

CHAPTER TEN

SUMMARY OF FINDINGS AND RECOMMENDATIONS

10.1 INTRODUCTION

In this last chapter, we give a summary of the study, covering its purpose and the problem or theoretical contradiction addressed; the existing literature on this problem; how the problem was contextualised by approaching it in the light of a specific present empirical or concrete situation; the analytical methodology used to study the problem; the presentation of results obtained by empirically applying this analytical methodology to evaluate the various sides of the debate over the problem, and the conclusion drawn from the results obtained, which is briefly presented below.

10.1.1 PURPOSE OF THE STUDY

The purpose of this study was to shed some light on the on-going debate between structuralist and orthodox or neo-liberal economists. At the heart of this debate was the question whether “money matters” or not. To structuralists, “money does not matter” in small and open economies; they argue that the monetary authorities in such economies cannot control changes in money supply. Because of this alleged uncontrollability of money supply, economic growth is said to be unrelated to money supply changes. It is further argued that inflation, is not only a monetary phenomenon, instead it is imported from large developed western countries with which the small and open economy trades. Like money supply, inflation is also said by structuralists to have no relationship with economic growth. The structuralist theory has its theoretical roots in Latin America, which grappled with poverty and under-development attributed to the alleged “unfair trade-terms” determined by big developed western countries with which trade is conducted. Because of persistent economic growth problems, especially inability to curb soaring inflation rates, weak currencies and related monetary problems, reminiscent of those seen during the Great Depression, faith in monetary theory got eroded. Economic growth was seen to be arbitrarily determined or related to the growth level of the big and

developed countries with which they conducted international trade.

On the other side of the debate, orthodox or neo-liberal theory argues that the economic growth of a small and open economy is determined or influenced by both changes in money supply and inflation, both of which fall under the control of the monetary authorities. Thus, to orthodox or neo-liberal economists, the monetary authorities of a small and open economy can control money supply by changing its size within set monetary targets or guidelines; there is a significant relationship between the level of money supply of the current period, and that of the previous period, and economic growth, is related to money supply and inflation.

It is the purpose of this study to make a contribution to resolving the controversy between structuralist and orthodox or neo-liberal economists, since it is important for an open and small economy like the Republic of South Africa to determine which theory to apply and pursue. This is particularly important for South Africa, whose official economic policy, GEAR, considered orthodox or neo-liberal, is being challenged from various sides.

10.1.2 PROBLEM DEFINITION

The problem studied was whether monetary policy can stimulate economic growth in a small and open economy, that of South Africa in this case. This problem is differently addressed by the structuralist theory of monetary policy on economic growth of a small and open economy, and the orthodox or traditional or neo-liberal economic theory. These two opposed theories were empirically evaluated by this study. As stated above, we can formulate the problem from the structuralist perspective as follows:

- i. Monetary authorities cannot control money supply changes, that is they either *overshoot* or *undershoot* the monetary targets or guidelines they set;
- ii. The current money supply, $M3_t$, is not related to its value in the previous period; $M3_{t-1}$, using the broad monetary aggregate M3 to empirically

represent money supply; which means that monetary authorities cannot influence money supply changes.

The structuralist rationale is that whenever the monetary authorities try to increase (decrease) money supply in the current period (t), given the experience of the previous period ($t - 1$), they end up achieving the opposite, that is decreased (increased) money supply. The expansionary policy aimed at reducing the domestic interest rate, for instance, is said to discourage the inflow of net-foreign assets (NFA) as a result of the reduced interest rate. Given that NFA is a statistical counterpart of money supply, a reduction in NFA means a reduced money supply – the opposite effect of the desired monetary objective of increasing $M3$. The same is said to be the case for contractionary monetary policy. The reduction of $M3$, by reducing domestic interest rates, is said to attract an inflow of NFA, which in turn increases $M3$ – again the opposite effects of the desired monetary objective of decreasing $M3$.

- iii. Given this alleged inability of the monetary authorities to determine the current money supply of a small and open economy, it is argued that monetary policy cannot play any role in stimulating economic growth through changes in money supply. Inflation, which is structuralists do not consider to be primarily a monetary phenomenon, is also said to bear no significant relationship with economic growth. Instead economic growth is said to be determined by the economic growth, GDP, of big trading partners.

Accordingly the problem was statistically formulated by letting the null hypothesis capture the postulated argument, and the alternative hypothesis to represent the opposite. Thus, if the structuralist null hypothesis of no relationship between $M3$ and $M3_{t-1}$, and that of no relationship between GDP, as the dependent variable, and $M3$ and CPI, as explanatory variables cannot be rejected, then we must “accept” the structuralist argument. On the contrary, if the null hypotheses are rejected, then we must “accept” the alternate hypotheses, that is. the opposite argument, that monetary authorities can control money supply; that there is a relationship between $M3$ and $M3_{t-1}$; and that economic growth (GDP) of a small and open economy, that of South Africa, is explained by money supply and inflation, and not the growth rates of big

trading partners.

10.1.3 STUDY METHODOLOGY

The first step was to define the problem around the structuralist-orthodox economic debate. To do this, the extensive literature covering the debate was consulted to capture the meaning of the arguments presented by the opposed structuralist and orthodox or neo-liberal economic schools of thought. To give significance to the problem studied, its relevance for the present day had to be established. Since the argument concerned a small and open economy, the Republic of South Africa (RSA), was used as a case study. The South African economic reality was used as a basis for conducting a situational analysis. Having done this, the next stage became the formulation of a model to be used to empirically test the opposed arguments presented by structuralists versus orthodox economists. Because this is not an econometric study, for simplicity of exposition, a single-equation model was used. With the model in place, data was collected, to empirically test the model. Upon application of traditional ordinary least squares (OLS) regression analysis and testing of stationarity of the used time series, to avoid spurious conclusions, the results obtained are interpreted and presented.

As stated above, traditional or conventional regression analysis can lead to non-sensical or spurious conclusions, when the time-series are not stationary. To avoid such incorrect conclusions, the time series are tested for stationarity, using the popular augmented Dickey-Fuller test. The following single equation was used to test controllability of money supply by the monetary authorities of a small and open economy:

$$M3 = \alpha + \beta M3_{t-1} + \mu_t,$$

where:

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| α | the constant or intercept |
| β | the correlation co-efficient between M3 and $M3_{t-1}$ |
| μ_t | the disturbance or error-term, to capture other |

determinants of M3, besides $M3_{t-1}$

M3	money supply in current period, t.
$M3_{t-1}$	money supply in previous period, t – 1.

The sample period was 1960 to 1997, using yearly observations. Thus, 38 observations (including end points) were used. The collected data, sourced from the Quarterly Bulletin of the central bank of RSA, the South African Reserve Bank (SARB), were fitted to the above equation, using OLS regression method. The structuralist argument was formulated into the following null hypothesis:

$$H_0: \beta = 0,$$

which says there is not relationship between M3 and $M3_{t-1}$. The alternative hypothesis, capturing the orthodox or neo-liberal argument, which says there is controllability of money supply, represented by the relationship between M3 and $M3_{t-1}$, was as follows:

$$H_A: \beta \neq 0,$$

The rule of thumb method was used to establish the significance of the t-statistic, that is it should be greater than 2. On finding t-statistics to be significant, the formal augmented Dickey-Fuller (ADF) test was conducted to test for stationarity or co-integration of the equation. Then the ADF test statistic was measured against the MacKinnon critical value.

The same approach was used to test for the relationship between GDP and the explanatory variables M3 and CPI. For that, the following equation was used:

$$GDP = \alpha + \beta_1 M3 + \beta_2 CPI + \mu_t,$$

where:

<i>GDP</i>	Economic growth (Gross Domestic Product)
<i>M3</i>	Money supply
<i>CPI</i>	Inflation (consumer price index)
α	Intercept or constant

β_1	Correlation coefficient between GDP and M3
β_2	Correlation coefficient between GDP and CPI
μ_i	Disturbance or error-term

In this case the structuralist argument became the following null hypothesis:

$$H_0: \beta_1 = \beta_2 = 0,$$

meaning there is no relationship between GDP and M3 and between GDP and CPI. The alternative hypothesis, representing the orthodox argument that M3 and CPI affect GDP is the following:

$$H_A: H_0 \text{ is not true.}$$

In addition the relationship between the GDP of South Africa and that of her big trading partners, namely, the United States, the United Kingdom, France, Germany and Japan, was also empirically tested to evaluate the structuralist argument.

10.1.4 RESULTS OBTAINED

In applying the t-test technique to test the structuralist argument, taken as the null hypothesis, that there is no relationship between M3 and $M3_{t-1}$ or that β (the correlation co-efficient between M3 and $M3_{t-1}$) is zero, is *rejected*. This means the orthodox or neo-liberal argument, the alternative hypothesis, that there is a significant relationship between the current and the previous period levels of money supply in a small and open economy, in this case the Republic of South Africa, must be "*accepted*". To avoid this being spurious or nonsensical equation was tested the equation for cointegration was tested.

However, as indicated by the empirical data presented in table 32, the structuralist argument that monetary policy in an open economy, that of South Africa in this case,

cannot control money supply changes must be “*accepted*” and that of the orthodox or neo-liberal theory of controllability of money supply changes *rejected*. These two results pose an interesting question, to be probe deeper by further study, as to which monetary policy instrument or forces are responsible for the significant relationship between the current period’s money supply level and that of the previous period, when monetary policy is incapable of controlling the money supply changes.

Furthermore, in measuring the ADF test statistic, obtained in testing for co-integration, against the MacKinnon critical value for testing the structuralist null hypothesis for co-integration, it was found that it was more negative than the MacKinnon critical value, at 1% level of significance. Therefore, the current level money supply, $M3_t$, as explained by the previous level, $M3_{t-1}$, and the equation used to test the relationship, was is co-integrated at 1% significance level. Stated differently, we can conclude that Orthodox or neo-liberal theory, that there is a significant relationship between the current and the previous period money supply levels, must be “*accepted*” with a 99% level of confidence.

Upon reaching this conclusion, the next step was to test the structuralist argument on the impact of $M3$ and CPI on GDP . In this testing, not only the t-test was used, but the F-test as well, because individual variables can be jointly insignificant, while individually significant. It was found that β_1 and β_2 were not equal to zero, that is $M3$ and CPI are individually significant in explaining GDP , and that they were also jointly significant using the t-test and F-test, respectively. The ADF test was again applied to test the equation for co-integration, by measuring the ADF test statistic against the MacKinnon critical value. It was found that the ADF test statistic was more negative at 1% significant level. Thus, the economic growth, GDP , of a small and open economy, in this case RSA, was explained by money supply, $M3$ and inflation, CPI and this relationship can be said with 99% confidence, to ensure that this conclusion was not spurious. Thus, the structuralist argument that there is no significant relationship between GDP , on the one hand, and $M3$ and CPI , on the other, in a small and open economy must be rejected, in favour of the orthodox theory, which affirms such a relationship. This long run relationship was also tested to establish whether it was stable in the short run. Similar results were obtained.

confirming the stability of the long-run relationship.

10.2 DELIMITATION AND RECOMMENDED FURTHER STUDY

10.2.1 DELIMITATION

The scope of this study was limited to the empirical evaluation of the impact of monetary policy in stimulating the economic growth of a small and open economy, that of South Africa in this case. Thus the primary objective was to estimate the relationship between GDP, as the dependent variable, and M3 and CPI as explanatory variables, testing for stationarity of the time series used, to avoid nonsensical conclusions that could flow from using traditional regression analysis when the time series were nonstationary. The reason why M3_t and M3_{t-1} are significantly related, while the monetary authorities cannot significantly realise the *monetary targets* they have set to control M3, warrants further study to evaluate the dynamics involved, which are outside the scope of this study.

10.2.2 RECOMMENDATIONS

Given that monetary policy in South Africa, as a small and open economy, cannot control money supply changes, even if M3_t is significantly related to M3_{t-1} and that economic growth, GDP, is significantly related to M3 and CPI, the policy of protecting the value of the Rand by adjusting the money supply should be re-evaluated. A question to be answered is whether or not the policy instrument, namely, the repo rate, is appropriate, given the impact of foreign and external forces on M3, and in turn on economic growth.

A further study, using more rigorous econometric prediction techniques, including short-run models or error correction models (ECMs), must be undertaken to further

explore the empirical results obtained. This is important because the recent monetary policy is based on setting *inflation targets*, and inflation is related to money supply changes, noting that *money supply targeting* was not successful. Such a study would also indicate how long it would take to correct a long-term equilibrium disturbance. Furthermore, such a study should include the determination of specific external forces which impact on the changes in the money supply, and for what reasons.

10.3 CONCLUSION

On the basis of the empirical results of the analysis of this study, it must be concluded that the monetary authorities of a small and open economy, South Africa in this case, cannot *control* money supply changes, postulated by structuralists, although they are able to influence such changes, as demonstrated by the significant relationship between $M3_t$ and $M3_{t-1}$. It was also concluded that economic growth, GDP, was significantly influenced by money supply, $M3$, and the domestic level of inflation, CPI, as propagated by the orthodox or neo-liberal theory, and not by the level of economic growth of the big countries serving as trading partners.

These conclusions have serious implications for South Africa, which as a new democracy, grappling with the eradication of poverty and reduction of unemployment or job-creation, must reduce an alarming high level of crime, which can only have a negative impact on economic growth. Furthermore, the fact that monetary policy stimulates economic growth, that is the GDP is significantly determined by $M3$ and CPI, and that the monetary authorities cannot control money supply levels by keeping them within the *set targets*, despite their ability to influence the current period money supply level by manipulating that of the previous period, require further study and a re-examination. The contribution of the results of such further empirical probe will help resolve the argument between the structuralists and orthodox economists. It will further confirm or negate the structuralist argument of COSATU in criticising GEAR, that monetary authorities are to blame. The proponents of the official economic policy of South Africa, GEAR, in their defence against COSATU's criticism that GEAR does not work, blame the monetary authorities, who are blamed for placing their focus on money supply changes, said to be responsible

for the alleged ineffectiveness of GEAR. Thus, the tenability, or lack thereof, of putting the blame on monetary authorities as being responsible for high interest rates which inhibit economic growth, based on their supply-side economics, to the neglect of the demand-side of the economy, will be established.

Thus, this crucial and vital debate merits further analytical study, to provide a fuller explanation of whether or not the GEAR policy is effective, in creating jobs or reducing unemployment through monetary policy, and through the hotly debated policy of *privatisation*, as an essential component of orthodox economics. Having currently established that “money matters”, a further study will help define the relationship between the “real” and “monetary” sectors of the economy.