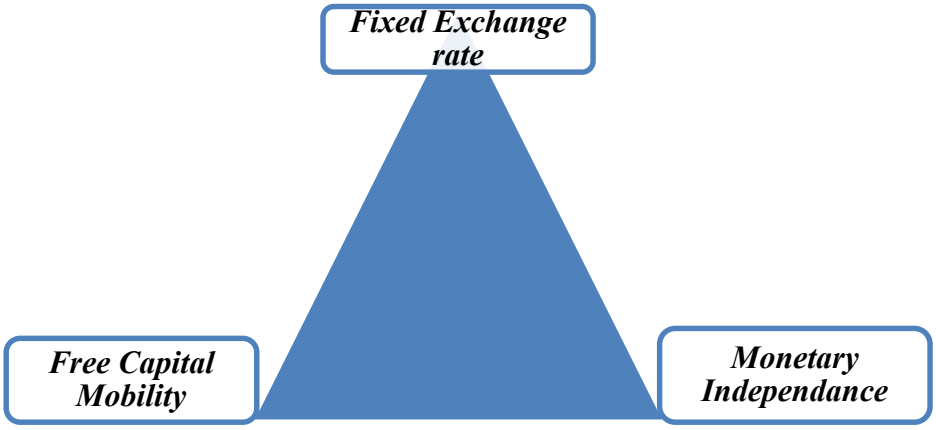

Figure 5: Trilemma Triangle of Mundell

3.2. Methodology of Research Problem Statement

According to the IMF, over the last 20 years, the CFA franc countries have experienced a high annual economic growth of 5% on average. For one thing, the 1994 devaluation of as well as structural reforms have had positive impact on the GDP growth of CFA countries. For other things, increased exports and improved trade balances are associated with high competitiveness of countries members in the global market. Interregional trade increased as well. On balance, inflation first rise then decreased which improved the lot of the poor and helped to attract more tourists to the countries of the zone.

Despite this progress, poverty remains unchallenged within the CFA franc area as indicated in (Appendix G). Column (2) indicates nine low income countries, four lower middle income countries and one upper middle income country[7] in the zone. Column (3) and (4) show that poverty incidence is much higher, except for Gabon which is a high producer and exporter oil country though poverty gap is slightly lower in the region. Lastly, column (5) records ten CFA countries out of the fourteen (the exception being Equatorial Guinea, a country for which no data on poverty was available) to be encompassed amongst the least developed countries in the world according to the Human Development Index (see column 5).

[7] A low-income country has a GDP per capita of $1,045 or less. Countries with GDP per capita between 1,045 and $4,125, only $4,125 inclusive are lower-middle-income countries. Finally, a country with $4,125 < GDP per capita ≤ $12,746 is an upper-middle-income country (World Bank).

Against the above background, it becomes fundamental to address the why so many countries remain poor within the CFA franc zone after at least 69 years of membership.

Research Justification

This thesis titled *Monetary Autonomy as a Driving Force for Poverty Reduction in the CFA Franc Zone* ought to be done for mainly three reasons.

First, the study takes as its point of departure the "long-run monetary union" between France and fifteen African states to provide insights into how the CFA franc zone operates. Precisely, this work will contribute towards a better understanding of the institutions and principles governing the CFA franc zone. A better comprehension of practices and mechanisms underlying the issue of monetary dependency of member countries could help policy-makers to take optimal decisions.

Second, there is a need for reducing the existing poverty in the CFA franc zone. In 2011, poverty incidence was very high in the zone. As indicated in table 2, about 52 Beninese out of 100 lived below the $1.25 a day poverty line while about 57 people out of 100 were poor in Central African Republic. To consider another example, only 19% of Chadian lived above the poverty line target in 2011. Given these facts, it follows that studies includes the present need to be complete in order to contribute to a better comprehension of the main causes of poverty in the CFA franc zone countries.

Lastly, investigating the linkages between poverty and monetary sovereignty is what distinguishes this study. Previous studies have established the relationship between poverty and financial development in the zone. This study, however, will provide CFA franc countries' authorities with recommendations for improving monetary policy that is important to poverty reduction.

Research Questions

Given the link between poverty reduction and the implementation of monetary policy plus the need for reducing poverty in the Franc Zone several questions are to be addressed of which:

1. Why are there so many poor in the CFA franc zone?
2. How do the policies of the CFA franc institutions impact on the poorest?
3. Has fixed exchange rate regime exerted a positive influence on poverty reduction in the CFA franc countries?
4. What is the effectiveness of monetary dependence in reducing poverty in the CFA franc zone?
5. What is the effectiveness of monetary independence in reducing poverty in the CFA franc zone?

The remainder of the present study provides responses to the the four last questions while the answer to the question why there are so many poor in the CFA franc zone is more complex due to the many and a variety of factors to explain poverty in the African countries members of the zone. In an attempt to answer these questions, this research focuses on *Monetary Autonomy as a Driving Force for Poverty Reduction in the Franc Zone*.

Objectives of this Study

The major objective of this study is to investigate the effectiveness of monetary sovereignty in reducing poverty in the CFA franc zone. Specifically, I will first use Ordinary Least Squares analysis to regress the headcount index (the proportion of population that is poor as the percentage of the population living below the poverty line) and the depth of poverty (it gives an indication of how far below the poverty line the income

per capita of a specific household is) on the measure of a set of explanatory variables such as money supply, exchange rate, total reserves minus gold, centralization rate, inflation rate, credit to private sector, and gross national savings. Then, using the regression results, I will provide recommendations for good policy-making that could help reduce poverty in Francophone Africa.

Statement of Hypothesis

To reach these stated objectives, I hypothesize that a four related group of variables such as credit to private sector, money and quasi money growth, total reserves minus gold and gross national savings are strongly and negatively correlated with the incidence of poverty and the depth of poverty while exchange rate, inflation rate, and centralization rate are strongly and positively correlated with the incidence of poverty and the depth of poverty.

3.3 Variables Description and Data Source

The data used in this study are based on panel data set, which comprises 14 African countries. The variables and data sources are described in Table 2:

Table 1: Variable Description

Variable		Variable Description	Data Source
Dependent Variable	Headcount Index P0	The head count ratio gives the proportion of population that is poor as the percentage of the population living below the poverty line, or people with their incomes (consumptions) below the established poverty line MBULI (2008).	PovCalNet; The World Bank (accessed October 2014)
	Poverty Gap P1	Indicates how poor the poor are and gives an indication of how far below the poverty line the income per capita of a specific household is. It is also called; the depth of poverty MBULI (2008).	PovCalNet; The World Bank (accessed October 2014)
Independent Variable	MQMg: Money and Quasi Money Growth (M2)*	Average annual growth rate in money and quasi money. Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. The change in the money supply is measured as the difference in end-of-year totals relative to the level of M2 in the preceding year.	The World Bank database (accessed October 2014)

Variable		Variable Description	Data Source
	TRSERVG: Total reserves minus gold (current $ US)*	Total reserves minus gold comprise special drawing rights, reserves of IMF members held by the IMF, and holdings of foreign exchange under the control of monetary authorities. Gold holdings are excluded.	The World Bank database (accessed October 2014)
	CRATE: Centralization rate (%)	The African countries of the CFA franc zone agreed to deposit part or all of their foreign exchange reserves in an operations account within the French Treasury in exchange for the France's guarantee of the CFA franc's convertibility into Euro.The rate at which these reserves are centralized is called: the centralization rate.	Operations account's conventions with France; Treaties, Banque de France. (accessed September 2014)
	CPSECTOR: Domestic credit to private sector by banks (% of GDP)*	Domestic credit to private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.	The World Bank database (accessed October 2014)

Variable		Variable Description	Data Source
	INFL: inflation average consumer price*	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	IMF: World Economic outlook database 2011 (accessed October 2014)
	GSAVING: Gross national savings Percent of GDP[8]	Expressed as a ratio of gross national savings in current local currency and GDP in current local currency. Gross national saving is gross disposable income less final consumption expenditure after taking account of an adjustment for pension funds.	IMF: World Economic outlook database 2014 (accessed October 2014)
	EXRATE : Exchange rate per euro	Exchange rate refers to the exchange rate determined by national authorities (local currency units relative to the Euro Currency).	Banque de France's Publication (accessed October 2014)

[8]Definitions based on The World Bank (http://www.worldbank.org: accessed October 2014) and the IMF (http://www.imf.org/external/pubs/ft/weo/2014/02/weodata/weoselgr.aspx)

3.4. Model specification

The main control variables used in this model are discussed in the previous sections. Others are chosen from the existing literature. The incidence of poverty and poverty gap being the two response variables are discussed in the literature review as well. Also, important transformations were performed to the variable TRSERVG. To obtain this regressor, I divided total reserves minus gold (current $ US) by GPD (current $ US). I will then build and estimate the coefficients of each control variable from the following equation. $POPBPL_J = f$ (INFL, MQMg, CPSECTOR, CRATE, TRSERVG, GSAVING, EXRATE).

With,

$POPBPL_J = \beta_0 + \beta_1 \times$ INFL $+ \beta_2 \times$ MQMg $+ \beta_3 \times$ CPSECTOR $+ \beta_4 \times$ CRATE $+ \beta_5 \times$ GSAVING $+ \beta_6 \times$ TRSERVG $+ \beta_7 \times$ EXRATE $+ \mu$

- where β_0 = constant term
- $POPBPL_j$ = percentage of population living below the $1.25 poverty line, for $j = \{0, 1\}$. p_j is derived from the Foster-Greer -Thorbecke (FGT) poverty measures (Makoka and Kaplan 2005):

  $P_\alpha(y_i; z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha$, for $\alpha = \{0,1,2\}$ and y_i is the income of the i individual ranked in increasing value of income; q is the number of poor; n is the total population; z is poverty line and α is the aversion coefficient for poverty. An increase of α means that more weight is given to the poorest that is, those are further away from the poverty line. It is worth noting that when α changes, P_α changes as

well. Furthermore, when $\alpha = 0$, the FGT index of poverty (p_α) is the headcount index (p_0).

When $\alpha = 1$, the FGT index of poverty (p_α) is the poverty gap(p_1). And when $\alpha = 2$, the FGT index of poverty (p_α) is the square poverty gap $(p_1)^2$. However, this study considers only the incidence of poverty and the poverty gap following the availability of the data. Therefore, the model will not address the relationship between the control variables and the severity of poverty.

- INFL = inflation
- MQMg = money supply
- CPSECTOR = credit to private sector
- CRATE = centralization rate
- GSAVING = gross national savings Percent of GDP
- TRSERVG = foreign reserves minus gold
- EXRATE = exchange rate
- and μ = error term, and β_1 ,β_2 , β_3 , β_4 , β_5 , β_6, and β_7 are coefficients to be tested.

3.5. Descriptive Analysis

Table 2: Summary Statistics

Variable	Mean	Std Dev	Minimum	Maximum	N
P0	49.03393	20.2055	2.27	87.04	140
P1	21.16986	12.81625	0.44	56.27	140
INFL	4.870757	13.45714	-14.936	119.585	140
MQMg	15.0828	51.57621	-28.2975	574.6013	139
CPSECTOR	13.93058	7.995899	1.115296	37.69491	138
CRATE	60.64286	5.524402	50	65	140
GSAVING	9.895036	16.51208	-89.983	53.925	140
TRSERVG	0.39702	0.663312	1.75E-05	3.476122	139
EXRATE	487.2929	160.9335	328	655.957	140

Source: Author based on SAS Enterprise Guide 6.1.

Table 4 displays the descriptive statistics of the nine variables discussed in this study. Each column as it appears in the table indicates from left to right the mean, standard deviation, minimum, maximum and number of observations of each variable.

First of all, on average, 49.03% of CFA franc countries' citizens lived under the $1.25 a day poverty line from 1984 to 2011 both inclusive[9]. During the same period, the lowest poverty incidence was 2.27%; the highest poverty incidence recorded was 87.04 with 20.21% being the standard deviation. Regardless of the minimum value, these statistics suggest that incidence of poverty is high in the CFA franc zone. This may due in part to the inappropriate monetary policy implemented by authorities in the zone.

Second, the poverty gap is how far the poor in the CFA franc zone countries are from the poverty line. The average is about 21% and range from about 0.44% to about 56% while the value indicating the deviation of African Francophone poor from their peer poor

[9] There is a gap of two years between two consecutive years.

on average appears to be about 13% between 1984 and 2011.These numbers also suggest that the proportion of people living far from the $1.25 a day poverty line is still high in the CFA franc zone. In order to reduce the depth of poverty in the France Zone there has to be pro-poor growth, while in order to have pro-poor growth there has to be sound fiscal and monetary policy.

Third, there is less inflation in the CFA countries according to the descriptive analysis table. For instance, the mean value is only 4.87%. This rate is higher than the inflation target, which is 3% within the zone. The minimum value is -14%, and the maximum value is 119.58%. More importantly, the data suggest that the 119% inflation rate in the area reflects unsound monetary policy conducted by Guinea Bissau in 1987 prior to its adherence to the CFA franc zone in 1997. Apart from the exceptional event in 1994, the CFA franc zone countries traditionally have very low rates of inflation. This is due in part to managed exchange rate regime with France.

Fourth, Table 4 suggests that the average money and quasi money as percentage of GDP in the CFA countries is 15.08%. The minimum and the maximum are -28.29% and 574.60%, respectively from 1984 to 2011. Looking closely at the statistics in Table 4, it suggests that the money supply fluctuated over time. However, a close look at the main data shows that the observed triple- digit money supply rate was the cause of the triple-digit inflation in Guinea Bissau in 1987. This may undermine the significance of the specified variable.

Fifth, with regard to credit, Table 4 indicates that 13.93 as percentage of GDP is distributed, on average, by commercial banks with the standard deviation being about 8 percent; the minimum and maximum represent 1.11 percent and 37.69 percent respectively.

There was political instability in the country of Guinea Bissau over the period 2003-2005. This is likely associated with the country's minimal access to credit which impacts the economy of the entire zone. Nevertheless, this variable is expected to explain extreme poverty in Africa

Sixth, a major variable included in this study is centralization rate. According to the data the mean (60.64%) of the centralization rate is not far away from its minimum which is close to the maximum. This is no surprise, for the rate has been changed only three times since 1945. It is suspected that this indicator will not affect the dependent variable. Nevertheless, results from regressions will say much more.

Seventh, the CFA franc countries save on average, 9.90 % of their gross domestic product. High CFA economies dissavings reached about 90% while high saving attained about 54% from the year 1984 to the year 2011. The coefficient on GSAVING may or not be significant to explain poverty incidence or poverty gap in the CFA franc countries.

Eighth, reserve holdings represent a very small part of GDP of the CFA countries regarding all the descriptive tools. There is incentive that this variable would not be important to be included in this model given its share of economic growth.

Finally, Table 4 also indicates that exchange rate of CFA and Comorian with respect to the euro has changed under fixed exchange regime. Namely, this is due to the 1994 devaluation of the national currencies of countries members of the France Zone. The significance of the exchange rate can be accessed among other things through the impact of devaluation on African countries' economies.

3.6. Results Presentation and Analysis

As I mentioned above, I used a panel data with a dependent variable P (poverty index) decomposed into two sub-variables (P0) (head count ratio) and (P1) (poverty gap) and seven control variables. Thus, I run two different regressions. Table records results from Ordinary Least Squares models generated by SAS enterprise guide 6.1.

Table 3: Estimates Table

Independent	Coefficient		Std. Err.		t-statistic		Probability	
variable	P0	P1	P0	P1	P0	P1	P0	P1
CONSTAT	35.89348	24.4343	22.7039	14.24605	1.58	1.72	0.1163	0.0887
INFL	-0.24943	-0.25594	0.22931	0.14388	-1.09	-1.78	0.2787	0.0776***
MQMg	-0.00408	0.01101	0.03512	0.02203	-0.12	0.5	0.9076	0.6182
CPSECTOR	-0.66546	-0.49829	0.20728	0.13006	-3.21	-3.83	0.0017*	0.0002*
CRATE	0.65208	0.30061	0.31727	0.19908	2.06	1.51	0.0419**	0.1335
GSAVING	-0.32653	-0.1464	0.09608	0.06029	-3.4	-2.43	0.0009*	0.0165**
TRSERVG	0.88741	0.62821	2.57082	1.61311	0.35	0.39	0.7305	0.6976
EXRATE	-0.02695	-0.02575	0.0116	0.00728	-2.32	-3.54	0.0218**	0.0006*

*** ** * suggest coefficients are significant at 10%, 5% and 1% level respectively.

Source: Author's calculations based on output generated by SAS enterprise guide 6.1

I estimated the control variables, using SAS enterprise guide 6.1. Upon the output, the Ordinary Least Squares regression equation establishing the relationship between the independent variables and(P0) is presented in model (P0) and the regression establishing the relationship between the independent variables and(P1) is presented in model (P1). In these regressions, four coefficients are significant in model(P0**)** while three coefficients are significant in model(P0**).** I discuss in detail the regressions' results in the next sections.

Model(P0)**:**

$POPBPL_j = 35.89348 - 0.24943\ INFL - 0.00408\ MQMg - 0.66546\ CPSECTOR + 0.65208\ CRATE - 0.32653\ GSAVING + 0.88741\ TRSERVG - 0.02695\ EXRATE + \mu$,

where μ is the error term and j=0.

Model($P1$)**:**

$POPBPL_J$ = 24.43430 -0.25594 INFL + 0.01101 MQMg -0.49829 CPSECTOR + 0.30061 CRATE -0.14640 GSAVING + 0.62821 TRSERVG -0.02575 EXRATE + μ ,

where μ is the error term and j=1.

Goodness-of-fit of the Model

Special Significance Test: T-test

I applied both the method of p-value and the t-test to measure the significance of the explanatory variables in model (P0) as well as in model (P1).

First, I found that p-value is greater than 0.05 for 3 regressors out of 7, suggesting that 4 variables out of 7 are significant in model (P0**)**. Model (P1**)** shows otherwise. The null hypothesis for each explanatory variable in both models is recorded in table 6:

Second, I perform a t-test, using the t-statistic generated by SAS enterprise guide 6.1. Table 6 shows that all the 5% critical value against a two- sided alternative is 1.96 for each control variable in model (P0) and in model (P1). This number is, in absolute value, less than the t-statistics computed for CPSECTOR, CRATE, GSAVING and EXRATE generated by equation(P0). Also, equation (P1) shows that the 1.96 value is, in terms of absolute value, less than the t-statistics calculated for the same variables, except for CRATE.

Table 4: Significance Table

Variables	T-statistics		Two-sided 5%critical values		H_0: null hypothesis		significance	
	(P0)	(P1)	(P0)	(P1)	(P0)	(P1)	(P0)	(P1)
INFL	-1.09	-1.78	1.96	1.96	FR[10]	FR	NS[11]	NS
MQMg	-0.12	0.50	1.96	1.96	FR	FR	NS	NS
CPSECTR	-3.21	-3.83	1.96	1.96	R[12]	R	S[13]	S
CRATE	2.06	1.51	1.96	1.96	R	FR	S	NS
GSAVING	-3.40	-2.43	1.96	1.96	R	R	S	S
TRSERVG	0.35	0.39	1.96	1.96	FR	FR	NS	NS
EXRATE	-2.32	-3.54	1.96	1.96	R	R	S	S

It implies that even the centralization rate of reserves explains significantly the proportion of the population that is poor in the CFA franc countries, it says nothing about the depth of poverty in the region.

Given the described variables, these results suggest that I reject the null hypothesis and accept the alternative hypothesis. For one thing, regression $(P0)$ suggests that

[10] FR stands for Fail to Reject

[11] NS denotes Not Significant

[12] R means Reject

[13] S signifies Significant

coefficients on CPSECTOR, CRATE, GSAVING and EXRATE are statistically significant as opposed to coefficient on INFL, MQMg, and TRSERVG. Similarly, regression($P1$) shows that coefficient on CPSECTOR, TRSERVG, GSAVING and EXRATE are not significant compared to coefficients on INFL, MQMg, and CRATE.

Special Significance Test: F-test

By far, both models seem to perform well. I also perform an F- test for the overall fit of each regression.

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ against Ha: at least one of the β_i (for i= 1, 2, 3, 4, 5, 6, 7) is not equal to 0. The F- statistics generated by SAS enterprise guide 6.1 are 5.25, and 5.77 in models (P0) and (P1), respectively. These F-ratios are much greater than 2.01, the 5% percent critical value for the F- ratio with 7 and 130 degrees of freedom. It suggests that at least one the coefficients are not equal to zero, considering each model. Again using the p-value method, I found that model (P0) as well as model (P1) perform very well. The probability value is 0.0001 and less than 0.05 in both models. This implies that at least one explanatory variable is statistically significant at 5 % significance level. In the light of these results, I conclude that each model (P0) and model (P1) is good as a whole.

R- Squares and Adjusted R- Squares Analysis

The model (P0) R- squares and Adjusted R- square are 0.2206 and 0.1786 in magnitude. Additionally, the model (P1) R- squares and Adjusted R- square are 0.2370 and 1.959 in magnitude. These values are so small to conclude that the constructed models are perfect. However, even though R- squares and Adjusted R- squares are low, the results are consistent with growth theories. I also checked for heteroskedasticity and multicolinearity problems, using the 5% level of significance.

Modeling Checking

Heteroskedasticity test

Table 5: Specification test

Test of First and Second Moment Specification					
	(P0)			(P1)	
DF	Chi-Square	Pr>ChiSq	DF	Chi-Square	Pr>ChiSq
35	42.88	0.1691	35	41.62	0.2047

Source: Author's calculations based on output generated by SAS enterprise guide 6.1

In table, p-values of 0.1691 and 0.2047 suggest that I fail to reject the null hypothesis that there is homoscedasticity of the error variances at 5% significance level. This analysis leads to confirm that model (P0) and model (P1) do not have heteroskedasticity problem which is consistent with the F-test. Aside all the above tests, I check whether or not model (P0) and model(P1) have to deal with issues like multicollinearity.

Multicollinearity Problem

In the present section, I compute, by the means of SAS enterprise guide 6.1, the correlation matrix (Appendix G and *Table 8)* between the variables used in this thesis to analyze the impact of monetary independence on the incidence of poverty and poverty gap in the CFA franc zone.

The results are satisfactory, suggesting that the model seems to be free of multicollinearity issues, for almost all the correlation coefficients in tables 8 and 9 are not very high to take this problem into account. However, to be confident with the model, I checked the VIF (Variation Inflation) test. The minimum possible value of the VIF test is

one while a value greater than ten indicates there is multicollinearity problem. Indeed, upon our results, table 9 and 10 show that the VIF for each predictor is close to one. Additionally, I found earlier the correlation among the explanatory variables is not that high. Then I conclude that multicollinearity does not appear to be a problem for these models.

Interpretation of Regression Results

In this section, I discuss the main regression results in model (P0) using the incidence of poverty and in model (P1) using the poverty gap.

Model (P0): The Main Results

Table 11 summarizes the independent variables, coefficients, expected and observed signs as well as significance of the coefficients for model (P0).

Table 6: Estimates results

Variables	Coefficient	Expected Sign	Obtained Sign	Significance
INFL	-0.24943	+	-	NS
MQMg	-0.00408	-	-	NS
CPSECTOR	-0.66546	-	-	S
CRATE	0.65208	+	+	S
GSAVING	-0.32653	-	-	S
TRSERVG	0.88741	-	+	NS
EXRATE	-0.02695	+	-	S

Source: Author's calculations based on output generated by SAS enterprise guide 6.1

Inflation shows an unexpected sign and the coefficient is not significant. This suggests an inverse relationship between the incidence of poverty and inflation. The coefficient implies that the incidence of poverty rate goes down by about 0.25 % when inflation rate goes up by 1%, other things being equal. It means that inflation in the CFA franc zone has a little to do with the incidence of poverty. A more persuasive explanation could be that economists recognize that the existing literature is unclear about whether inflation is an opportunity or a problem in developing countries. The negative sign on inflation is consistent with empirical researches in Kiendrebeogo and Minea (2012).

The negative sign of MQMg, or Money and Quasi Money Growth (M2) means that headcount index and money supply move in different directions. Further, the coefficient on MQMg implies that poverty incidence in the CFA countries would augment by 0.40%

if money supply diminishes by 1%, ceteris paribus. The coefficient is small though the results are in part consistent with the standard theory. For example, a small quantity of money injected into the economy can be the cause of a recession while a large quantity of money injected into the economy may also cause high inflation which can harm the poor. This standpoint was documented by neoclassical economists and above all, Milton Friedman. Although the coefficient is not significant at 5% significance level, the information given by the negative sign is meaningful to the model in explaining the relationship between money supply and poverty incidence in the CFA franc zone.

The negative sign of the coefficient CPSECTOR is found to validate our hypothesis. The regression results hold for an inverse linkage between credits to private sector and headcount index of individuals in the CFA franc zone. Not only does credit to private sector is negatively correlated with the incidence of poverty, but also the coefficient of CPSECTOR is strong and statistically significant at 1% level. Kiendrebeogo and Minea's (2012) study of the impact of financial development on the incidence of poverty in the CFA franc zone is consistent with the obtained results. Also the coefficient is so high of order 0.66546. It implies that a one percentage point increase in credits to private sector is associated with a decrease in the headcount index by 0.66546 percentage point, all else constant.

The coefficient of CRATE has the expected positive sign and is significant at 5% percent. These results show that a CFA country with higher levels of centralization rate experienced an increase in its incidence of poverty. The lower the centralization rate, the lower the headcount ratio**.** The results also show that the coefficient on CRATE is high of

order 0.65208, suggesting an increase in the poverty incidence ratio by 0.65208 if centralization rate increases by 1%, maintaining other things equal.

The coefficient on GSAVING is significant at the 1% percent level, and it is negative as expected. The economic interpretation of this coefficient is that a 1 percentage point increase in gross national saving would lead to a decrease in the incidence of poverty by 0.32653 in the CFA franc countries, if other things are maintained eqaul.

I expected to find a negative relationship between the incidence of poverty and TRSERVG. Table 11 suggests that this connection does not hold. In addition, the coefficient on TRSERVG is not significant. This may be due in part to the small share of TRSERVG in the GDP of the CFA countries.

Observed negative sign on EXRATE is inconsistent with the standard model. Apart from this, the regression results hold when controlling for significance of the coefficient of EXRATE. Mainly, the coefficient is statistically significant at 5% level though quantitatively small.

Model (P1): The Main Results

Table 12 presents the independent variables, coefficients, expected and observed signs as well as significance of the coefficients for model (P1).

Table 7: Estimates results

Variables	Coefficient	Expected Sign	Obtained Sign	Significance
INFL	-0.25594	+	-	NS
MQMg	0.01101	-	+	NS
CPSECTOR	-0.49829	-	-	S
CRATE	0.30061	+	+	NS
GSAVING	-0.14640	-	-	S
TRSERVG	0.62821	-	+	NS
EXRATE	-0.02575	+	-	S

Source: Author's calculations based on output generated by SAS enterprise guide 6.1

From regression($P1$), I found that the coefficient on *INFL* is negative and statistically significant at 10% significance level. These results are consistent with those obtained in model(P0). The coefficient of MQMg has positive sign and not significant. It suggests that money and quasi money growth show positive relationship with poverty gap in the CFA franc zone. These results are not significantly different from that of model(P0). In the case of CPSECTOR, the regression results suggest that credit to private sector affects negatively the depth of poverty. Holding all else constant, a one percentage point increase in credit to private sector would lead to a decrease in the poverty gap by 0.49829 percentage point. As compared to the model(P0), the model(P1) shows that credits to private sector is very important to poverty reduction in small CFA countries like Benin, Cameroon, and the Islamic Federal Republic of Comoros. It is expected that the CFA countries cut the depth of poverty significantly as foreign reserves deposited into the operations accounts augment.

Even though this increase is not significant as compared to the results found in model(P0), the positive sign on CRATE suggests a linear linkage between the specified regressand and regressor. In light of the model(P1) results, GSAVING has the expected negative sign and is strongly significant at 5% level. Again this provides that the more the CFA countries save the more they will reduce the poverty gap. The predictor variable TRSERVG has an unexpected sign and appears to be insignificant in explaining how far below the poverty line the GDP per household is in the CFA franc zone. Although the negative coefficient on EXRATE is not expected, the poverty gap results suggest that the income per capita of a typical CFA countries' citizen falls far below the poverty line when the exchange rate increases.

Discussion of the Main Results

In this section, I present some information on the panel Ordinary Least Square estimation and discuss the key results. These results are drawn from the analysis included in previous sections.

To attain the different objectives and test the different hypothesis, this thesis has focused on: *Monetary Autonomy as a Driving Force for Poverty Reduction in the CFA Franc Zone.* The data (essentially secondary) used in this study are available on public and international websites. To estimate the variables and test the hypothesis I use SAS enterprise guide 6.1. Thus, as analytical tool, both descriptive evidence and econometric analysis are used to characterize the CFA franc countries. Finally, the panel Ordinary Least Square regression is used to estimate two functions, one of which establishes the relationship between monetary independence (measured by a set of explanatory variables) and poverty incidence and poverty gap. Both equations are presented in the section *Model*

Specification. Further, Butler (1982) emphasizes that specification of any model must involve determination of which independent variables to include and to exclude in and from an OLS regression and the functional form of the equation. I use percentage of population below poverty line to measure poverty not because it is the only indicator to capture poor people, but it is widely accepted that the underlying tool, among others, offers an insight of measuring poverty.

First, results from model (P0) estimation suggest that CPSECTOR and GSAVING are statistically significant at 1% level while CRATE *and* EXRATE are significant at 5% significance level in explaining the impact of the underlying regressors on poverty incidence in any African CFA franc country[14]. Further, the backward elimination procedure from SAS enterprise guide 6.1 suggests that all variables including CPSECTOR, GSAVING, CRATE, and EXRATE left in the model at step 3 are significant at 5% level which is consistent with previous results. I then run the model using the four specified variables and found the same results as before. The other three independent variables are insignificant. For this model, the adjusted R-square is only 0.1786; it signifies that about 17.86% of the variation of the headcount index is explained by the model. Seen in this light, the adjusted R-square is low, but the result is consistent with growth theories. Indeed, I found that the model is significant as a whole; the F-test is robust, which means that at least one of the explanatory variables included in the regression is important to headcount ratio reduction in the CFA franc zone. I also found that multicollinearity and heteroskedasticity are not bothering the estimations (Appendix H, I and J).

[14] Equatorial Guinea is excluded because insufficient data were available.

Second, the regression equation results from model (P1) show that the integrated predictor variables CPSECTOR and EXRATE are significant at 1% significance level, and the coefficient on GSAVING *is significant at 5%* while the regressor INF is statistically significant at 10% in explaining poverty gap or how far below the poverty line the income per head of a typical citizen in the CFA countries is. I also applied the backward elimination procedure and the results suggest that all variables such as CPSECTOR, GSAVING, and EXRATE left in the model at step 3 are significant at 5% level which is consistent regarding what had been found, leaving the other three coefficients insignificant. The F- test, which is robust at 5% percent significant level, I performed for testing the joint significance of the predictor variables allowed me to decide that at least one explanatory variable out of the seven affects the explained variable. In order to choose a model without redundant control variables, I used the adjusted R-square which is 0.1959, suggesting that only 19.59% of the variation of poverty gap is explained by the regression model. Regardless of this small value, the result is consistent with growth theories. With regard to the correlation and VIF (Appendix G and table 8 and 10) between the variables, it is safe to say that this model does not suffer from multicolinearity. Additionally, the model appears to be free of heteroskedasticity.

Overall, these findings suggest that both models P0 and P1 look promising for forecasting purposes though the data gathered do not allow to validate the hypothesis. In closing, it is worth noting that the regressions performed are not perfect even if they suggests that monetary independence measured by variables such as CPSECTOR, GSAVING, CRATE, EXRATE is a driving force for poverty reduction in the CFA franc countries.

Section 4. Conclusion and Recomemndations

4.1. Conclusion

Economists, particularly in the field of money, have recognized that countries abandon monetary independence by adopting fixed exchange rate regime. By contrast, countries with monetary autonomy allow the exchange rate to float on the global market. But the question of whether fixed or flexible exchange regime rate is better for reacting to the state of the economy is a challenged one.

Nevertheless, it is widely accepted that fixed exchange regime always is a political choice. In this respect, fifteen African countries have chosen to peg their currencies to French franc prior to 1999 and now to euro. There are evidences supporting that such a managed regime has both positive and negative effects on economies involved in currency board arrangement with France. To investigate such effects, I analyzed the impact of monetary independence on poverty in the Franc Zone.

After a discussion of the monetary tools at the CFA franc institutions' disposal, I built a regression model using the OLS Method to access the impact of monetary autonomy measured by a set of variables on poverty incidence and poverty gap in the area. The main results suggest that monetary independence measured by factors such as credit to private sector, centralization rate, exchange rate and gross national savings is a driving force poverty incidence and poverty gap reduction in the CFA franc zone.

4.2 Recommendation

On the basis of the issues underlying the monetary dependence discussed in previous sections as well as discussion around the main results from regression models, the following recommendations are proposed.

- Managed exchange rate with France for sixty nine years has contributed to low inflation that is necessary but not sufficient instrument to generate pro-poor growth in the CFA franc zone countries. Of this, it is recommended that monetary policy constitutes a credible commitment to economic growth, financial stability and employment for each household and this shall be put into the charter to serve exactly the same objective of pursuing stable prices.
- Without income, many people in the CFA franc zone will not satisfy their basic needs and wants, therefore governments should put their citizens back to work by facilitating access to credit which will lead to the formation of national savings. Of this, it is recommended that monetary authorities set the appropriate interest and exchange rates that will stimulate the industrialization of the CFA countries.
- Monetary independence could be a driving force for poverty reduction if money becomes a lever for development i.e., if it is optimally produced and issued by independent nations to make, first, domestic investment possible and, secondly, if it enables to sell exports and buy imports from abroad which is crucial for small CFA countries to form a real industry. Of this, it is recommended that the CFA franc countries adopt a less stringent regime in order to pursue their sustained industrialization policy.

- The results from regression on the headcount index indicate that poverty decreases (increases) if the rate at which reserves holdings are centralized decreases (increases). In other words, 0% of the centralization rate would contribute significantly to poverty reduction. Two potential scenarios are offered.

  The first scenario suggests that the CFA franc countries should move away from the Franc Zone and form a separate monetary union governing by different rules, practices and mechanisms if they want to reduce to a large extent poverty incidence. The second scenario suggests that the currency board arrangement with France needs to be improved i.e., the CFA franc countries may remain in the zone but reduce the centralization rate at 0%. This scenario is in principle almost impossible because France guarantees the convertibility of the CFA and Comorian franc upon reserves held by BEAC, BCEAO and BCC. In short, the first scenario is the best option.

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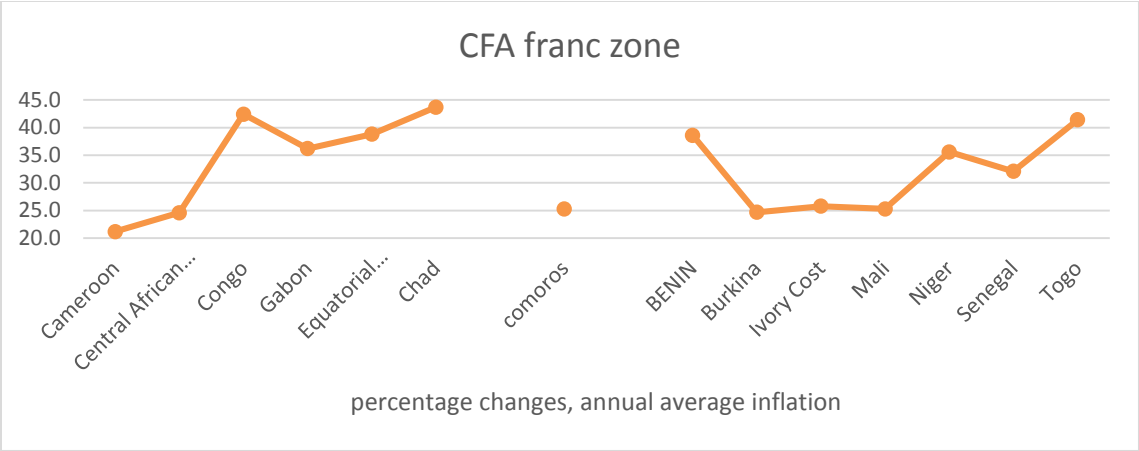
Appendix A: Inflation in the CFA franc zone

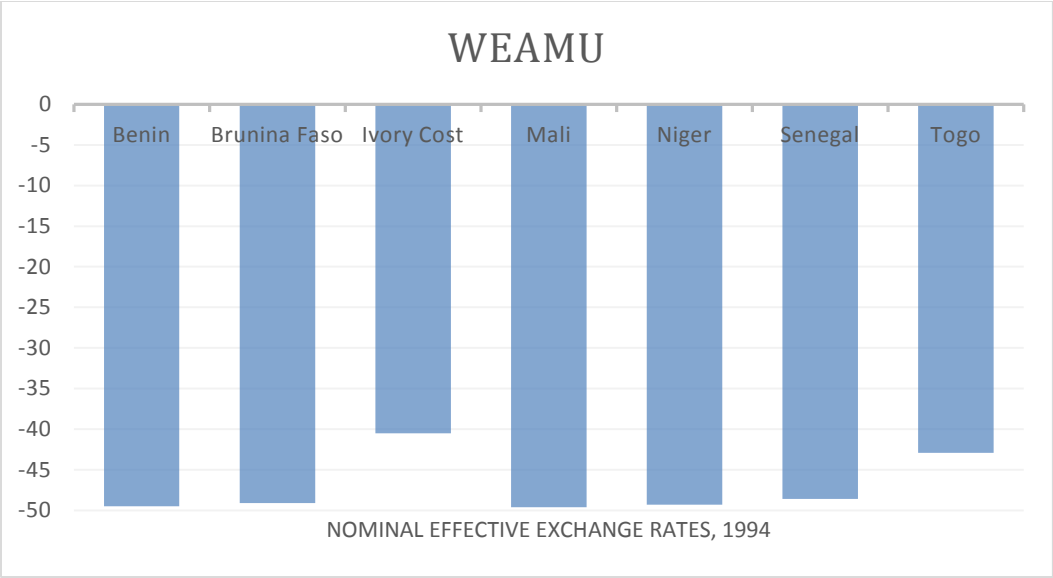
Figure 1: Inflation in the CFA franc zone in 1994



Source: Author calculation and data provided by BEAC; and Jean A.P. Clement et al.

Appendix B: Nominal Exchange rate in WAEMU Countries

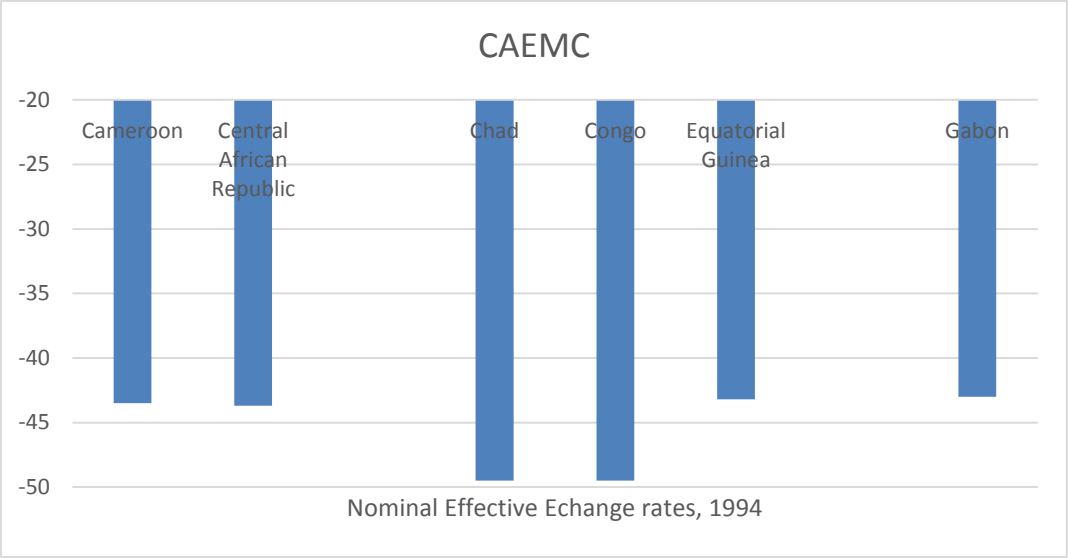
Figure 2: Nominal Exchange rate in WAEMU Countries



Source: Author's calculation and data for the quarter provided by Clement et al

Appendix C: Nominal Exchange rate CAEMC in Countries

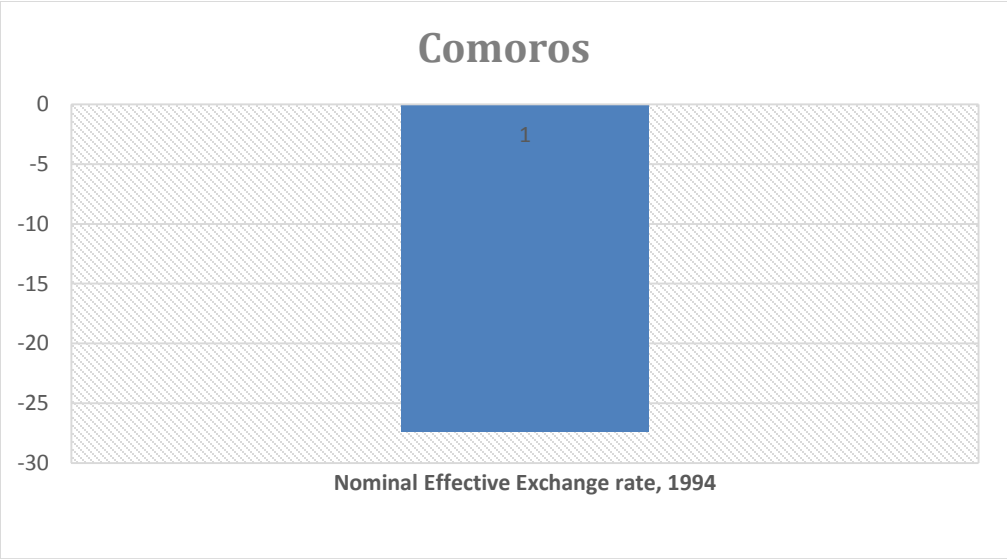
Figure 3: Exchange rate in CAEMC Countries



Source: Author's calculation and data for the quarter provided by Clement et al

Appendix D: Nominal Exchange rate in Comoros

Figure 4: Nominal Exchange rate in Comoros



Source: Author's calculation and data for the quarter provided by Clement et al

Appendix E: IDEM ABBREVIATIONS LIST

ABBREVIATIONS	Description (English)	Description (French)
CFA	• African French Colonies • African Financial Community • African Financial Cooperation	• Colonies Françaises d'Afrique • Communauté Financière Africaine • Coopération financière Africaine
WAEMU	West African Economic and Monetary Union	Union Economique et Monetaire Ouest Africaine
CAEMC	Central African Economic and Monetary Community	Communauté Economique et Monétaire de l'Afrique Centrale
CF	Comorian Franc	Franc Comorien
BEAC	Bank of Central African States	Banque des Etats de l'Afrique Centrale
BCEAO	Central Bank of West African States	Banque Centrale des Etats de l'Afrique de l'Ouest
WTO	World Trade Organization	Organisation Mondiale du Commerce
BCC	Central Bank of Comoros	Banque Centrale des Comores
US	United States	Etats Unis
ECB	European Central Bank	Banque Centrale Européenne
WWII	World War II	Deuxième Guerre Mondiale
IMF	International Monetary Fund	Fonds Monétaire International
GDP	Gross Domestic Product	Produit Intérieur Brut
FGT	Foster-Greer -Thorbecke	Foster-Greer -Thorbecke
OLS	Ordinary Least Squares	Moindres Carrés Ordinaires
VIF	Variation Inflation Factor	Facteur d' Inflation de la Variance

ECOWAS	Economic Community of West African States	Communauté Economique des Etats de l'Afrique de l'Ouest
S	Significance	Significatif
NS	Not Significances	Non Significatif
FR	Fail to Reject	Ne Peut Etre Rejeté
R	Reject	Rejeté
UNU	United Nation University	Université des Nations Unis

Source: Author

Appendix F: GDP per capita of CFA franc countries (1993-1995)

	1993	1994	1995
Benin	380	330	350
Burkina	280	230	230
Cameroon	900	780	720
Central African Republic	440	360	350
Chad	240	220	210
Comoros	640	520	500
Congo	790	680	430
Ivory Coast	740	680	700
Equatorial Guinea	410	300	280
Gabon	4,450	4,150	3,920
Guinea Bissau	220	210	210
Mali	330	270	260
Niger	240	210	190
Senegal	710	590	560
Togo	330	300	300

Source: World Bank

Appendix G: GDP per capita and Poverty in 2011 and 2013

country	GDP per capita $US	Head count %	Poverty Gap (%)	Human development index rank out of 187
Benin	790	51.61	18.82	165
Burkina Faso	670	40.8	12.86	181
Cameroun	1,270	24.94	6.18	152
Cental African Rep	320	56.68	26.86	185
Chad	1,020	86.52	14.18	184
Comoros	880	48.18	22.11	169
Congo, Rep.	2,660	32.82	11.47	140
Côte d'Ivoire	1,380	37.31	13.78	171
Gabon	10,650	5.39	1.09	112
Guinea-Bissau	520	48.65	16.43	177
Mali	670	50,83	16.56	176
Niger	410	40.81	10.42	187
Senegal	1,070	30.06	11.08	163
Togo	530	52.46	22.52	166

Source: Author, World Bank databases; Banque de France

Appendix H: Correlation Matrix between Variables

	P0	P1	INFL	MQMg	CPSECTOR	CRATE	GSAVING	TRSERVG	EXRATE
P0	1								
P1	0.93573	1							
INFL	-0.0592	-0.03841	1						
MQMg	-0.03816	-0.00336	0.45776	1					
CPSECTOR	-0.22266	-0.23215	-0.04732	-0.0346	1				
CRATE	0.23936	0.24112	0.04391	0.02456	0.05467	1			
GSAVING	-0.278	-0.19818	-0.0466	-0.01799	0.12219	0.01546	1		
TRSERVG	-0.0423	-0.06872	-0.01933	0.01303	-0.09715	-0.27684	-0.10614	1	
EXRATE	-0.17778	-0.26084	-0.10841	-0.02458	-0.28018	-0.41456	-0.06429	0.35141	1

Appendix I: Variation Inflation (P0)

Parameter Estimates						
Variable	DF	Paramete Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	1	35.89348	22.70397	1.58	0.1163	0
INFL	1	-0.24943	0.22931	-1.09	0.2787	1.26681
MQMg	1	-0.00408	0.03512	-0.12	0.9076	1.25349
CPSECTOR	1	-0.66546	0.20728	-3.21	0.0017	1.10655
CRATE	1	0.65208	0.31727	2.06	0.0419	1.24419
GSAVING	1	-0.32653	0.09608	-3.4	0.0009	1.0279
TRSERVG	1	0.88741	2.57082	0.35	0.7305	1.17766
EXRATE	1	-0.02695	0.0116	-2.32	0.0218	1.40439

Appendix J: Variation Inflation (P1)

Parameter Estimates						
Variable	DF	Paramete	Standard	t Value	Pr > |t|	Variance
		Estimate	Error			Inflation
Intercept	1	24.4343	14.24605	1.72	0.0887	0
INFL	1	-0.25594	0.14388	-1.78	0.0776	1.26681
MQMg	1	0.01101	0.02203	0.5	0.6182	1.25349
CPSECTOR	1	-0.49829	0.13006	-3.83	0.0002	1.10655
CRATE	1	0.30061	0.19908	1.51	0.1335	1.24419
GSAVING	1	-0.1464	0.06029	-2.43	0.0165	1.0279
TRSERVG	1	0.62821	1.61311	0.39	0.6976	1.17766
EXRATE	1	-0.02575	0.00728	-3.54	0.0006	1.40439