Graduate School of Development Studies

Understanding Inflation in the context of a Natural Disaster; Case study of the inflationary consequences of the Tsunami in Aceh province, Indonesia, December 2004

A Research Paper presented by:

Ashif El Rafat

(Indonesia)

in partial fulfilment of the requirements for obtaining the degree of
MASTERS OF ARTS IN DEVELOPMENT STUDIES

Specialization:
Economic Development
(ECD)

Members of the examining committee:

Dr H.V.B Nicholas
Dr Lorenzo Pellegrini

The Hague, The Netherlands
November, 2010

Disclaimer:

This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

Inquiries:

Postal address:	Institute of Social Studies P.O. Box 29776 2502 LT The Hague The Netherlands
Location:	Kortenaerkade 12 2518 AX The Hague The Netherlands
Telephone:	+31 70 426 0460
Fax:	+31 70 426 0799

Acknowledgement

Alhamdulilah, my deepest and sincerely gratitude to almighty Allah SWT for the blessing and this beautiful journey of live.

Firstly, I would send my deepest gratitude to my supervisor Howard Nicholas for the guidance, advice and support in the entire RP process. You have opened my eyes and try to look at the issue from different perspective, which I probably not get in another place. My second reader Lorenzo Palegrini for his critique and comment thanks for the positive vibe that you have sent to me.

I would like to dedicate my RP to all tsunami victims in Aceh, including my relatives and friends that had rested in a better place now. I hope this research can be used as lesson learnt to other disaster locations and can be used as guidance for the recovery agencies. Harry Hassan my dear friend, thanks for the enlighten and make me realize we still have lots of jobs to do for making Aceh as better place to live.

To all my ISS friends, especially my Indonesian fellows that have fight together in the battle of knowledge to create better future for our beloved country. My ECD classmate, thanks for all good memories, I have put those memories in special part of my mind. The ISS basketball team 2010, we had tried, unfortunately the fortune and trophy not in our side this year. However, the memory will stay in my mind and the mark will always there in my injured knee. To all Sunneke friends for the cheers and lovely company.

My deepest respect to my father with his spirit to fight the cancer and still support my study journey. My beloved mother with her sincerely support and pray. 'I love you both Ayah and Bunda'. My sister; Kak Geni, my cutest nephew; Rafa and big brother in Law; Andrew thanks for the great motivation. To Mama, Andres and Dila, for continuously care and support our journey. Rachel and Bake for the last minute of the editing, only thanks that I can give to you now.

For the most special one. My lovely wife; Mike Ingriani. This journey had made us become better person and hopefully better future. You made my world different with the support, spirit and love.

Contents

List of Tables

List of Figures

List of Maps

List of Acronyms

BI	Bank Indonesia or Indonesia central bank
BRR	Badan Reconstruction and Rehabilitation. Reconstruction and rehabilitation board as government Indonesia representative for controlling and monitoring all recovery process in Aceh after Tsunami
BPS	Badan Pusat Statistic. Indonesia statistic board
BLT	Bantuan Langsung Tunai or direct cash support
Bappenas	Badan Perencanaan dan Pembangunan Nasional or National planning and development board
GAM	Gerakan Aceh Merdeka or Free Aceh movement for independent
GOI	Government of Indonesia
GNP	Gross National Product
GRDP	Gross National Domestic Product
IMF	International Monetary Fund
MDF	Multi Donor Trust Fund
RAPBN	Rancangan Anggaran Pendapatan dan Belanja Negara or Indonesia government planning, budgeting and spending

Abstract

This paper is inspired by the economic situation in Aceh, following the Tsunami disaster on [date]. Inflation increased and the high rate of inflation created obstacles for recovery agencies trying to implement their various missions. However, the true source of inflation has never been closely scrutinised .It is argued that the assumption that emergency aid is the main source of inflation is somewhat incorrect. The study finds that there exists no compelling indication that excess money stock is the source of inflation in Aceh. The damage in the production sector, as part of the supply side was a more dominant cause of inflation. Moreover, the increase of price of national fuel is also identified as a supply shock indicator which boosts inflation. Consequentially, this also indicates the ways in which policy is conducted incorrectly. This paper also discovers that inflation is not always a nation-wide issue but instead it is a challenge which occurs in specific areas, requiring specific consideration. At last, this paper finds that there is a need to have a policy in place for specific local macro economies so as to manage inflation in a more positive manner.

Relevance to Development Studies

This study opines that developing countries have different characteristics whilst rebuilding their development pillars, compared to those of developed countries. Macroeconomic policy is one of the instruments which need to be independently and effectively established. In this regard, the structuralist inflation theory is one of the schools of thought that closely analyse the real situation of developing countries. This suggests that the developing countries have to examine the real cause of the issue first, before adopting sound policy regarding inflation.

Keywords

Inflation, demand shock, supply shock, natural disaster, emergency aid, macroeconomic policies

Chapter 1
Introduction

1.1 Background

Inflation in Aceh resulted in a significant loss to the recovery program. Approximately 17% of the total emergency aid in Aceh was used to finance inflation. US$ 6.2 Billion was used to run the pre-tsunami program. This means only US$ 1.5 Billion from a total of US$ 7.9 Billion of aid was used for "build back better" (Marsyarafah and McKeon, 2008)

Inflation is one of the macroeconomic factors that has consistently emerged as an issue in developing countries. Inflation, understood as an economic symptom, might create economic volatility. Further, the costs of recovery from expected and unexpected inflation are greater in social aspects (Mankiw, 2007).

However, inflation might also create positive results regarding economic growth. Firstly, "greasing the wheels" is one of the positive impacts that might be generated in the labour market and also constitutes an impact of inflation (Mankiw, 2007). Secondly, maximizing the value of currency gain can also increase export revenue. This situation can be implemented when all markets and production sectors are functioning well. In addition, governments must play their role as policy maker in order to benefit from the above situation.

Nevertheless, inflation that occurs across a country cannot be understood and treated similarly with inflation that occurs in others areas. For example, inflation in a developed country cannot be treated and perceived the same to inflation in a developing country. In Indonesia, for example, according to its economic Prime Minister; the food price is not the only aspect that can create inflation on the supply side. However, there are other aspects that can also contribute to the situation, such as imported inflation, administrated goods, output gap and interest rate (Indrawati, 1996). Equally, these aspects can also have a negative impact on inflation.

Furthermore, another type of shock that can generate inflation occurs when covariate shock takes place. This situation creates failure in the safety net, the market and also in the production sector. Natural disaster is another example which contributes to this type of shock (Popp, 2006). Natural disaster can be classified as 'unexpected economic shock that creates unexpected inflation'. The size of the disaster and the geographic area subject to it, also determines the level of shock that is generated by that symptom.

The open economy situation adds positive value whilst responding to the disaster situation. Aid is used as tool to respond a disaster. In terms of urgent action, emergency aid is significantly more effective than other supporting tools used to respond to covariate shock. However, some researchers mentioned that this international effort could also worsen the situation (Popp, 2006). They call it "the second wave of death" (The economist unit Ltd, 2005). The motivation behind that opinion is the long-term effect facilitated by aid, which would create jeopardy, such as a long-term affect on inflation.

Today, as the world becomes more fragile due to climate change, aid, - known as "Emergency Aid" flows towards disaster locations at a monumental rate. Based on the record, in this century, there were three massive natural disasters involving huge amounts of aid, used in recovery programs. They are: Indian Ocean Tsunami disaster in 2004 (US$ 7.7 Billion) (Marsyarafah and McKeon, 2008), Haiti earthquake in 2010 (1,4 Billion, recorded up to May 2010) (UN OCHA, 2010) and the Kashmir earthquake 2005 (US$ 6.2 Billion) (PRSP, 2005). The emergency programs in these areas, may be understood as positive indications of how natural disaster can attracts global aid business.

In the case of the Indian Ocean Tsunami disaster, the area most affected by the tsunami was Sumatera Island Indonesia, specifically in the Aceh province. According to the damage and the loss assessment data, released by World Bank, the number of recorded casualties amounted to 233,000 deaths. Further, the most crucial damage occurred in housing or construction. (Marsyarafah and McKeon, 2008).

Aceh is located in the western most province of Indonesia with a population of approximately 4,271,000 (2004) prior to the tsunami disaster. After the census on 15 September 2005 the population number decreased to 4,031,589 which means that nearly 2% of the Indonesian population was lost. The disaster took approximately 233,000 victims with more than 500,000 people left homeless (Christoplos, 2006).

US$ 7.7 billion of aid has since been invested into the Aceh province in furtherance of the post recovery program after the tsunami struck this province, on 26 December 2004. The total number of organizations that worked for the program amounts to approximately 463 organizations (Marsyarafah and McKeon, 2008). This huge enterprise of such large numbers of organizations and aid funds has made this project stand as one of the biggest projects in the history of disaster recovery program.

Map 1.1
Map of Tsunami waves

Source: BBC website

The wave not only destroyed Aceh as one of the Indonesian provinces, it also impacted upon the south part of Sri-Lanka, part of India and Myanmar, as well as a small part of Thailand. These areas are those that suffered the most significant effect of the disaster (Christoplos, 2006). However, the most affected area was the Aceh province, as it was the closest area to the earthquake epicentre.

To set the contextual parameters of this analysis, the Aceh province is well known as an oil producing region. In addition, this province was subjected to horizontal conflict for over 30 years since its independence. This has elevated Aceh as a central issue in Indonesia. Following the tsunami in 2004, the Indonesian government and Aceh independent-organizations concluded a peace agreement, followed by the signing of peace MOU in Sweden (Kingsbury, 2006). This created new hope for many people in Aceh and the rest of Indonesians, who expect a better future from the Aceh province.

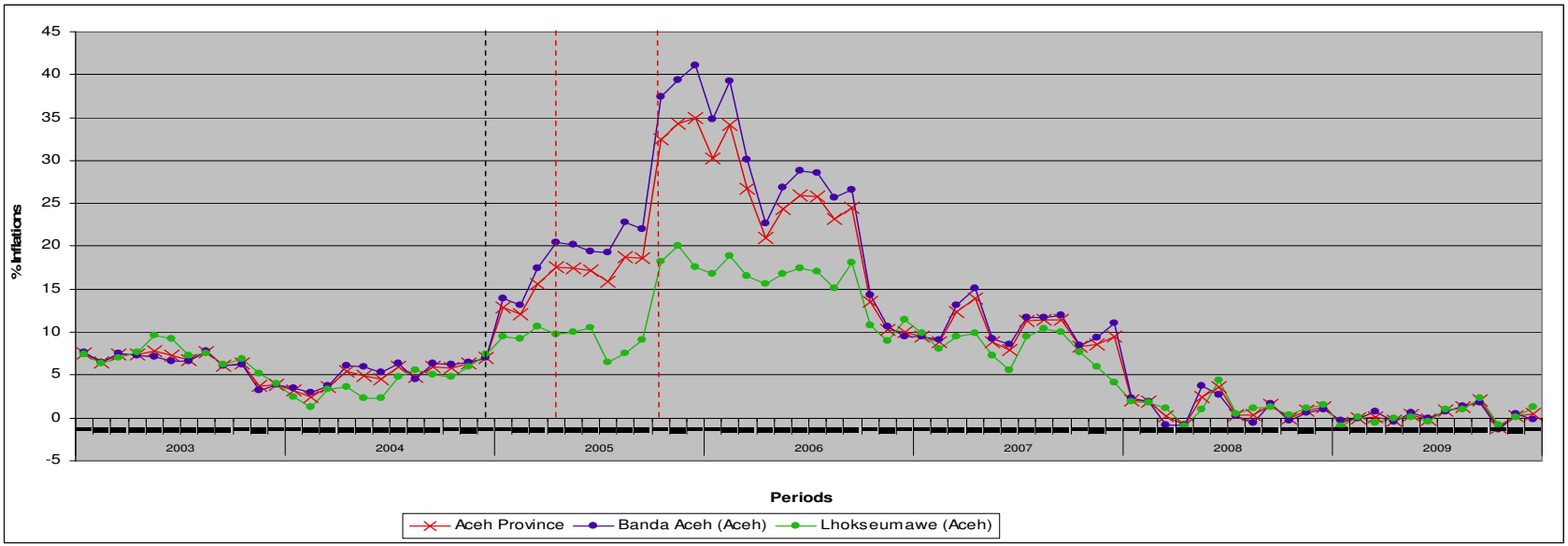
In contrast to the expectation regarding development in Aceh, after the Tsunami disaster, the huge aid inflow, from 2004 until 2009, this tsunami affected areas which created a number of problems particularly in macroeconomic issues, which is the increase of inflation digit. This fact indicated that the highest inflation rate achieved was 41.1% point. The average inflation rate in Aceh from the beginning of the disaster to December 2007, was 19.5% (Marsyarafah and McKeon, 2008).

Conversely, it is also influenced in the microeconomic aspect. This is indicated by the increase in the price of goods and services. This ultimately affects consumption behaviour. The increase in uncontrollable and unmanageable demand affected organizations that managed aid as well as the communities and aid beneficiaries. Further, the value of aid money decreased due to inflation, at the same time, aid funding could not be maximized due to this inflation symptom (Marsyarafah and McKeon, 2008).

With regard to the completion of many recovery projects in 2009 (after running for 5 years), a numbers of researchers have embarked upon studies elucidating on the achievements of key players in these large recovery projects. However, most of the studies primarily focus on program recovery achievement. Additionally, most researchers paid less attention to analyze the cause of inflation and the policy implemented in the disaster area.

As such, my research will focus on the cause of inflation in the disaster recovery area, particularly Aceh, the province most destroyed by the tsunami of 2004. Furthermore, the paper will closely examine the true cause of inflation in the natural disaster area. In this regard, the paper will also scrutinize the aspects of inflation and policy references towards the recovery aid program. Lastly, I hope that lessons learned in this research will assist the understanding of inflation in other areas affected by natural disaster.

Figure 1.1
Aceh inflation 2003-2009



Source: BPS 2003-2010

1.2 Research objectives, questions and hypotheses

The general objective of this paper is to ascertain whether the tsunami disaster had significant inflationary consequences for Aceh. This research will look at the causes of inflation in aftermath of the tsunami disaster and the policy implications of inflation in Aceh. This research will also focus on these objectives:

1. Assessing the variance of inflation in regions that are affected by natural disaster (Aceh province) in comparison to the national inflation at the same period;
2. Assessing the source and cause of inflation/ shock in a natural disaster area. Identify the source and type of inflation that happen in natural disaster area; and
3. Analyzing the right /appropriate policy implication for this type of situation. Identify the right economic policy that should be implemented in natural disaster area

Based on those objectives the research question for this paper is: **Did tsunami aid have significant inflationary consequences for Aceh?** Furthermore, the hypotheses of this research paper are;

1. There are significant inflation rate differences between Aceh province and Indonesia in the recovery periods after the natural disaster happened;
2. Supply shock is the main inflation indicator that happened in Aceh province; and
3. Government intervention needs to control the prices and the distribution of goods in that area.

1.3 Approach and Method

This research uses quantitative method by analyzing the data with graphs and tables. The main indicator of this research will examine the correlation between the theory of inflation and the data result collected in Aceh, as a sample of a natural disaster area.

1.4 Data Sources

This research will use the following data. They will complete the analysis from the question mentioned above. The following data are:

1. World Bank data survey; inflation in Aceh province and Indonesia in general, Consumer Price Index (CPI) in Aceh province, damage and loss assessment data and aid allocation and disbursements data;
2. Badan Pusat Statistik Indonesia (Indonesia statistic centre). The inflation data in Aceh, Medan and Indonesia, from 2004 until 2009, money stock data (M2) Aceh and Indonesia 2004-2008 and Aceh economic growth data 2004-2008;
3. Badan Reconstruction and Rehabilitation (BRR) Aceh. Aid allocated and distributed data for Aceh post tsunami program;

4. Indonesia Central Bank (Bank Indonesia). Money stock data (M2) that was collected from all bank in Aceh, period 2004-2007; and
5. Pertamina, the national oil and gas company for fuel price trends.

The entire data will be analyzed based on the stated fact. The time frame of this study is from the reconstruction period of the Aceh tsunami program.

1.5 Scope and limitation

This research was subject to certain limitations as some data from the Aceh reconstruction board (BRR) could not be accessed, as the BRR failed to hand over the data to GOI after the project was finished. The pertinent data not collected related to the time series data for recovery project, particularly in the production sector.

Secondly, as there exists no prior research regarding the real cause of inflation in Aceh, this study serves as the first to tackle this task. As such, due to the relatively few researches conducted relating to inflation in Aceh, after the disaster, the lack of existing comparative analysis also constituted as a limitation during this study.

Arguably, it will be better if this study utilises cross-country analyses as a source of data. In the end, it could be demonstrative that the argument is clear and well proved. However, due to the limitation of the data, I am limited in conducting a completely comprehensive study.

1.6 Chapter outline

The research is divided into 5 chapters, each chapter discusses a specific subject. In chapter 2, some references from several inflation theories will be reviewed in order to have a basic theoretical approach to construct the argument. In chapter 3, the study background will explore the different circumstances that occur in the case study. In chapter 4, the data will be analysed according to the questions and hypothesis of the research. The last chapter will be the conclusion and policy section. This final chapter will gather all the information and construct the result summary from the entire chapters.

.

Chapter 2
Literature Review

2.1 Introduction

This chapter seeks to explore the theoretical analyses of inflation, particularly in the context of developing countries and shocks in these countries. Further, the focus will be on two major competing theories of inflation, namely the neo-classical and structuralist theories. In the first instance, this section will consider general theories of inflation from each of these perspectives. It will then progress to examine how they view inflation in a developing country setting. Then, this chapter will inspect how they explain inflation, in the context of natural disasters in developing countries. Finally, this section concludes by considering various explanations for inflation in the Indonesian context and specifically in regional settings.

2.2 General Theory of Inflation

The core literature review of this research examines the two rudimentary theories of and perspectives on inflation: neo-classical and structuralist. The reason for such delimitation rests on the premise that the neo-classical and structuralist theories are the prominent theories of inflation in mainstream literature.

Generally speaking and by way of an introduction, the neo-classical theory of inflation advocates the belief that low inflation will stimulate economic growth and create stability in an economy. Further, the expansion of growth saving is an important factor as saving will stimulate investment. Thus, inflation should be targeted low. In addition, the relevant factors required to establish low inflation include liberalising the price, interest rate, financial sector, capital flows and market. As such, competitiveness is the basic principle of this theory and by liberating those sectors will stimulate the economic growth.

Equally, there are generally two disincentives from inflation, according to the neo-classical theory. Firstly, it damages the market signal. Secondly is the discouragement towards saving. With regard to shock, this theory inspires two, namely, monetary and real shock. Monetary occurs when extensive increases in money supply. Whereas real shock may occur when external factors influence the growth. Such factors might include war and perhaps technology.

Contrary to the above explanation, the structuralist theory champions a differing approach to inflation. Firstly, according to this theory, inflation is not damaging to economic growth. However, it concedes that the stability of growth is necessary. Notwithstanding this, it considers that a rise in living standards is a more pertinent objective for an economy. Moreover, inflation need not be controlled by the utility of a monetary policy as growth, arguably, becomes more unstable when such policy is used. Further, according to this theory, supply is a dominating reason for inflation. Whereas, standard labour wage, as well as low cost of agricultural production, can contribute to stabilising the supply side. These are the important factors for economic growth.

Having explored the general position of the two principle theories of inflation, a substantive exploration of each theory of inflation will now be embarked upon.

2.2.1 Neo-Classical

According to the neo-classical theory, the value of money, as the standard measurement of purchasing power is categorized as the initial classification of inflation (Mankiw, 2007).

Various scholars, proponents of the neo-classical theory, such as Milton Friedman and Anna Schawatz, believe that the quantity of money determines the rate of inflation and the nominal of interest rates has a close relation to the former (Mankiw, 2007). That is to say, **the excess of money stock is the critical factor that determines the rate of inflation**. Friedman and Schawatz strongly aver that the theory is not primarily theoretical but also empirical. This position is encapsulated in Mankiw's observation:

> 'The quantity of money leads us to agree that the growth in the quantity of money is the primary determinant of the inflation rate' (Mankiw, 2007: 87)

According to their study, Friedman and Schawatz postulate that to sterilize the money flow is vital in order to avoid inflation and that phenomenon should be targeted and controlled. As such:

> 'Inflation is always and everywhere a monetary phenomenon' (ibid)

However the two treatises from Friedman and Schawatz, though empirical in their methodology, only referred to case studies from developed countries. The first being the United States of America during the period 1867 to 1960. The second, the United Kingdom and United States of America during the period from 1867-1975. Thus, the studies neglect specific discussions regarding current trend(s) in developing countries. Of course, much difficulty might be experienced whilst conducting this theory in developing countries and the result will not be as significant as the result in developed countries.

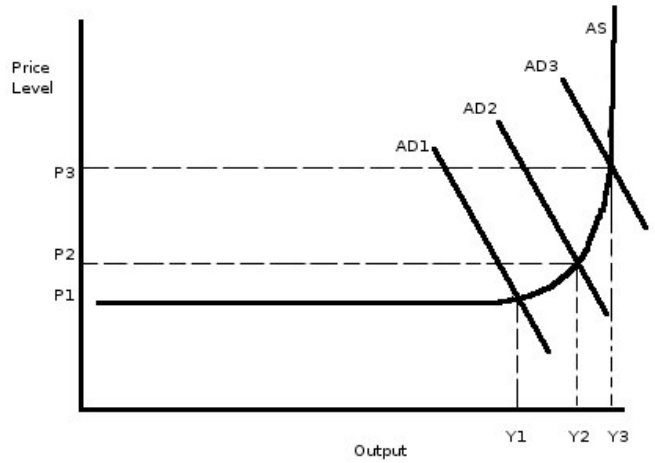
According to the neo-classical theory, the central bank should have ultimate control over the inflation rate. The preferred methodology should be by ensuring the stability of the money supply. It is thought that when the central bank increases the money stock, it will rapidly increase the price level (Mankiw, 2007).

Despite the negative aspects of inflation, which have been enumerated above, according to the neo-classical theory there is only one benefit that can be observed from inflation, namely labour costs/wages. Inflation can be used as a tool to cut labour costs/wages. This practice is employed by employers to determine the annual salary increment below the inflation level. As a result, the true value of increment will be below the market price. This method, is considered, by Neo- Classical practitioners, as a good means by which to stabilize the labour market (Mankiw, 2007). Further positive impacts from the neoclassical point of view is that inflation can increase foreign saving, which can stimulate foreign investment. It can also reduce the deathweight in foreign country because of that saving (Bakhashi, Haldane, and Hatch, 1999)

With regard to shock, the demand shock type of inflation is coherent with the neo-classical theory. It occurs when aggregate demand increases, due to

increasing prices. This also occurs as a consequence to the rise of money supply (Sachs and Larrain, 1993). The figure 2.1 illustration shows the analytical situation when demand shock, also called 'demand-pull' occurs and creates inflation. As the figure shows, the strong shift of aggregate demand curve to the right side, forces the aggregate supply curve to move to the left side, creating a new equilibrium.

Figure 2.1 Demand shock



Source: Bized.co.uk

The strong demand of goods and services in the market creates a rush demand, creating shock in the economy. This type of situation is usually followed by the increase of GNP, with the assumption that the economy condition has full employment. Furthermore, neo-classical economists believe that the cause of the shifting of the aggregate demand curve occurs due to a significant amount of money distributed into the market.

Specifically, the neo-classical theory considers inflation as the excess of money stock. The proposition furthered by neo-classicalist theorists to oppose inflation is by using budget deficit and encouraging government to accrue more savings. However, the supply side of economy has never been mentioned by this theory. The agriculture sector consider only as complement sector that carry huge weight to the economy. Moreover, this sector is considered as non profitable sector comparing to gain that can be carried by the manufacture sector.

2.2.2 Structuralism

The initial understanding of Structuralist economics originates from Latin American economists, Paul Prebish and Celso Furtado. As a starting point, Prebish and Furtado consider that the relationship between developing and developed countries is not one governed by equality, particularly in the production sector (Kay, 2005). The structuralist theory is certainly in contradiction to the neo-classical theory of inflation. For instance, according to Taylor, a supporter of the structuralism theory, sector imbalance due to rapid growth of the industrial sector can result in access demand for agricultural commodity. Consequentially, this will increase the price of agricultural commodity (Taylor, 1983).

Further, the structuralist theory advocates that inflation occurs due to the structural bottleneck from the agricultural sector. The most important contribution one can draw from this position is that inflation is not a harmful symptom of the economy. As such, this explanation suggests that inflation is indicative of economic growth. Moreover, agriculture can be identified as basic goods for production, which is regarded by most developing countries and regions as the main source of production.

Another prominent indicator is from the industrial sector. This sector stimulated the increasing price of agricultural products. From this perspective, cost of production will increase, resulting in the creation of inflation (Nicholas, 2008). Structuralists argue that such indications send a positive signal to economic.

In conclusion, the structuralist economist believes that there are three main elements of inflation (Canavese, 1982):

1. The changing of economic structure has influence in the changing of relative prices;
2. Downward inflexibility of (some) money prices; and
3. Passive money supply which closes the deflationary gap caused by price increase.

Based on these elements, Canavese concludes that the form of and the inflationary processes are similar between structuralist in Latin America in late 1960s and the model that has recently been developed by European structuralists. The cycles are similar between those regions. However, the cause is not always the same (Canavese, 1982).

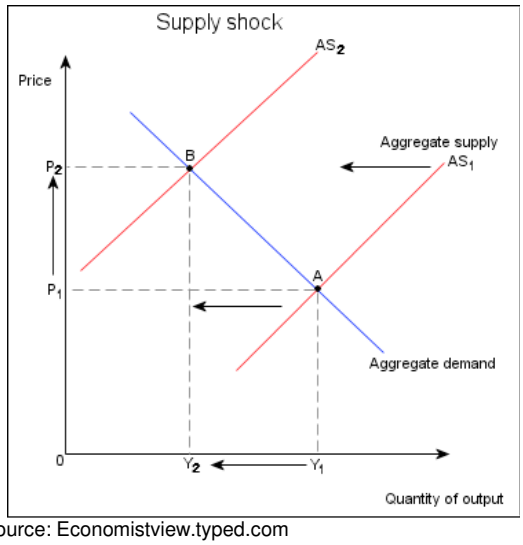
According to the structuralist economist, shock in the supply side is more dominant compared to the demand side, as the main cause of inflation (Nicholas, 2008). **The excess of money stock is not the main trigger of inflation. The other factor, which relates to damage in production, is more fundamental.**

Structuralist also believes that inflation happens when the structural wage changes or when the supply side constructed as the cause of a change in the output quantity (Taylor, 1983). This situation is best described in Figure 2.2. The figure shows the price is increasing from P1 to P2, due to the decrease of output quantity. The shifting of aggregate supply for AS1 to AS2 is the consequences of those factors. As a result, it constructs new equilibrium B from the initial equilibrium A.

The production cost that continually increases is one of the factors that can support this specific shock. The source of the increasing cost can be contributed from internal or external production factors. It occurs in the specific factor production market that reflects the increase of commodity prices in the commodity market. This type of inflation is also well known as 'cost-push' inflation.

Another factor contributing to supply shocks is the occurrence of a natural disaster and the failure of the distribution sector. Further, contrary to the factors that are mentioned above, inflation on the supply side could also occur when economic growth increases with low unemployment rate.

Figure 2.2
Supply shock



Source: Economistview.typed.com

This type of shock is commonly believed to be the main source of inflation by structuralist economies (Taylor, 1983). The structural damage or the decreasing of production capacity is the initial factor that contributes to the increasing of inflation.

From the two comparison theories above, it can be seen that the different focus between those mainstreems effecting the macroecomic focus and policy in developing countries. the weight that carries by deveoping countries is bigger comparing to the devoloped one. The processing will be discussed in the next section.

2.3 Developing Countries and Inflation

The main literature of neo-classical frequently used the study of developed country. This unfortunately neglects the current experience in the developing world. Paul Prebish and Celso Furtado support this argument under rubric of 'The Dependency Theory'. Structuralists believe that another explanation assists in understanding why the 'development concept' cannot be implemented in developing country. Many factors such as the historical and colonialism limit them to choose the best options to develop. (Kay, 2005). Several countries below will be taken as example of the theories.

For the countries who use the neo-classical theory as their economic orientation, a low inflation rate is vital for economic stability. In the Bangladesh case, the World Bank advised that inflation must remain low and within certain limits. The structural adjustment program combines with discipline monetary management and trade liberalization influenced the inflation stays in one digit in 90's (Benson and Clay, 2004). However, how inflation occurred is never addressed in the paper. Therefore and somehow, Bangladesh has to accept that inflation source originates from the demand side.

The study of inflation in developing countries is furthered by conducting cross-country regression analyses in 80 countries, in the period 1960-2000. The

research was conducted by Pollin *et al* in 2004 and attempted to analyse the connection between inflation and economic growth. The countries were divided into two groups. Firstly, developed countries and secondly, developing countries. The overall result indicated that there exists no evidence that maintaining low inflation for 3-5% to the degree of promoting of economic growth and employment in low-income country. Another important point that was highlighted was the importance of establishing a sound industry structure to support growth and mutual benefit between workers and employers, as this in turn stimulates productivity (Pollin and Zhu, 2005). That reaserch is evidence that the differing concepts and application of development theories exist. Therefore, the neo classical perspective about the 'development concept' is not always applicable in developing countries In the next section, the paper will explore the relation of inflation theories from the two mainstrem perspectives, with regard to a natural disaster context.

2.4 Inflation and Natural Disaster

Inflation is interrelated to natural disaster(s). The IMF, using Caribbean countries as subjects for its case studies, commissioned the first regarding this relationship,.The IMF results indicated that natural disasters have a close relationship with macroeconomics. Thus, a worsening external and fiscal balance can trigger inflation, in turn generating a long term crisis should its prevention not be achieved. Moreover, this article also noted that the recovery effort after a disaster can discourage investment, increasing the interest and create send negative impression of the prospect of long term growth of the economy. The consumption volatility can also occur in a natural disaster area. The method promoted by the IMF to prevent the volatility of consumption involves promoting insurance at local level and promoting the capital market. Further, the highlighted recommendation is to change the production focus from agriculture to other less risky production, such as manufacturing industry which will expand the labour productivity and uses more or less land, compared to agriculture (International Monetary Fund, 2004).

Furthermore, according to the World Bank study on the Dominican Republic, following several natural disasters and concerning the period 1978 to 1998. For instance, hurricane Davis in 1978 was examined in this case study, after inflation reached 45%. The conclusion reached by the study is that price control is important after disaster, so as to avoid inflation becoming a long-term crisis in an economy (Benson and Clay, 2004).

Contrary to this position, Aaron Pop believes that inflation should be recovered in two ways. Firstly by using monetary instruments and secondly by fixing the infrastructure that damaged the disaster. Printing more money to finance the reconstruction is also a method that can be used by a government. Reconstructing the infrastructure of the production sector is a second method. In addition, Pop suggests that governments should not control the prices in a natural disaster area because the consequences include the formation of a black market and the worsening of a situation. (Popp, 2006).

It seems that neoclasical perpective is dominating the economy resolution after the natural disaster. The monetary instrument that promoted by World Bank and IMF was consider as the central solution for deveoping countries

that experiencing natural disaster. The focus in reconstructing the important sector is lef behind from the attention.

2.5 Inflation in Indonesia and Aceh Province

2.5.1 Inflation in Indonesia

Most literature on Indonesia discusses inflation studies from the neo-classical perspective. The implication shown from the Inflation Targeting program was promoted by IMF. It started when the periodical budgets and spending planning for year 1996/1997 (RAPBN) was approved by the Indonesian parliament (Tambunan, 1996). The Indonesian central bank (BI) has been delegated as the only institution with the authority to conduct Inflation Targeting in Indonesia (Goeltom, 1999). This program has been legalized by the Indonesian parliament. Further, the yearly progress should be represented by the Indonesian central bank with the presence of Indonesian parliament members (Goeltom, 1999). This practice indicates that Indonesia considers that high inflation ought to be avoided but does not consider the real cause as to why inflation occurs, whether it comes from the money flow (demand side) or production sector (supply side). Thus, the control of money stock is the key point to stabilizing the price.

This policy is contrary to the initial Indonesian economic policy in the 1950's, during which, most Indonesian economists believe that inflation should not be targeted but should be managed by the government (Komaruddin, 1967). Thus, the economic policy should be focused in order to create opportunities for production and job opportunity, which will in turn stimulate economic growth. (Komaruddin, 1967).

The initial economic policy focus in the early 1950's changed by the mid of 1990's. However, one of the initial objectives was to create big opportunities for production, was slowly eliminated. The current focus is to create job opportunities (Tambunan, 1996). Interestingly, the Indonesian government attempts to abandon the production focus and considers that demand is more dominant than supply. That is the reason inflation targeting by controlling money stock, appears to be more prevalent compared to production.

The notion of controlling the money stock was argued by research from University of Newcastle, Australia. Akhtar Hossain conducted a review of macroeconomic development in Indonesia from 1950 to 2005. Hossain stated that the stability of the Indonesian economy was established in Soeharto's era[1], due to his authoritarian government, which focused on stabilizing food price through agricultural intensification and substantial government subsidies, the focus was on agriculture production. The success indicators for the economic growth rate during 1966-1996 were approximately 7% per annum, which one of the highest in the Asian region (Hossain, 2006). It also shows from the FAO award given to Indonesia in 1984 for the self sufficient country in rice production (Bulog Indonesia, 2004).

[1] Soeharto rules Indonesia from 1966 until 1998

> 'This turned out to be the golden era of Indonesian's modern economic history when agricultural, albeit natural resources, economy underwent impressive transformation into a balanced, outward oriented industrialising economy' (Hossain, 2006: 61)

Moreover, the research by using a variant of the Mundell-Fleming[2] model analyses with the structural VAR methodology tested the comparison between the two sources of inflation in Indonesia; the research was conducted by Hermanto Siregar and Bert D. Ward. The empirical evidence shows the aggregate demand shock is relatively importance over aggregate supply shock in affecting macroeconomic fluctuation (Siregar and Ward, 2002). The test was conducted by observing sixty quarterly observations spanning from the period of quarter 2, 1984 to quarter 1, 1999. Five variables of SVAR model were tested, foreign variable (US interest rate), the real exchange rate and three domestic variables (output, national interest rate and money demand). The evidence indicates that the monetary policy served as a sound stabilizing role, in spite of its sluggishness, which can only occur in a short run. However, the other supply shock variable, such as oil shock was not included as one of the model variables. This is because the writer believed that aggregate supply, such as technology and oil price was too robust and has no significant affect on inflation. The paper indicates that inflation in Indonesia is aggregate demand is more influencing compare to aggregate supply

Another position was advanced by Hakim Alamsyah *et al* in their studies of inflation in Indonesia. They concluded that BI needs to address several issues before Inflation Targeting can be fully implemented. In addition, the support from a healthy banking industry is fundamental in order to make various monetary instruments effective, by, for instance, giving the monetary authority the ability to plan and conduct independent functions. Nevertheless, the specific recommendation was to give BI independent authority in order to determine the inflation factors. Further, the exclusion in some sectors in calculating and forecasting the inflation is necessary to avoid the destabilising effect. Also, by conducting the monetary policy, only in the second round of supply shock and accepting the first round of shock as 'a noise'. It is continued by dividing the headline of CPI into two baskets: Core and Noise[3]. It is advised that energy and food sectors be excluded from the price index calculation and considered as a 'noise'. The argument behind that is the monetary policy should not be responsible for non-monetary that influence price (Alamsyah, Joseph, Agung, and Zulverdy, 2001).

> 'The information obtained from other leading economic indicators suggests the direction of change in future economic activity, especially in the demand side. Since demand pressures will affect inflation rates, these economic indicators can also serve as inputs for inflation forecasting' (Alamsyah, Joseph, Agung, and Zulverdy, 2001: 315)

---

[2] The extension of IS-LM model, witch modified the description from close to open economy.

[3] Part of the headline inflation, based on the CPI. The sector that very volatile and cannot be used as measurement factor.

The study of forecasting inflation in Indonesia was conducted by the IMF. One of the study objectives was to determine the specific cause of inflation in Indonesia and continues to identify the factors which may be used to forecast inflation. The research used CPI, exchange rate and interest rate in Indonesia, as research variables during the years 1980 to 2000. The multivariate model combined with the identified variables, was used as the research method. The paper concludes that the base of money growth is statistically significant as a strong prediction of the power of inflation. After excluding the exchange rate variable from the model, base money growth emerges as the more significant factor for inflation determination (Ramakrishnan and Vamvakidis, 2002). However, this study ignores any supply factors as a variable indicator.

Further, Professor of Economics and Finance from Bangladesh, Anis Chowdhury, specifically challenges the research conducted by Siregar and Ward. He expands the data from 1950 to 1997. The results indicate that the monetary policy from the central bank is not the sole institutional arrangement for preventing inflation. Further, the aggregate demand is not the fundamental cause of inflation in Indonesia. In fact, the alternative institutional arrangement in social consensus can deliver a lower inflation target. Equally, it can stimulate economic growth. The interaction between labour, government and business is the method that can be used to construct or repair the damage, due to the economic shock (Chowdhury, 2002)

> 'Social spending such as universal primary healthcare, free education and other publicly funded welfare schemes may be regarded as 'social wage' and are the government's part in the social bargain. Thus the government's ability to maintain social expenditure through inflationary financing may act as glue that holds together the social impact' (Chowdhury, 2002: 39)

Much of the literature discussed above supports the argument position of the main cause of inflation in Indonesia as originating from the demand side. However, only some literature considers the supply factor as a crucial factor that stimulates inflation. Some neo-classical thinking tries to exclude the important factors from the production sector, for instance, food and energy from their inflation calculation variables. In addition, they fail to consider the important external factors contributing high inflation, such as the increasing of the fuel price.

2.5.2 Inflation in Aceh

Much of the previous research on this subject does not discuss the cause of high inflation in the Aceh aftermath disaster. Generally, the research is only based upon the affect of inflation on the recovery program in Aceh. For example the research conducted by World Bank which focused on aiding effectiveness in Aceh. The research result was that inflation as the causes of the delay in implementing the recovery program in Aceh (Marsyarafah and McKeon, 2008). However, none of the content attempts to examine the sources and causes of inflation.

The Tsunami Evaluation Coalition[4] insists that inflation comes from aid money. It started in the first stage of disaster, when an influx of many recovery agencies in search for skilled labour and seeking to create competition among the agencies occurred (Christoplos, 2006). However the report does not specifically mention the relationship with macroeconomic volatility.

Furthermore, the same report also stated that the recovery focus for production sector, by the recovery agencies was only to recover the basic structure. A specific example is for the fishery sector. Most of the recovery agencies were only focused on restoring the fishing boat, fishing net and other basic tools. However, facilities to support the production were not replaced well. Although, traditional and local markers had been rapidly constructed, the facilities, such as landing facility for boats, ice factory and cold storage had not been built or invested by the aid agencies (Christoplos, 2006). These facts indicate that the production sector had not totally recovered after the disaster, which can be identified as the inflation cause.

Contrary to the opinion above, local scholars in Aceh believe the demand side is a greater contributor to inflation. According to Jafar Ahmad; the director of Syiahkuala University in Banda Aceh, the government of Indonesia was lacking coordination in terms of controlling the inflation in Aceh, by not controlling the emergency aid that came to Aceh province. (Aceh, Modus, 2009). He believes that emergency aid was the source of inflation in Aceh and government should create comprehensive macroeconomic policy to control the money stock. In addition, Raja Masbar, one of Aceh scholars mentions that inflation in Aceh after the tsunami should be controlled and targeted by implementing extensive monetary policy. The policy should also be combined with adopting the local policy based on economic decentralization regulations. He also demands an extraordinary policy, which should consider Aceh as special macroeconomic case.

Moreover, he believes that the main cause of inflation comes from the demand side together with the increase of the national gasoline price. In his view, the main indicator of the shock comes from the increasing demand of construction material goods for reconstruction after tsunami. The increase of the gasoline price has linear effect on the increase of food material (Serambi, 2008).

From the arguments above, the inflation policy in Aceh still follows the national mainstream. Among various type of shock, the demand side is still considered as the most fundamental one by the policy institution in Aceh. It can be seen from the illustration in the previous chapter. In relation to that, the limited role of the local government in the policy practice is very obvious. Policy implication in Aceh should find the basic substantial of the issue first, then it can be followed with good practice.

---

[4] Tsunami Evaluation Coalition or TEC is multi agency learning and accountability initiative in humanitarian sector.

Chapter 3
Background

3.1 Introduction

After discussing some literature regarding inflation, this chapter attempts to provide a more comprehensive background of the study. The general content of this chapter will be divided into three sub-chapters. The first section will deal with the Indonesia background, particularly inflation. The second sub-chapter will address the economy in Aceh and the inflation trend post-tsunami disaster. The last chapter will briefly explain about all the information and data that was used to compute the research result.

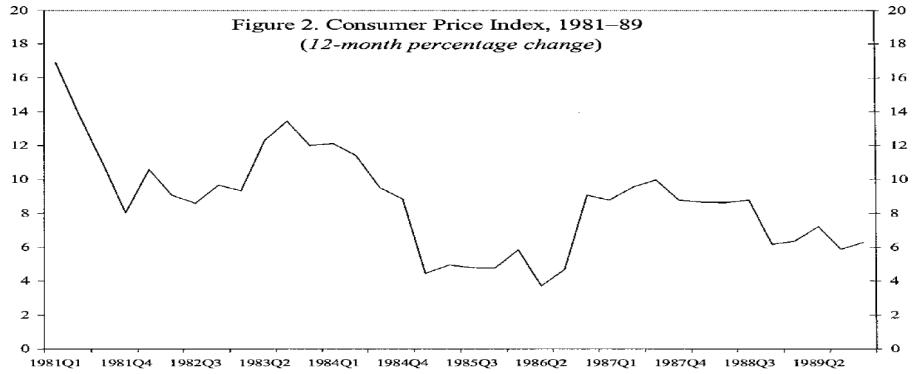
3.2 Indonesia inflation trend

Indonesia has specific economic principle called as *Economy Pancasila* (Komaruddin, 1967). This principle has a close relationship to the state principle, which has as its basic goal, supporting society's welfare.

The influence of the other mainstream is highlighted as part of Indonesian economy history. For instance, post 1945 era, the Marxism influence was one of the more popular mainstream schools of thought during the primitive stages of Indonesian independence. However, it lost currency in the late 60's. The economic liberal policy is hard to deny and became more dominant in the last decade.

This paper will historically observe the inflation trend in Indonesia as well as the policy that relates to it. However, trends from the early 1980's until 2009 will also be observed. The inflation trend will be explored by using CPI as the main indicator of inflation.

Figure 3.1
CPI Indonesia 1981-1989

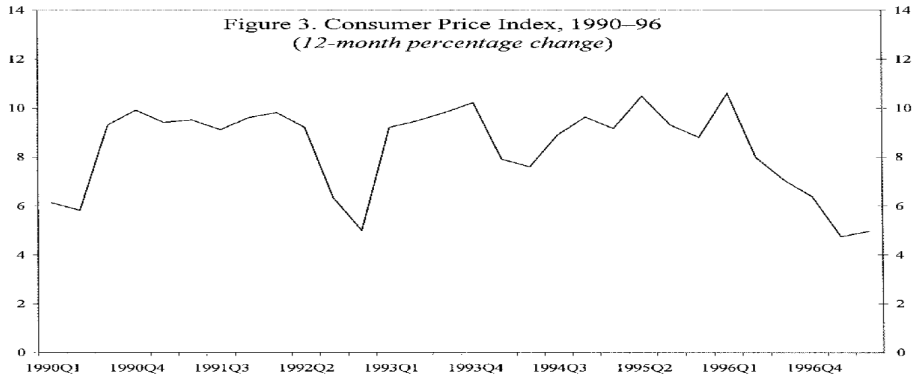


Source: IMF working paper 2002

The debt crisis in the 1980s was the external shock, and dominated the high inflation in that decade (Figure 3.1). The fluctuating line shown on the graph indicates the instability of price and it's impact on the inflation. How-

ever, according to the IMF report, the rate was relatively stable with approximately 9 % (Ramakrishnan and Vamvakidis, 2002). This era is commonly known as the 'golden era' of Indonesian economic history. It had the strong support from natural resources and agriculture production (Hossain, 2006). Figure 3.1 shows that the inflation trend decreased in 1984 when the agriculture intensification took place. However, in the IMF report, it ignores the agriculture progress.

Figure 3.2 CPI Indonesia 1990-1996

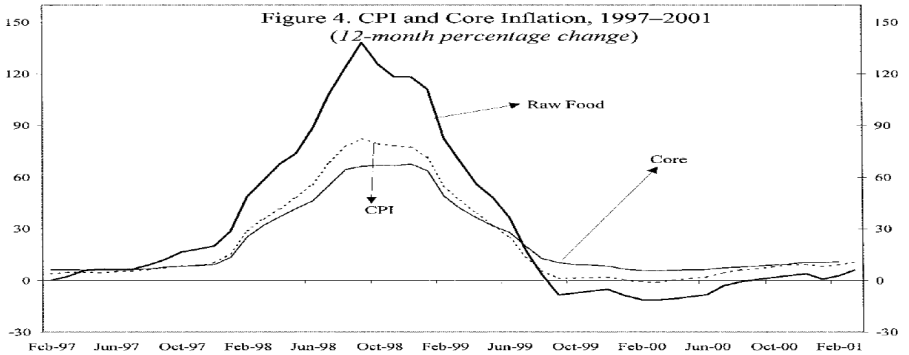


Source: IMF working paper 2002

The graph (Figure 3.2) shows that the CPI flow was quite adequate, with certain fluctuations. At the end of Q4 in 1996, the CPI declined dramatically. Based on an IMF report, in these periods, inflation reached up to 17 % over a 12-month basis (Ramakrishnan and Vamvakidis, 2002). This was the era when the production focus shifted to the manufacturing industry. It shows that the shock has started before the Asian crisis took place in 1997. This also indicates the fragility of Indonesian economy when the focus was changed from the agriculture sector.

In 1997 until 2001 the fluctuating rate of CPI was relative high, starting in 1997 (figure 3.3). That situation happened because the Asian crisis greatly impacted Indonesia. According to the IMF report, the inflation digit was quite stable until the financial crisis hit Indonesia. Further, the most affected sector was the raw food sector.

Figure 3.3 CPI Indonesia 1997-2001

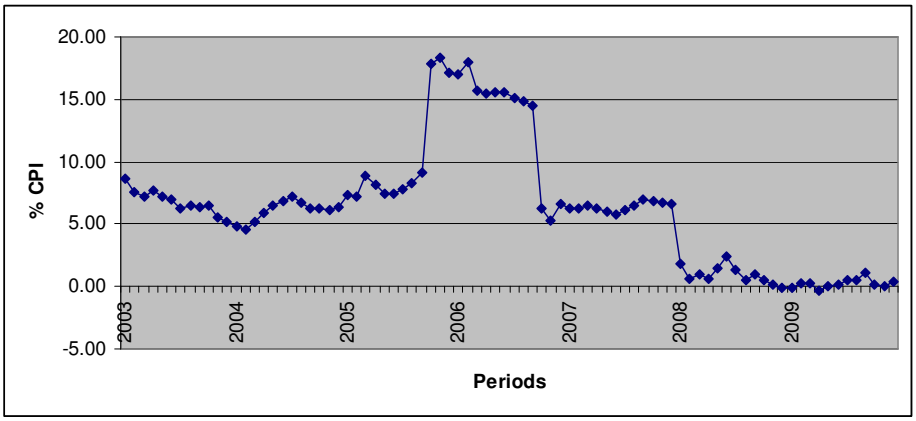


Source: IMF working paper 2002

The inflation trend between 2003 until 2009 in Indonesia (Figure 3.4) indicates shocks in 2005 and dramatic decrease until zero point, at the end of this period. The chart demonstrates that the inflation rate relatively stable except in 2005, the fluctuating line happens because the increase of the national fuel price.

In general, from the the entire decades data shown in this sub-chapter indicates the inflation in Indonesia was quite fluctuating and certain shocks happened in specific years and created a long term to recover. This fact can indicate that Indonesian economic situation is quite fragile and has no strong fundamental economic structure.

Figure 3.4 CPI Indonesia 2003-2009



Source: BPS 2003-2009

From the background history of inflation in Indonesia, it can be concluded that several shocks happened in Indonesia economy and the supply history occurred as the important aspects of the shock. The initial one indicated from the oil shock in 1980, continued when the transform focus of production from agriculture shifted to manufacture industry, worsen by the Asian crisis in 90's.

3.3 Aceh Economy and inflation

This section in the continuation from the previous section, which will see the Aceh economy prior and after tsunami happened. In general, economy in Aceh still depends on its natural resources and Aceh is well known as one of the oil producing provinces in Indonesia

At mid and lower level, the Aceh economy sector is established with two fundamental production sectors; fishery and agriculture sectors. Based on the geographic location, Aceh's livelihood is dominated by fishery sector. At a glance, Aceh province is surrounded by ocean in north, west and east sides. The biggest fish resources come from the Indian Ocean, located in west side of Aceh. In term of population, the most populated area is the costal area.

> 'The province of Nanggroe Aceh Darussalam has 56,363 km2 of water territory. Currently the fishery sector contributes to 102,554.9 tons/annually of marine fish and 36,618.9 tons/annually of inland fish. Fish such as tuna, skip-

jack, shark, sea star, mackerel, flying fish, scrimp etc can be found the region's lush body of water' (International Finance Corporation, 2007; 2)

The second productive sector that contributes to the economy is the agriculture sector. Rice is the main production output from this sector, although it is not as big as the fishery sector, it does create income for community that lives in mountains and non-costal area. The horizontal conflict in Aceh before the tsunami had moved the agriculture field from the mountain to the near costal areas (Kingsbury, 2006). That situation made the output from agriculture's sector decrease before the tsunami struck Aceh in 2004.

After the tsunami struck Aceh, the entire economic and social structure changed. The international community presence in Aceh has contributed to new pressures and opportunities to combine the program both for rebuilding Aceh after the tsunami and a peace building effort after the conflict (Christoplos, 2006). The peace building is considered as new element occurring just after the tsunami struck in this province.

In relation to the international effort, donor commitment was the central issue among the organizations that work for the tsunami program in Aceh. The two priority programs mixed and become a contra issue with the donors. The donor commitments have made the recovery agency have no awareness on the situation. They also have lack of flexibility. In the other words, most of the recovery agencies focused on prioritizing donor obligations rather than prioritizing the programs most needed by the community.

Coordination among the recovery agencies was also an issue. Although the government (BRR) has their representative in the area, somehow the coordination is hard to conduct. The main reason is because the massiveness of the project size and the different obligation from the donors. Both of these aspects create negative impacts on the process of the recovery program. In addition, competition among the recovery agencies has dominated the effort to maximize the program (Soelaksono, 2009). The effect from the competition makes the target less effective. Satisfying the donor becomes the main objective of the program. The full and long-term plan seems far from the attention; therefore, it created a negative long-term effect to the economy.

Soft programs such as education, government capacity building has become the favourite focus by these recovery agencies, which is mostly from NGOs. The target seems not too crucial compared to reconstructing the basic economic needs for the tsunami victims. Providing only basic production material without the supporting factors of production creates the unbalance in the production chain (Christoplos, 2006).

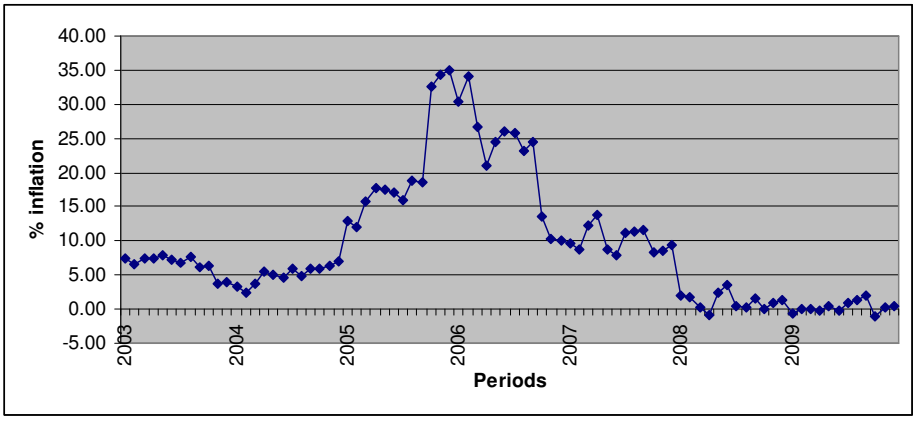
The post tsunami programs also create confusion for the government authority that has monitoring and controlling functions of all the reconstruction process. The government also has an obligation to control the NGOs, the construction companies and the big donor agencies. Considering the big task, its real function, as coordinator and controller have never been accomplished well.

Inflation becomes a "scary" economic disease. The strong power from the World Bank seems more dominant to the Indonesian government. MDF is the consortium organization under World Bank has the specific task to work

closely with GOI to counter all the recovery issues in the tsunami area. Moreover, MDF has successfully convinced the government authority that inflation should be reduced; thus, the price and money flow should be controlled. This organization believes that money flow was the main cause of inflation. As the consequence, the issue in production sector was left behind from the post tsunami programs focus. Moreover, Aceh government always follows the economic policy from the centre: Jakarta/ BI. The decentralization program of Indonesia main capital to their provinces has limitations in macro economic policy. The entire fiscal and monetary policies still have to be regulated from the centre.

There are several economy shocks that happened after the tsunami in December 2004. The most extensive one was in October 2005 with 41% of inflation, which happened in the capital city of Aceh. The inflation trend started to rise after the natural disaster happened. The increase did not follow the national trend and the other provinces of Indonesia.

Figure 3.5 Inflation in Aceh (YOY) 2003-2009



Source: BPS 2003-2009

The other shock that happened in Aceh was when GOI released its new policy of fuel price. The new price rose up to 90% from its basic price. That implementation was based on the increase of world oil prices. The price slowly graduated in the beginning of 2005 and continued to rise in October 2005. The Indonesian government released a new oil subsidy policy to replace the old one. The first subsidy injected directly to the price, which was reducing the price for all types of fuel. That policy was replaced by keeping the fuel price at the world standard price and conducts a money subsidy program to support lower income family in Indonesia.

The new oil subsidy is called BLT or direct cash support. This policy was conducted in all 33 provinces in Indonesia. Compensation program was the main focus of this subsidy. BLT is IDR 100,000 or US$ 10 direct cash grant distributed to each household per month. The program has the objective to prevent the decrease of purchasing power of lower income families because of the increasing price of oil (Bappenas, 2009)

However, BLT program implementation in Aceh experienced a lot of obstacles. One of local newspapers in Aceh mentioned that the program did not run well in 2006. This situation happened because the program had to compete with the other grant programs, conducted by the recovery agencies in Aceh. The data showed only 27.82% of that subsidy funds received by poor family group in Aceh (Bank Indonesia, 2009)

3.4 Data and Information

Several fundamental data that will be used to describe the analyses to answer the research questions. The other macroeconomic factors such as; interest rate, the real exchange rate will be excluded in this research. The centralistic of economic structure in Indonesia is the reason for excluding it, considering Aceh as part of Indonesia and specific macroeconomic policy is regulated from the centre.

3.4.1 Consumer Price Index

CPI is the basic data to compute the inflation. The inflation was recorded based on several indicators of CPI, hence it is accumulated into seven basic essential sectors that has fundamental factor to inflation. Those elements are: food, prepared food, housing, clothing, health, education and transport.

Table 3.1
CPI Banda Aceh 2004-2007

Descriptions	2004	2005	2006	2007	SUM
Food	1.45	18.49	5.33	5.75	31.02
Prepared Food	0.76	6.87	0.29	0.44	8.37
Housing	2.55	5.06	2.14	1.87	11.62
Clothing	0.47	2.23	1.22	1.87	5.78
Health	0.04	0.37	0.33	0.46	1.19
Education	0.71	0.46	0.13	0.21	1.50
Transportation	1.00	7.63	0.10	0.41	9.14
	6.97	41.11	9.54	11.00	68.62

Source: BPS Indonesia (Indonesia Statistic Biro) 2008

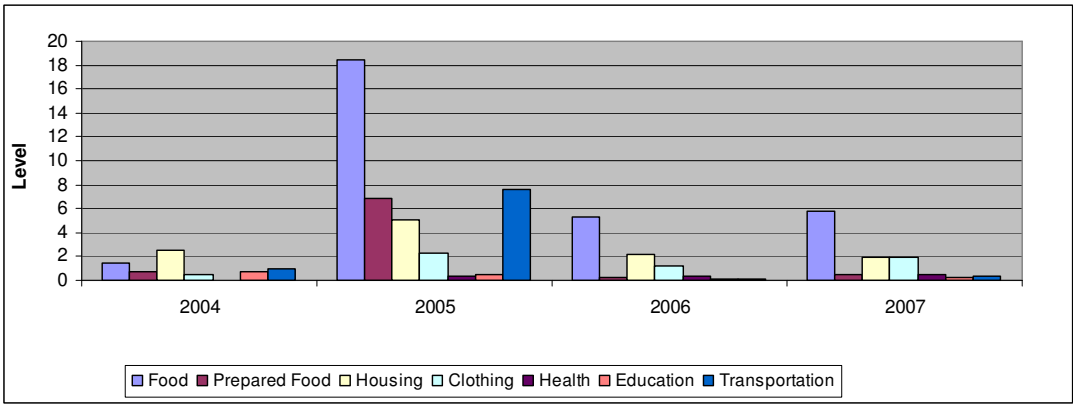
This data will be used as one of the sources to seek the sector that has most contribute to the inflation. At the end, it will provide scientific analysis on what source of inflation happened in Aceh. In addition, the inflation data will be combined with the other variables to look on the type of inflation. The study will use the data from 2004 until 2009; however, in some of the analysis, the data used only until 2007, depends on the type of analysis.

The table 3.1 shows, the main contributor of inflation in Aceh came from the increase of the food price, 18.49%, recorded in 2005 under the food sector. That price increment enhanced the growth level of inflation. In 2006 and 2007 the food sector kept dominance as the essential source of inflation.

In 2004 before the disaster, the data shows that the level of inflation was quite stable. The highest of CPI level indicated came from the housing sector.

However, the food sector did not show a significant effect in contributing the inflation compare to the next following years. In the summary section table 4.4, the food sector contributes as the highest CPI sector to inflation. It is followed by the housing sector, which was dominated in 2004 or before the tsunami, but it decreased in 2007 from the previous year.

Figure 3.6
CPI per sector 2004-2007



Source: BPS Indonesia (Indonesia Statistic Biro) 2008

The increased price of housing sector clearly indicates the effect of tsunami, which larger of number of house destroyed after the tsunami. The level of CPI increased because of the reconstruction process that happened at time periods. In addition, the summary number also includes the calculation of price in 2004, which indicates that the housing sector is the most dominant sector in CPI basket.

The third element that creates increase of inflation level is the transportation sector. It is stated that 7.63% of price increased in 2005, which means this sector has significant impact on the increase of the inflation level. Obviously there is another factor that creates this situation. In addition, this sector has close relation to other sectors, especially with the housing. The price of housing materials increased because it was bought from the other province and the transportation sector contributed large amount of effect to it.

Another sector that is related to the food sector is the prepared food sector. This sector contributes 6.87% to inflation in 2005. In the summary section, this sector is the fourth highest sector that has a contribution to inflation. However, this sector has close relation to the food sector. The increasing of prepared food was the effect of increasing the food price.

Based on the data and explanations above, it can be concluded that the food sector is the sector that has a high contribution to inflation. The second sector that has major effect is the transportation sector; with the fact that this sector contribute to the increasing of housing material price and at the end increased the price of housing construction.

3.4.2 Money stock

Money stock or well known as M2 is one of the indicators used to compute the inflation in Aceh. The data that will be used is the data collected by BPS from all banks in Aceh in periods of 2004 to 2007.

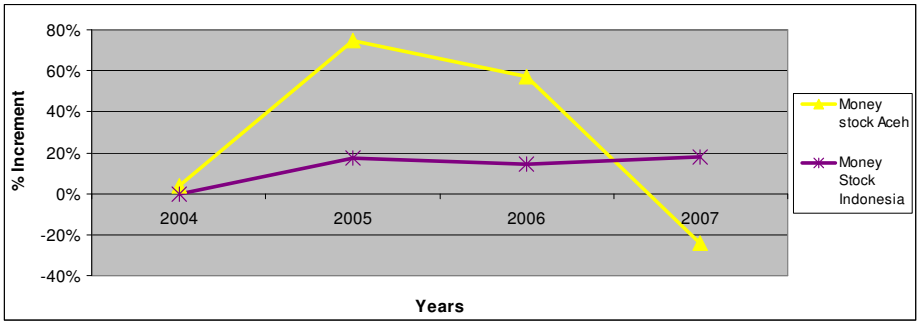
Table 3.2
M2 Indonesia and Aceh 2004-2007(Billion Rupiah)

Indication	Year					YOY Increment (%)			
	2004	2005	2006	2007	TOTAL	2004	2005	2006	2007
Money stock Aceh	7,951.71	13,886.70	21,836.59	16,611.82	**60,286.81**	3.86%	74.64%	57.25%	-23.93%
Money Stock Indonesia	965,080.00	1,134,086.00	1,298,744.00	1,528,185.00	**4,926,095.00**	0.00%	17.51%	14.52%	17.67%

Source: Bank Indonesia (Indonesia central Bank) 2004-2008

From the data above we can see the peak of the money that came to Aceh Province was in 2006. The IDR 21,928.10 Billion or approximately US$ 2 Billion of money came to Aceh. It also created slight shock in Indonesia. It showed after the tsunami in December 2004. The money stock rose to 75% in Aceh province and 18% in Indonesia. The data will be described in the following chart below:

Figure 3.7
Money stock Aceh and Indonesia 2004-2007



Source: Bank Indonesia (Indonesia central Bank) 2008

From the chart above, it indicates that there are slight fluctuations of money that came to Indonesia, except in Aceh. As we can see from the table 3.2, the highest nominal of money stock that came to Aceh happened in 2006. However, based on the percentage, the highest percentage variances of fluctuation fund happened between the periods of 2004 to 2005 or just after the tsunami disaster.

The indication of fluctuation of money stock also can be observed by comparing the variance percentage between national and Aceh level. It shows that the money that came to Aceh was high after the tsunami happened. Meanwhile the national level stayed in a normal level. This also indicates that the emergency aid money only affected specific region not the national level

3.4.3 Tsunami emergency Aid

The following data will be used as the third empirical testing source. BRR and World Bank gathered the data below for Aceh tsunami program; it shows the aid that was allocated and distributed from three main institutions: Donor, NGOs and GOI.

There were three types of aid fund recorded in the aftermath of the disaster. The first one was recorded at the commitment level. At this level, the entire recovery agencies registered their fund availability for their program to BRR. It is called a Commitment Fund. The second one is the Allocated Fund. It means that this fund was approved by the donors and budgeted by the tsunami recovery agencies. The third one called as Distributed Fund, which is the fund spent by the tsunami recovery agencies for their program in Aceh. However, not all the Allocated Fund was distributed to the emergency location in that respective year. Obstacles such as competition among the recovery agencies to fulfil their donor obligations and coordination among the recovery agencies become a huge challenge for all the agencies to distribute the fund according to the initial committed schedule (Soelaksono, 2009).

Table 3.3
Aid report 2005-2007(in thousand US$)

Periods	Allocated*	Total Distributed*	Variance	
Nov-05	3,942	389	389	9%
Feb-06	4,257	902	513	12%
Jun-06	4,649	1,493	591	14%
Sep-06	5,766	2,197	704	17%
Dec-06	5,691	2,814	617	15%
Jun-07	5,884	3,371	557	13%
Dec-07	6,429	4,178	807	19%
TOTAL			4,178	100%

Source: BRR and World Bank 2008

Aid disbursements data will be used as the third reference to test the initial argument from Neo-Classical point of view that mentioned about the excess of money stock as the main cause of inflation. This data is recorded from 2005 to 2007. To simplify the data I only provide the data from November 2005 until June 2007. The purpose is to test only when the inflation reached it highest point.

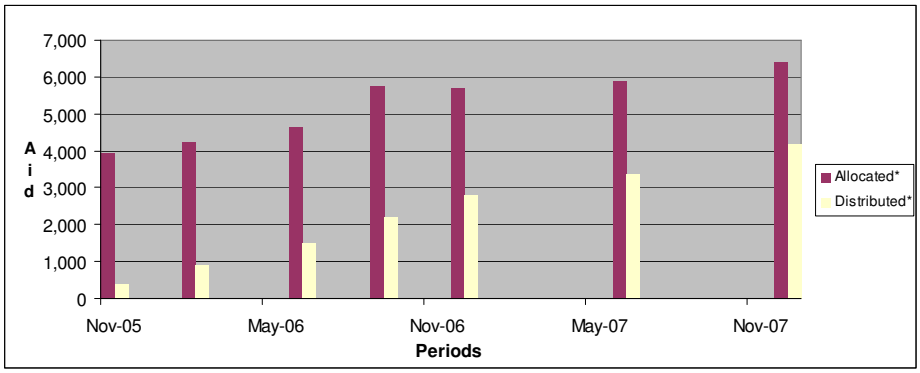
As stated before, the highest peak of inflation in Aceh province happened in December 2005, which climbed up to 35. 1 %. Meanwhile as shown in aid disbursement data above, between November 2005 and February 2006 the aid disbursement was at the lowest level, which was only US$ 513 Million or approximately 12% from the total aid distributed until December 2007.

The fact also shows that the aid fund recorded was not 100% distributed. It is stated from the money stock data, the total fund that came to Aceh until the end of 2005 was approximately US$ 1.4 Billion, meanwhile the fund that

was distributed until February 2006 only US$ 513 Million. It means, approximately only 37% was really distributed in two months after the year of 2005. If we compare the money stock data with the Distributed Fund in November 2005 or one month before the end of year 2005, the result is quite surprising, because it only US$ 389 Million or approximately only 28% fund distributed from total US$ 1.4 Billion invested in 2005.

The data below also indicates that there are significant variances between allocated and distributed aid funds for post disaster projects. It also clearly indicates that there was a delay on spending the aid fund. On the contrary, it will affect to money stock. In this case, the effect is that the money stock data will increase dramatically in the early period of the tsunami because of the delay spending. The analytical test will be observed in the next chapter.

Figure 3.8
Emergency Aid allocated and distributed 2004-2007



Source: BRR and World Bank 2008

Chapter 4
Tsunami and Inflation

4.1 Introduction

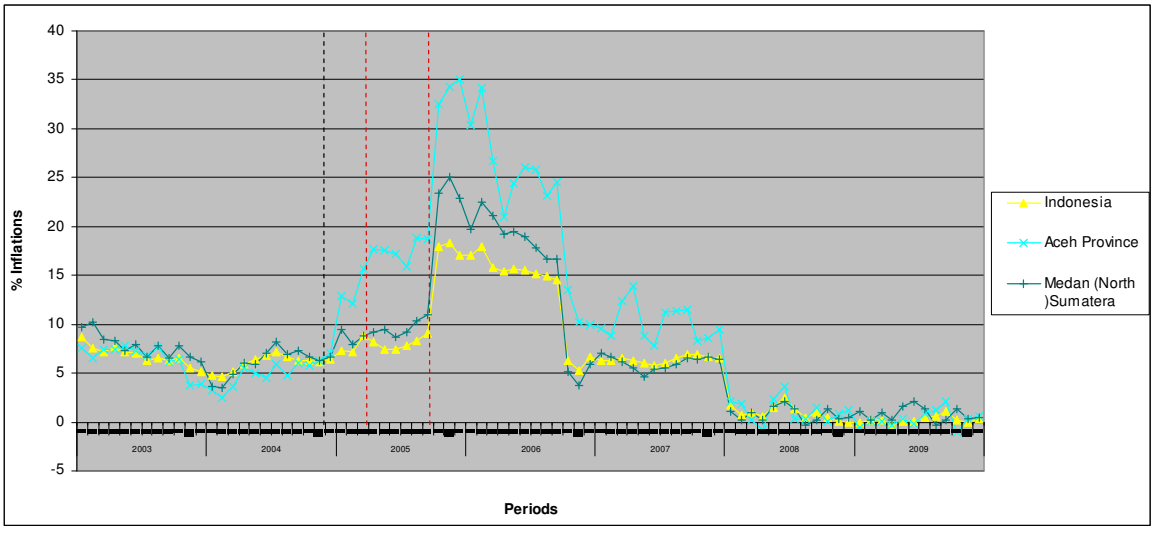
This chapter will explore the results from the questions and objectives of the research. The data will be combined and processed to provide the fact for these objectives:

1. To see whether the tsunami result in significant inflation differentials between Aceh, national level and other province;
2. To seek the real cause of inflation: demand or supply; and
3. To find the sources of inflation, after the tsunami in Aceh and the policy implication on that situations.

4.2 Inflation differentials

In this sub-chapter, the entirety of the inflation data will be combined and assessed. Initially, this paper will show general inflation data, which combines all the locations related to this research. Secondly, it will progress by analysing the variance between Aceh and Indonesia, as well as Aceh and North Sumatera, as the closest province to Aceh.

Figure 4.1
Inflation trend across regions



Source: BPS Indonesia 2008

The data above, it indicates that the inflation level in Aceh began to increase in early months of 2005, following the tsunami of December 26, 2004. Prior to the natural disaster, the inflation level, mostly, followed the national inflation level. However, there are fluctuations that occurred after the tsunami disaster. The black dotted line indicates the time line when the tsunami disaster

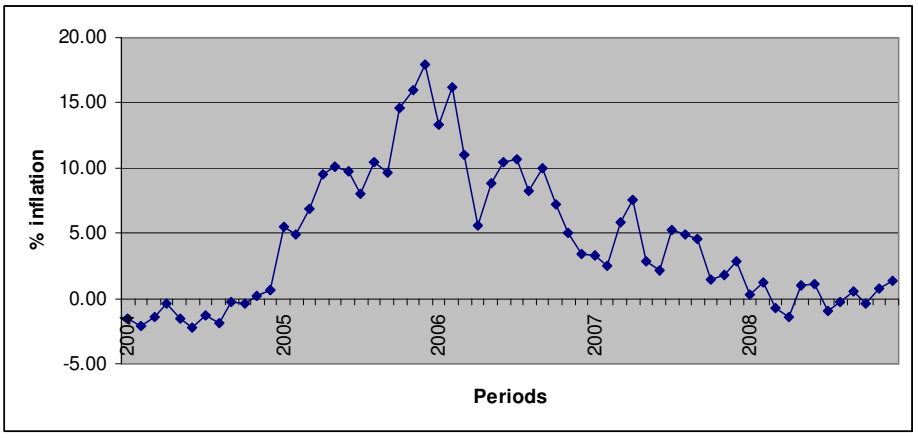
occurred, which also indicates the fluctuation of inflation, as starting from that point. The red line indicates the time when the Indonesia government stimulated national policy in order to increase the fuel price.

In general, the variance can be seen between the regions. The focus is to look at the differences in Aceh province compared to the national level and Medan, as the closest province to Aceh. The inflation variances started soon after the disaster and continued to rise until reaching a climax in October 2005. Following this point, the inflation trend declined until the end of 2009.

4.2.1 Inflation trend in Indonesia and Aceh

This section will explore more specifically, the variance of inflation between Aceh and the national level. It began in 2004 and continued until 2008. This section will not explore the gap happened in 2003 and 2009. The assumption was that in 2003, the inflation trend stabilised, relatively and followed the national trend. The focus of this paper is to consider the gap after the tsunami. As for 2009, a similar reason of stability applies and the gap is almost similar with that of the previous year.

Figure 4.2
Inflation variance Aceh and Indonesia, 2004-2008



Source: BPS Indonesia 2008

A low point of variance was reached in 2004 approximately 0.67%at the end of the year. After the tsunami struck and the new fuel price coincided in 2005 the variance start increasing rapidly, by more than 17% by December 2005. In 2005 the variance surged, the highest record over the period of the observed years.

However, the variance starts to decline in 2006, until it reached it lowest peak at the end of the year, by some 3.39%. Multiple factors caused this low variance. For instance, a strong contributor to this variance decline was the reconstruction process taking place in Aceh. The highest variance only occurred in the beginning of the year by 16.20%, which was the continuation the effect from the previous year. The variance further dropped down to its lowest price in 3 years, at around 1.43%, on October 2007, contrary on March, the variance rose by 7,59%. The increase lasted temporary, until it dropped in June 2007.

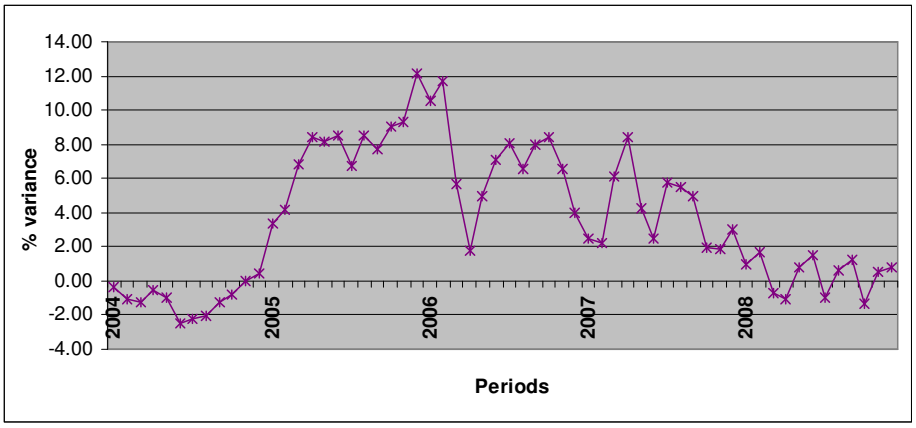
In 2008 the variance moved towards stabilizing and started returning to the initial trend, as it was before the tsunami, although it was still above the initial average. The variance reached it first minus point, after the tsunami, at -0.77% in March and continued to decline until -1.43% in April. However, it also continued to fluctuate until the end of the year.

This indicates that Aceh has different economic issues compared to those experienced at the national level. Certain external shocks happened in both observed locations. However, the effect seems more intense in Aceh. The bad policy from central government worsens the inflation situation. 2005 was the year that was really affected. This occurred due to bad policy. Specific policies with a sound approach ought to have been conducted in Aceh. To advance the argument precisely, the variance analyses will be continued, by comparing inflation with other provinces in Indonesia.

4.2.2 Inflation in Aceh and other province

This section will compare the inflation between Aceh and North Sumatera[5], as the closest proxy indicator for province-to-province comparison. The time period is similar to that in the previous observations in the previous section, namely from the beginning of 2004 until the end of 2008. Generally, the inflation variance was not too high before the tsunami. This also indicates that the level of inflation in Aceh is below Medan rate in 2004, or at least before the natural disaster occurred.

Figure 4.3
inflation variance Aceh and Medan, 2004-2008



Source: BPS Indonesia 2008

[5] North Sumatra is the closest province to Aceh. One of the districts (Nias island) in that province also experienced the indirect impact from the tsunami, and a massive earthquake happened a few months after the tsunami. North Sumatera is well known as the main supplier city that supported Aceh economy before and after the tsunami. This indicates North Sumatera should have also received the same shock experience, if money flows as the indicator of inflation. The main reason is because most of the goods and materials for the recovery mission were brought from this province.

In 2005 the variance began to increase, until reaching the highest point in late 2005. In this year, the inflation variance reached the highest point in the entire observed period. In 2006, the variance fluctuated but remained relatively high. In 2007 the pattern was similar but the trend began to gradually decline. Lastly in 2008 the inflation variance was almost the same between Medan and Aceh, although it fluctuated it was relatively stable.

The trend shows significant variance differences between these locations. It also indicates that inflation in Aceh is different from inflation in the others city, even though the city taken as a sample also experienced the similar shocks. This fact needs to be observed to identify the real cause of inflation and what makes the inflation different from the other provinces that have had the same experience.

4.3 Demand or supply shock?

This section will continue to analyse the result from the previous section. Four data: excess money stock; YOY inflation; raw food from CPI; Aceh economic growth specific in agriculture and fishery sector; and aid distributed data will be used to find the type of shock happened in Aceh.

4.3.1 Demand shock

According to Neo-classicalist theory, the excess of money stock results from raising inflation. The excess of money stock can be identified from the percentage change of money stock, minus the percentage of GDP constant. The theory is best explained with the equation below:

$$EM=\Sigma M2-G$$

EM is identified as the excess money stock in Aceh, which comes from the calculation of percentage change of the money stock in Aceh ($\Sigma M2$), minus the percentage of GRDP constant price in Aceh (G). The result from the equation can be observed in Table 4.1 below:

Table 4.1
Demand shock indicator in Aceh 2004- 2007

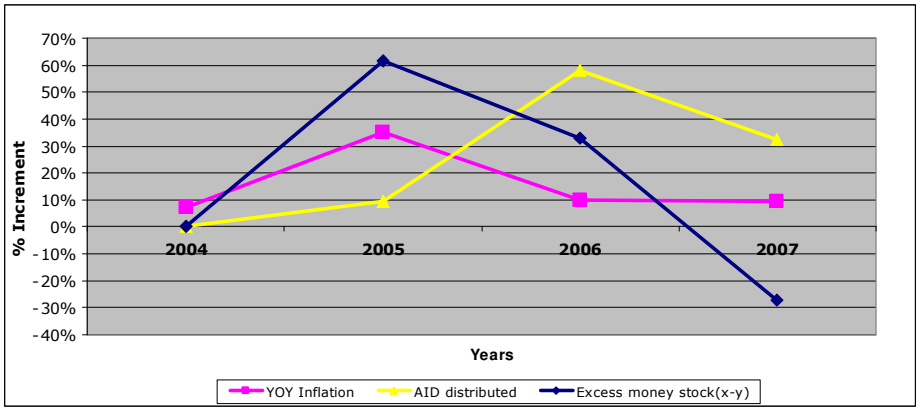
Indicators	Years			
	2004	2005	2006	2007
Money stock (ΣM2)	3.86%	74.64%	57.25%	-23.93%
GRDP Aceh (G)	3.57%	13.10%	24.29%	3.40%
Excess money stock (EM)	0.28%	61.54%	32.96%	-27.33%
YOY Inflation	7.07%	35.01%	9.97%	9.44%
AID distributed	0.00%	9.31%	58.05%	32.64%

Source: BPS, BI and BRR 2008

A brief analysis on the data above indicates that the percent of GRDP constant in Aceh, increased dramatically from 3.57% in 2004 to 57.25% in 2006. The increment was due to the increase in income from service sector, as part of the initial emergency response. This fact may be observed from the

Aceh economic growth data in the Appendix section[6]. The increasing percentage of money stock in Aceh from 3.86% in 2004 to 74.64% in 2005 was influenced first by the government policy of increasing the national fuel price, and second from the first investment of aid fund in responding to the tsunami disaster. The delays of spending the aid fund also created a certain effect. At the end of 2007, the recovery agencies contributed significantly on the recovery program. This is demonstrated from the increase of distributed aid and the decrease of the money stock level. Additionally, it was also stated that the aid fund was 80% dominating the money stock after the natural disaster.

Figure 4.4
Demand shock 2004-2007



Source: BPS, BI and BRR 2008

The facts in Figure 4.9 explain the type of shock that occurred in Aceh during the post tsunami period. Commencing with 2005, during that period all indicators raised, especially the aid distributed fund indicator, which initially started at 0 in 2004. The excess of money stock and inflation also rose significantly during that year. However, the increased digits of the two indicators have no positive correlation. The effect of increased inflation occurred due to other related factors that are related to Indonesian governmental policy, which includes the increasing of fuel prices that were established in the beginning and at the end of 2005.

In 2006, the inflation and the money stock declined dramatically, it seems those two variables followed each other. On the other hand, the distributed aid to respond to the tsunami disaster was increasing significantly. However the correlation between inflation and excess money stock is robust. Firstly, it is demonstrative of the intersection lines between aid distributed and excess money stock. There was a delay from recovery agencies to implement the recovery program in 2005 and the program only began to run effectively in 2006,

[6] Appendix 4 stated that only service sectors indicate growth in Aceh economy. The sectors are: general service, trade, hotel and restaurant and transportation and communication

as has been mentioned in background chapter[7]. In that year (2006) the recovery agencies started to spend their aid money effectively and inflation started decreasing. Secondly, it can be identified from the intersection between aid distributed fund and inflation in the chart. It shows a negative correlation between those two variables. There was a strong indication that the aid had been used to restore the sector that was destroyed due to the Tsunami and that it was this which inspired the decreasing of the inflation digit at that period. It denotes that approximately 80% of money distributed in Aceh, came from aid[8].

2007 was the last year before inflation stabilised. The inflation digit did not move significantly from 2006 to 2007. Meanwhile the excess money stock line significantly declined up until -34% from 57%. Those two facts clearly indicate that the correlation between excess money stock and inflation is insignificant. Inflation should also decrease significantly when the excess money stock decreased and that situation did not happened in this year. This is to argue that neoclassical theory about inflation is not coherent to the fact that this happened. The other factor that stimulated the inflation in Aceh needs to be observed.

From the data and explanation above, it indicates a negative relation between money flow or the excess money stock and inflation in natural disaster areas. If we compare the amount of money stock data in the background chapter with the level of inflation, it can be observed that the highest nominal fund, given by the recovery agency to Aceh occurred in 2006. IDR 21,928.10 Billion Rupiah or approximately US$ 2 Billion was in the fund that came to Aceh in 2006. Meanwhile the inflation trend in Aceh was declining at that time.

The highest nominal of fund was followed by the decrease of inflation level. The data also demonstrated the highest pick of inflation as occurring in 2005 or one year after the disaster and not two years after it. This denotes the real cause of inflation. Therefore, it is not because of the money flow and supply shock that the cause of inflation can be identified. However, other factors force inflation to happen in Aceh.

Furthermore, it also indicates that there is no positive relationship between excess money stock and inflation. It proves from the Figure 4.9, that the inflation digit remains stable when the excess of money stock declines to a minus point. This, once again proving that the neo-classical argument is not relevant with the situation as it unfolded in Aceh.

4.3.2 Supply shock

The structural bottleneck from the agriculture sector or the damage in production sector is the factor that stimulates inflation according to structuralist theorists. This section will explore, translate and apply that theory to the fact and data from Aceh, in the aftermath of the disaster. Four data has a close relationship with the argument and they will be combined and the trend analyzed.

---

[7] Table 3.3 stated that there was discrepancy between Aid allocated and distributed in 2005-2007. That fact indicates the delay of aid disbursement

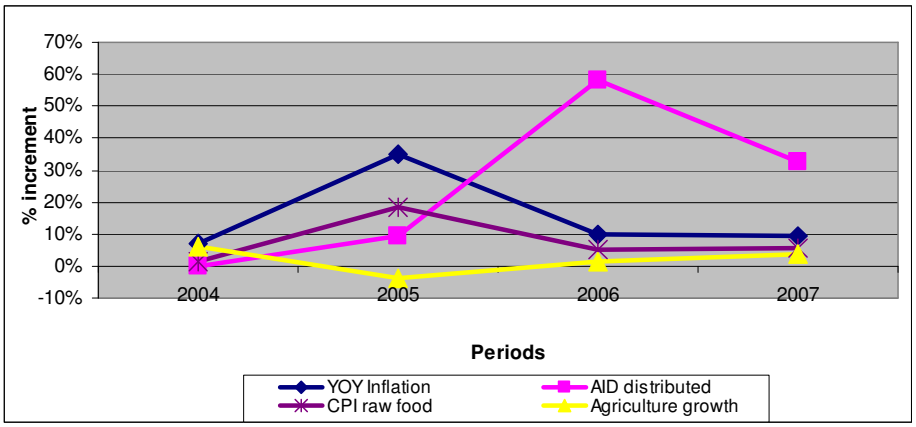
[8] The background chapter disuceed about money stock data and the aid data, which can be concluded 80% of aid was dominating the money stock in Aceh after tsunami

Table 4.2
Supply shock indicator in Aceh 2004- 2007

Indicators	Periods			
	2004	2005	2006	2007
CPI raw food	1.45%	18.49%	5.33%	5.75%
YOY Inflation	7.07%	35.01%	9.97%	9.44%
AID distributed	0.00%	9.31%	58.05%	32.64%
Agriculture and fishery growth	6.00%	-3.89%	1.52%	3.62%

CPI raw food will be used as extra data. This is because the raw food sector serves as the highest CPI sector to inflation. Aid distributed is used as the indicator of social fund, which is invested in order to finance inflation. The percentage of agriculture and fishery growth is used as the indicator to construct structuralist argument.

Figure 4.5
Supply shock indicator 2004-2007



Source: BPS and BRR 2008

There is a connection between the agricultural and fishery growth sector and inflation in 2005. The CPI of raw food is increasing significantly from 1.45% to 18.49%. Meanwhile, the percentage of agriculture and fishery growth dropped significantly from 6% in 2004 to -3.89% in 2005. This situation indicates the damage suffered in the production sector, particularly in food and fishery production, which increased the inflation digit. The aid money was distributed inadequately that year, which meant that the agricultural sector had not recovered yet. However, there is another indicator that makes the inflation digit high in that year, namely the increase of fuel price. This issue will be further discussed in the next section.

The highlighted trend is the intersection line between the raw food CPI and aid distributed between the year of 2005 and 2006. The high number of aid fund was distributed at that period and the price of food began to decrease,

simultaneously. The number of aid that was distributed increased from 9.31%to 58.05%. In the same time the price of raw food decreased from 18.49%to 5.33%. This situation indicates that aid money had been used to finance the production sector and the effect shows in decreasing of inflation digit. In addition, the economic growth indicator for agriculture and fishery sector in Aceh, also increasing from -3.89 % in 2005 to 1,52 % in 2006 and it follows the increasing of aid distributed trend.

In 2007, the inflation move toward to stabile, the digit only moves from 9.97 % in 2006 to 9.44 % in 2007. In the same time the agriculture and fishery sector growth from 1.52 % in 2006 to 3.62 % in 2007. This is the effect of social reconstruction, which is contributed by the aid fund. Although the growth does not follow the initial growth before the tsunami. The explanation why this sector was not following the initial trend will be explored in the next section.

From the above observations, it can certainly be seen that there is a positive relationship between the structural bottlenecks in the production sector and inflation. As a consequence, we are able to conclude that the increase of money flow is not a genuine cause of inflation. This particularly proves that the neo-classical theory of increase of money flow, as caused by inflation is inaccurate, especially in natural disaster area. Lastly, **the data indicates that the damage on the supply side is more dominant, compared to the shock on the demand side and as the main cause of inflation.** The proceeding section will continue with the sources of inflation from the supply side

4.4 The evidences from the supply side

This sub-chapter seeks to examine explore the sources of inflation, based on the facts that have been described in the previous sub-chapter. The supply shock identified a more dominant contribution to inflation in Aceh. Additionally, the fact from the CPI basket, indicated that the two prominent sectors which contribute to inflation, are the food and transportation sectors. These are by far the main sources of inflation. As previously enumerated, although the housing sector contributes as the second highest sector, at this juncture it can be ignored. The housing sector is not a stand alone sector, it depends upon another sector. In this instance, the material of construction, which must be acquired from other provinces. To elaborate further, the natural disaster which occurred in Aceh and impacted upon the scarcity of construction material goods in that province.

The initial damage and loss assessment report (Table 4.3) is the data source that may be connected to the fact. It is observed that the two variables, production and transport, are listed in that report. The productive sector placed is positioned as the second largest sector, after the housing and infrastructure sector. Moreover, the transportation sector is positioned as the second largest sub-sector, following the housing sector.

It must be concluded, that these sectors are the most affected sectors from the supply side, as has been elaborated in the previous sub-chapter. This is further indicative that supply was/is not the cause of inflation. The analyses of those sectors will be further described below.

4.4.1 Productive sector

To strengthen the weight of the above statements, the level of damage in a natural disaster area, should be considered in the context of this argument. Damage and loss assessment is the initial survey that is normally conducted by the local government. This survey serves to measure the level of destruction, occurring in a natural disaster area. In Aceh's case, the World Bank conducted a survey with the support from the Indonesian government. This report is the initial report seeking to measure the level of destruction which occurred in the vicinity of the natural disaster area.

There are four major sectors highlighted by the survey. Those sectors are pinpointed as the most pertinent factors which might impact upon a disaster. The four major sectors are the, social, infrastructure and housing, production sector and cross sectors.

Within all sectors, it was predicted that the loss amassed as a result of the disaster was approximately US$ 4,8 billion. The sub-sector most affected by the disaster was housing. Indeed, the loss from this sector totalled US$ 1,6 billion or approximately 33% of the total loss. Contrary to the less affected disaster sub-sector is the bank and finance sector which recorded a loss of US$ 14 billion, with the level of destruction at approximately 0.2%

Moreover, from the sector perspective, the most affected sectors, based upon the assessment, are infrastructure and housing, with US$ 2,6 billion lost or approximately 54% from the total loss. Furthermore, the least affected sector is social sector, with only US$ 359 billion or around 7.4% from the total loss.

From the analyses above, we may observe that construction or infrastructure was the most affected sector, the sector upon which the tsunami had the greatest impact, with housing being the sub-sector mostly affected. In the view of the author, the housing sector undeniably requires specific focus. Indeed, recovery agencies have been distinctly advised to focus on this sector.

Although the housing sub-sector and infrastructure sector suffered the highest destruction level, the sub-sector that was most impacted was the production sector. This is demonstrated by the number of sub-sectors, which contributed to the sector. Seven sub-sectors were directly engaged in infrastructure and housing sector. Meanwhile, the production sector only constituted 3 sub-sectors. Thus, it was only in the second level destruction sector. Further, fishery is the sub–sector under the production sector that suffered the most impact on the disaster. Based on the survey, this sub sector has 11% impact and a total loss of US$ 511 million. Moreover, the production sector was the second sector most impacted upon by the disaster, after infrastructure and housing sector.

From the data, it is clear that the infrastructure and production sectors are the most impacted sectors in the disaster area. Despite this, reconstruction following the disaster focused primarily on rebuilding the damage and loss in infrastructure and housing sectors (Marsyarafah and McKeon, 2008) whilst the production sector was more or less ignored. The reconstruction effort did not combine development efforts in this regard.

Table 4.3
Damage and loss assessment report

	NEEDS	
	Damage and Loss assessment	Damage and Loss with Inflation Adjusted*
	A	B
Social Sector	**359**	**460**
Education	151	193
Health	115	147
Community, culture and religion	94	120
Infrastructure and Housing	**2,620**	**3,352**
Housing	1,597	2,043
Transport	606	776
Communications	43	55
Energy	88	113
Water & Sanitation	64	82
Flood control, irrigation works	221	283
Other Infrastructure	0	0
Productive Sectors	**1,183**	**1,514**
Agriculture & Livestock	225	288
Fisheries	511	654
Enterprise	448	573
Cross Sectoral	**681**	**871**
Environment	554	709
Governance & Admin (incl. Land)	113	144
Bank & Finance	14	18
TOTAL	**4,843**	**6,196**

Source: BRR and World Bank 2005
*28% based on WB prediction in 2005

According to the Tsunami Evaluation Coalition report in 2006, the recovery focus for production sector by the recovery agencies was only to recover the basic structure. A specific example is for the fishery sector. Most of the recovery agencies only focused on restoring the fishing boat, fishing net and other basic tools. However, the facility to support production was not replaced and a lacuna remained. Although, traditional and local markers have been rapidly constructed, the facilities, such as landing facility for boats, ice factories and cold storage are yet to be assumed or invested in by aid agencies

(Christoplos, 2006). To elaborate, the fishery sector is the most major income for the livelihood in Aceh and investment into it is vital for survival[9].

This fact is observed in the fund allocation strategy allocated by all NGO's, donors and the Indonesian government during the reconstruction phase. The entire process is also monitored and observed by BRR. It reflects on the data below (Table 4.4)

The data below explains the funds allocated and distributed according to the damage and loss assessment. It indicated that the sectors most requiring construction is the infrastructure and housing sectors. The data also reflects funds allocated to the construction sector as at US$ 3.1 billion, which remains the largest amount in comparison to the total funds allocated to the disaster recovery. In fact it amounts to approximately 50% of the total fund.

The total funds allocated for the disaster amounted to USS 6.4 billion. Meanwhile, the funds distributed for the recovery program were only US$ 4.1 billion. Some aspects such as the increase in fixed costs, affected the increase of internal organization or administration cost of the recovery projects. This forced organizations to delimit their commitment to the recovery program, with great regret. Inflation is the other main reason, which was relied upon by recovery agencies for decreasing the value of the tsunami project recovery fund.

However, another vital aspect which has not been considered, is the lack of recovery from the production sector. According to the data above, the production sector was the lowest sector and received commitment funds for the recovery, amounting to a meagre US$ 734 million. Meanwhile, the total commitment fund for the project was US$ 6.4 billion. In the other words, only 11% of funds were allocated for recovering the production sector.

This is markedly different from the previous data set. For instance, we can see the fishery sector as one of the sectors most affected by the disaster. Yet, the post recovery program failed to prioritize rebuilding this sub-sector, due to certain priority reasons, which were more focused to social sectors.

Moreover, the other sub-sector also affected includes the agricultural livestock and enterprise sub-sectors. For those sub-sectors, data shows that the loss for this sub-sector was relatively high and greatly impacted upon the economic structure. The agriculture and livestock sub-sector was recorded to have lost US$ 225 million. Meanwhile, the enterprise sub-sector lost US$ 448 Million.

As mentioned above, the fund allocated for the production sector falls far lower than that required. Approximately only 62% from the total production sector loss was allocated for recovery. Consequentially, this means that the recovery fund had a deficit of -38% from the total loss of this sector. Moreover, only 46% of the recovery fund was really distributed and used for this production sector. Obviously, this fund did not meet or exceed expectations.

---

[9] As been mentioned in background chapter the fishery sector is main livelihood in Aceh

Table 4.4
Damage, loss and project funding assessment report

	NEEDS		PROJECTS		BALANCE (Projects - Needs)			
	Damage & Loss assessment	Damage & Loss with Inflation Adjusted	Total Projects & Programs Allocations	Total Projects & Programs Disbursements	Balance of Damage & Loss		Disbursements Gap (to Core)	
	A	B	C	D	C-A		D-A	
Social Sector	**359**	**460**	**1,719**	**1,232**	**1,359**	**378%**	**873**	**243%**
Education	151	193	502	327	351	232%	176	116%
Health	115	147	682	570	567	493%	455	396%
Community, culture and religion	94	120	535	336	442	472%	242	259%
Infrastructure and Housing	**2,620**	**3,352**	**3,196**	**1,917**	**576**	**22%**	**-703**	**-27%**
Housing	1,597	2,043	1,638	1,161	41	3%	-436	-27%
Transport	606	776	746	356	140	23%	-250	-41%
Communications	43	55	108	26	65	151%	-17	-39%
Energy	88	113	45	56	-43	-49%	-33	-37%
Water & Sanitation	64	82	327	195	263	411%	131	205%
Flood control, irrigation works	221	283	249	86	27	12%	-136	-61%
Other Infrastructure	0	0	84	38	84	-	38	-
Productive Sectors	**1,183**	**1,514**	**734**	**553**	**-450**	**-38%**	**-630**	**-53%**
Agriculture & Livestock	225	288	157	145	-68	-30%	-79	-35%
Fisheries	511	654	164	143	-347	-68%	-368	-72%
Enterprise	448	573	413	265	-34	-8%	-182	-41%
Cross Sectoral	**681**	**871**	**780**	**475**	**100**	**15%**	**-206**	**-30%**
Environment	554	709	87	75	-467	-84%	-479	-86%
Governance & Admin (incl. Land)	113	144	675	397	562	499%	285	253%
Bank & Finance	14	18	19	2	5	34%	-12	-85%
TOTAL	**4,843**	**6,196**	**6,429**	**4,178**	**1,585**	**33%**	**-666**	**-14%**

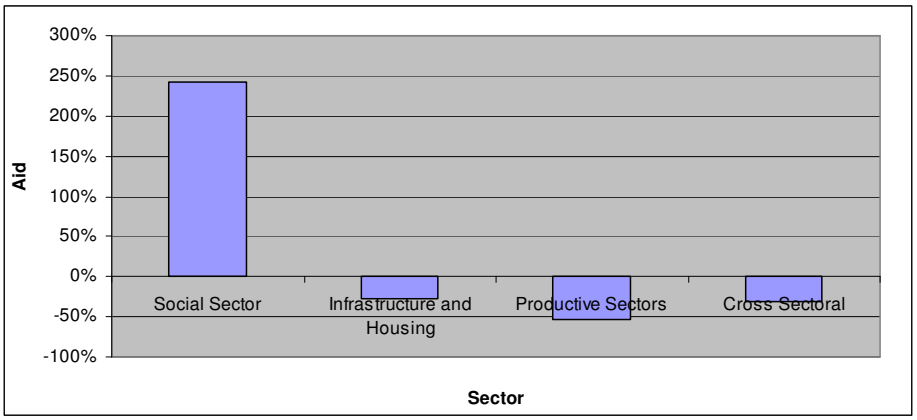
Source: BRR and World Bank 2009

Contrary to other sectors, the social sector was also destroyed by the tsunami but become the preferred sector to receive funding. The sub-sectors under social sector are including education, health and community, culture and religion sub- sectors. The recovery agencies prioritized these sub-sectors, as it was considered as the 'soft program' or the less 'risky' endeavour. From the data above, it is observed that this sector experienced the least loss compared to the other sectors. It had US$ 1,7 Billion allocated to recover for US$ 359 Million loss. It was over budget by 378% and despite a disbursement fund calculation included, there remains US$ 873 million from the loss.

Lastly is the cross sector. This sector focused on the environment, government and financial institutions. From the survey, it is stated that this sector had equal funding for reconstruction after the tsunami, namely US$ 100 million or surplus by 15%. Also there was the gap between the damage and loss compared to fund allocation for the recovery. However, after the fund was distributed, the gaps become deficit by -US$ 206 million or approximately -30% from the initial loss and damage data. The most funded sub-sector was government and administration in that sub-sector. The recovery fund was allocated and distributed more than it should have been, namely 500% surplus of funding was allocated to that sub-sector and 253% of surplus of fund was distributed to that sector. This is in stark contrast to the essential sub-sectors which were less prioritized by the recovery agencies, the environment sector. Although, in the long term this sub-sector could be used as start up to rebuild the economic sector after the disaster.

Obviously, the recovery project practice in Aceh disaster area did not prioritize to recover the productive sector. The focus of this program was to prioritize rebuilding the infrastructure sector hit by the tsunami. The stimulant of funding to enterprise or livelihood sub-sector sector was far from the end goal. In a certain situation, small enterprise can contribute positive effects to the development (Chiriko, 1993), if the recovery agencies use it to improve the development in prone disaster place.

Figure 4.6
Fund per sector allocation



Source BRR 2009

There is another sub-sector that was necessary to rebuild, but did not have enough funds to support it. The energy sector was left unnoticed during both of allocation and distribution of funds. The allocation was deficit by -43%,

meanwhile the fund that was distributed, only amounted to US$ 56 million or less than the loss. The total loss in the energy sub-sector was US$ 88 million. Without completely recovering elements such as electricity, the recovery and development process cannot truly be accomplished nor smoothly so.

As a result, the production sector has been negatively impacted. The full recovery agenda cannot reach the final target. Based on my personal experience, the Aceh province is still experiencing rotating and frequent blackouts in all areas. Further, this situation is more complicated following the recovery process.

There are certain sectors and sub-sectors that were not fundamental but prioritized, such as rebuilding the government institution. Fighting against corruption was also included in the recovery process. It appears that the recovery program did not focus on recovering the basic needs, they amalgamated the process with a different agenda, carried out by western institutions and organizations.

Furthermore, other sectors that had less planning was the social sector. In this sector, as a starting point, the entire amount of funds constituted an over allocation as well as an over distribution of funds. It is important to focus on rebuilding the human capital but the agenda to reconstruct the entire community, after the tsunami has become disoriented. Therefore, more attention should be given to other fundamental emergency sectors.

4.4.2 Transportation sector

The nation wide fuel price increase is a result of the Indonesian government decision number 55, Year 2005[10]. It decided an increase in fuel price in March and October 2005 (Bank Indonesia, 2006). This government decision was based on rising of global oil prices. Further, the Indonesian government considered that it could no any longer cover the subsidy of the local oil price, due to that increment. The fuel subsidy was substituted with the different type of subsidy.

The high increase of the transportation sector percentage in the CPI basket comes from the policy of fuel price. It clearly affected other related sectors in the reconstruction project. As mentioned in a previous sub-chapter[11], one of the stimulants for inflation, was the increase of oil price. It would create more weight on reconstruction project. Further, the effect of a monopoly exercised by certain transportation companies seemed to challenge the recovery process more than it ought to have (Funke and Gatewood, 2008). This sector is one of the most important sectors with an influential role on the process of recovery. The monopoly seems to make the recovery time harder and longer than expected (Marsyarafah and McKeon, 2008). The Indonesian government gave

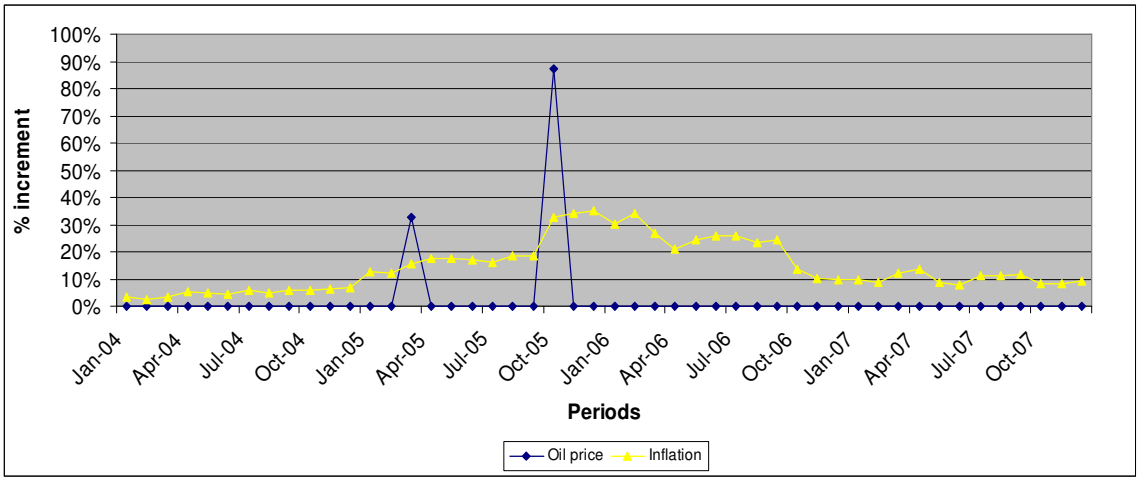
---

[10] Government of Indonesia released policy of increasing fuel price for two periods. The first one was in March 2005 for 33% increment. The second one was in October 2005 for 88%. The price was increased from IDR 1,810 to IDR 4,500

[11] In the background chapter, sub-section 3.3 Aceh economy and inflation discussed the policy related to gradual increment of fuel price in Indonesia

the impression that it did not want to interfere with this sector and the policy to counter that specific issue was never released.

Figure 4.7
Fuel price and Inflation, 2004-2007



Source: BPS and Pertamina 2008

From the chart above, it can be identified that the increase of fuel price clearly impacts upon inflation. The first increase in March did not have a significant impact upon the increase of inflation in Aceh, though it created a certain shock to economy. However, the second increase coupled with the biggest shock, which occurred in late 2005, resulted in a more significant effect on Aceh economy. The impact on inflation was unstoppable until the end of 2007.

The other situation that also can be observed is the shock that happened before the first new oil policy was established (March 2005). The inflation rose soon after the tsunami (December 2004). Based on analyzes from the previous sections, it can be concluded that first shock happened due to the damage in the production sector and continued with the fuel shocks.

Yet, the new oil subsidy seemed to create additional obstacles to the implementation of the recovery plan. From the data above, the new subsidy definitely did less to reduce inflation. It proves that the policy implication of the oil subsidy did not consider the specific condition of Aceh in the aftermath of disaster and the Aceh production sector was also not run properly. The subsidy did not run to its maximum potential. Therefore, the budgeted fund was not effectively used for the right sector.

4.5 Summary findings

From all the data and analyses in this chapter, it can be concluded that the Neo-classical theory about the excess of money stock as the cause of inflation did not happen in Aceh. The damage in supply side is dominating the demand side. This is proven by the fact that the production sector was not constructed well and has created major volatility in the macroeconomic situation after the

disaster. The massive amount of aid flowing into Aceh was not distributed to the correct sectors and was not well forecasted, when policies from the government did not strongly support it.

The first indications show the variance of inflation. The data originated from inflation in Aceh, compared to that in Indonesia and Medan. It proves that significant variance exists, both in the national and the provincial levels. It highlights that covariate shock took place in Aceh and stimulated the inflation. The highest variance digit between Aceh and the national level happened in December 2005, with 18% variance. Variance also occurred with Medan city, by 12% and happened at the same time, in December 2005. Thus it strongly proves that Aceh has a different economic situation after the tsunami.

The excess of money stock was not the cause of inflation in Aceh. However, the lack of recovering the productive sector was the main substantial indicator of raising the inflation. The fact shows that there was an intersection that happened in 2006 between the aid distributed and inflation lines, when the amount of distributed aid rose at the same time of the decline of the inflation digit. Moreover, the excess of money stock has small connection with the inflation. That was proved in 2007, when excess of money stock declined while at the same time, inflation kept stable.

The shock from the supply side was identified in this chapter. The relationship between the economic growth data of the agricultural and fishery sectors with the inflation digit/CPI raw food and fishery is obviously proved that the cause of inflation comes from the supply side. The damage in the production sector stimulates the inflation, contrary to the positive growth experiences by the production sector, which decreased the inflation. The number of aid fund, which can be identified as social fund, contributed to fix the damage in production sector creating a positive effect on decreasing the inflation.

Moreover, the shock after the tsunami was also identified before the increasing of fuel price in the period of December 2004 until February 2005 and certainly before the oil price increase, in the beginning of March 2005. Although moderately significant, the inflation began to increase during that period, which indicates that inflation also happened before the fuel shock. This can also be classified as the initial economic symptom after the disaster or the indication of damage in production sector

To clarify, based on the results above, the two sectors that contributed to inflation are the production and the transportation sectors. The lack of recovery afforded to the productive sector is the most fundamental reason why inflation kept rising in the early stages of the disaster. It is stressed in an aid distribution report, that the production sector was not the priority of tsunami recovery program.

Lastly, the ambitious policy from the central government of Indonesia to increase the oil price seems to create more negative effects on the Aceh economy. After the disaster, this policy creates an economic situation more direr than that which existed before it. Equally, the increasing of fuel price significantly impacted on the initial damage in the production sector after the tsunami.

Chapter 5
Conclusion and Policy Advice

5.1 Conclusion

This chapter attempts to bring conclusion of the research finding based on the analysis, followed by the policy recommendation that could be conducted for the same situations. The main point in this chapter is the concluding reflection of the research question whether the tsunami aid has significant inflationary consequences in the Aceh aftermath disaster. Following discussion is the explanation on the finding that tsunami aid has no significant inflationary consequences in Aceh; but there are other factors which contribute to inflation shock in Aceh. To prove that, this chapter will bring again the previous hypothesis, and contrast it with the findings.

First, the result show significant evidence that there is a difference inflation variance in Aceh, compared to national level and one of the selected provinces that is within the closes proximity with Aceh. Aceh is an example, whereby one region affected by high inflation, but shows different variance compared to others province and national. Therefore Aceh's inflation cannot be perceived and treated the same with one general national policy. This fact was proven in this paper. This first finding is in line with the hypothesis of the research. This result is found primarily by looking at the inflation variances and then a proper understanding of inflation

Secondly, the supply shock is more dominant in Aceh, which again shows the result coherent with the previous hypothesis. The lack of recovery in the productive sector was crucial point in this case. The delay on spending emergency aid to recover production sector was also a reason why the aggregate supply for agriculture and fishery goods significantly increased and stimulated inflation, until it reached its highest point in December 2005. The data from CPI also states that the sector that was most impacted was the food sector. In addition, from the data analyses it also indicates that the huge amount of aid money comes after high inflation and cannot explain inflation, which came from the demand side.

The previous inflation research mentioned that in the Indonesian context, aggregate demand is more important than aggregate supply (Siregar and Ward, 2002). Meanwhile the opinion of various Aceh scholars who have argued that the source of inflation is from the emergency aid fund (Aceh, Modus, 2009) (Serambi, 2008), does not properly reflect the reality of the situation in Aceh. This is because it has been proved in this paper, that supply side is more dominant as the main cause of inflation

Moreover, the recommendation to Indonesia central bank to exclude several fundamental sectors from the CPI basket (Alamsyah, Joseph, Agung, and Zulverdy, 2001) in order to have more logical reasons about the cause of inflation should be advocated. From this paper it can be seen that sectors are the important aspect that need to be observed as the main cause of inflation. Obviously their purpose was trying to ignore the basic sector from supply side to

construct a more comprehensive argument regarding the aggregate demand. It should be noted that Indonesia still depends on their basic and traditional production sector. Therefore prioritizing to rebuild the productive sector is highly important in Aceh.

Third, the research result shows the fact that is not fully coherent with the hypothesis which mentions government need not control the price. However, the government ought to take the lead in the recovery process and establish and apply appropriate policy to manage inflation. Thus controlling the demand side is also not the answer to inflation. Since the supply come dominantly as the main shock source, the control price which part of demand side, is not necessary be implemented.

As mentioned before that the increase of the national fuel price in Indonesia created a complex macro economic situation in Aceh. In one aspect, it made the situation worse after the disaster. According to Canavase, the changing of economic structure can create inflation (Canavese, 1982) and the increase of oil price might result in a negative change in the economic structure in Aceh after the disaster. It was also proved, from the sector contributing the inflation from CPI basket, which is the transportation sector. This indicates the detriment that poor policy might have on the macroeconomic situation in Indonesia.

The final literature from Chowdury suggested that the government should increase social spending through inflationary financing (Chowdhury, 2002). However, that opinion was not developed well in the covariate shock situation. The social spending for inflation was big in Aceh, yet still it did not respond to the shock issue. To allocate social spending correctly, the correct economy sector; such as productive sectors should be highlighted with an appropriate policy and control from the government. This is the comprehensive solution for Aceh case.

5.2 Policy implication

How to best manage the inflation in a natural disaster area seems to have failed in Aceh. The positivity generated by inflation is not used and poorly managed. Prioritizing to recover the social sector is definitely not the answer for the inflation issue in Aceh. Instead, to focus the recovery on the basic needs such as housing and the productive and energy sector is the right answer for the question above.

The BLT was also not the right policy for Aceh. The Indonesian government should consider the correct practice on how the new policy can replace the oil subsidy. The special treatment by using the new policy to support the recovery program in productive sector can produce effective results. In the sense that the subsidy can be maximized without competing with the other similar grant or loan program conducted by the recovery agencies in Aceh.

Full control from the authorized institution, in this case, BRR or the Indonesian government, is crucial in the recovery process. The coordination with all of the organizations and donors should take place immediately after the disaster. If this is done, the fund allocation for the recovery program can be managed well before donor commitment takes place. As the result, the recovery

program will be focused on the tangible needs of people after the disaster, without any determination from the donor agencies.

The good policy also should be implemented to respond to the negative long and short term affect of inflation. Establishing sound policies to manage inflation should be generated. The role of the central bank or it representatives at the provincial level, to support the growth of productive sector, is crucial in a specific macroeconomic policy, such as supporting credit to the productive sector and managing interest rates for long term development and economic growth.

Moreover, central government must restore other facilities which were not supported and/or well invested by recovery agencies. It must also use the excess subsidy fund which too was not evenly distributed, in order to finance the recovery project. In other words, the process of recovering the production sector can be conducted simultaneously.

Good schemes and guidelines should be established for maintaining the recovery process on the right track. It is important to have stability in the process and support long-term development. The stages, such as focusing on fulfilling the basic need for survival is important and should be implemented at the first stages and it should be implemented in the short term for three to six months (depending on the level of disaster). Secondly, focusing on reconstructing housing and other important infrastructure is equally crucial, immediately following the end of the emergency phase. Equally, the recovery in the productive sector is also important within the infrastructure work. Lastly, the focus on rebuilding the social sector, such as education has to be implemented to rebuild the capacity in the disaster area.

In addition, the aid fund also should be used to support 'Build Back Better' program. The focus is to use the aid fund to increase the production capacity and increase the living standard for Acehnese people. The spilover effect should be used to transfer technology from the institution sector that works for recovery project, to the government sector and other related institutions.

This method can be taken as the essential solution to creating a stable macroeconomic environment after the disaster happened. Also, with that method the aid money can be maximally used. In the end, it can create a positive impact to the beneficiaries for creating a better life after the disaster. It should be done without exposing the suffering condition of the beneficiaries to extend the project fund.

Appendices 1

Table 4.5
GRDP Aceh at Current Prices by districts, 2002-2005 (Billion Rupiahs)

KABUPATEN/KOTA REGENCIES/MUNICIPALITIES	2002	2003	2004	2005*)	2006**)
(1)	(2)	(3)	(4)	(5)	(6)
01. Simeulue	197,253.22	221,997.66	245,247.10	264,289.98	288,134.73
02. Aceh Singkil	554,486.20	615,506.90	683,740.72	740,059.02	469,499.41
75. Subussalam#)	-	-	-	-	310,389.67
03. Aceh Selatan	1,743,572.75	1,264,798.94	1,389,127.72	1,491,324.52	1,629,627.66
12. Aceh Barat Daya#)	-	667,434.52	733,431.82	793,955.77	872,914.42
04. Aceh Tenggara	779,397.85	449,056.11	523,327.46	661,762.84	749,765.38
13. Gayo Lues#)	-	342,807.75	385,574.03	436,832.75	499,510.01
05. Aceh Timur	3,634,975.98	3,053,199.50	2,310,170.44	6,985,747.34	7,438,662.33
Aceh Timur1)	2,432,617.91	1,548,447.58	1,707,295.07	1,890,553.96	2,076,375.51
73. Langsa#)	746,831.25	827,841.75	914,703.23	1,001,539.66	1,098,130.86
14. Aceh Tamiang#)	-	1,500,506.35	1,612,459.16	1,921,696.97	2,099,444.76
Aceh Tamiang1)	-	1,122,265.43	1,237,393.62	1,363,143.27	1,789,605.18
06. Aceh Tengah	1,519,307.66	1,737,740.55	1,136,183.80	1,215,254.60	1,347,163.11
17. Bener Meriah#)	-	-	801,400.63	848,215.09	934,260.76
07. Aceh Barat	2,268,669.59	1,176,966.45	1,398,427.87	1,317,267.95	1,659,125.99
15. Nagan Raya#)	-	932,341.36	1,128,094.11	1,258,288.94	1,537,263.24
16. Aceh Jaya#)	-	414,369.09	460,405.35	358,311.52	411,679.21
08. Aceh Besar	1,833,677.77	2,057,635.10	2,312,839.31	2,492,900.84	3,011,379.89
09. Pidie	1,673,692.33	1,849,068.78	2,074,610.21	2,286,050.12	1,890,165.63
18. Pidie Jaya#)	-	-	-	-	616,323.18
10. Bireun	1,987,095.35	2,159,048.52	2,381,832.70	2,600,754.24	2,847,395.68
11. Aceh Utara	14,238,347.64	15,569,521.41	15,056,380.21	10,816,900.73	11,704,135.56
Aceh Utara1)	2,581,998.26	2,865,179.08	3,050,689.38	3,069,675.07	3,423,841.53
74. Lhokseumawe#)	8,341,977.87	9,086,905.32	10,326,546.97	11,039,714.97	12,493,939.13
Lhokseumawe1)	1,617,767.21	1,841,726.00	2,064,412.36	2,351,695.59	2,497,401.27
71. Banda Aceh	1,493,057.77	1,644,289.23	1,816,930.39	1,913,509.10	2,389,815.70
72. Sabang	142,798.18	158,405.15	175,617.84	198,715.40	216,883.40
Jml Kab./Kota. Total of Reg./Mun.	41,155,141.40	45,729,440.43	47,867,051.06	50,643,092.34	56,515,609.71
Jml Kab./Kota/ Total of Reg./Mun./	21,572,223.30	23,896,925.94	26,621,284.72	28,554,100.23	32,566,651.41
PROPINSI/PROVINCE	43,705,666.43	48,619,149.26	50,357,261.97	56,951,611.99	73,543,051.44

Catatan/Note: # Tidak termasuk Minyak Bumi dan Gas/Excluding Oil and Gas ~ Merupakan pecahan dari kabupaten yang berada diatasnya/*As a part of Regencies/Municipalities above*

* Angka sementara/Preliminary figures ** Angka sangat sementara/Very preliminary figures

Source: BPS Indonesia 2010

Appendices 2

Table 4.6
GRDP Aceh at Current Prices by Industrial origin, 2005-2008 (Billion Rupiahs)

Lapangan Usaha / *Industrial Origin*		2005	2006	2007*)	2008**)
-1		-2	-3	-4	-5
1	Pertanian/Agriculture	15.201,94	18.196,89	18.135,80	19.255,71
2	Pertambangan dan Penggalian/ Mining and Quarrying	13.168,94	19.624,40	15.984,35	13.879,14
	a.Pertambangan Migas/*Oil & Gas Mining*	12.814,27	18.978,71	15.222,62	13.092,86
	b.Penggalian dan Penggara-man/*Mining and Quarrying*	354,67	645,69	761,72	786,28
3	Industri Pengolahan/ Manufactur-ing Industries	10.258,03	8.532,04	7.935,04	8.189,80
	a.Industri Migas/*Oil & Gas Indus-tries*	8.688,02	6.908,87	6.152,56	6.244,81
	b.Industri Tanpa Migas/*Non Oil & Gas Industries*	1.570,01	1.623,17	1.782,48	1.944,99
4	Listrik dan Air Minum/ Electricity and water supply	116,75	131.99	173,82	196,84
5	Bangunan & Konstruksi/ Building & construction	1.835,05	4.204,06	5.416,25	6.264,00
6	Perdagangan, Hotel & Resto-ran/Trade, Hotel & Restaurants	7.084,53	8.104,29	9.227,06	10.257,60
7	Pengangkutan & Komunikasi/ Transportation & Communocation	2.932,14	4.426,53	5.742,59	6.537,25
8	Bank & Lembaga Keuangan Lain-nya/Banking & Other Financial Intermediaries	838,11	1.361,18	1.351,45	1.490,76
9	Jasa-jasa/Services	5.516,11	6.205,45	7.121,96	7.459,66
PDRB*GRDP*		56,951.61	70,786.84	73,196.27	73,530.75
PDRB Non Migas/*GRDP (Non Oil and Gas)*		35.449,26	44.899,26	51.821,08	54.193,08

Source: BPS Indonesia 2010

Appendices 3

Table 4.7
Money stock (M2) Aceh 1984-2008 (million rupiahs)

No	Akhir Tahun/ *End of Year*	GIRO/ Demand Deposit	Deposito/ *Deposit*	Tabungan/ *Savings*	Jumlah/ *Total*
-1	-2	-3	-4	-5	-6
1	1984	48.29	9.33	10.682	68.482
2	1985	56.202	21.702	15.466	93.37
3	1986	62.31	28.265	24.185	114.76
4	1987	67.082	37.207	27.717	132.006
5	1988	72.862	51.184	33.771	157.817
6	1989	95.639	63.63	61.422	220.691
7	1990	125.132	87.385	103.632	316.149
8	1991	142.249	105.023	172.594	419.866
9	1992	155.783	179.2	249.915	584.898
10	1993	167.58	164.266	329.782	661.628
11	1994	193.957	215.653	390.552	800.162
12	1996	198.705	374.359	440.745	1.013.809
13	1996	225.115	572.105	573.574	1.370.794
14	1997	240.385	931.228	623.528	1.795.141
15	1998	324.804	2.157.132	726.987	3.208.923
16	1999	338.523	924.414	1.206.498	2.469.435
17	2000	677.425	1.018.944	1.664.415	3.360.784
18	2001	1.261.846	1.092.093	2.034.690	4.388.629
19	2002	1.825.809	1.394.070	2.480.682	5.700.561
20	2003	3.008.775	1.470.366	3.177.243	7.656.384
21	2004	3.014.776	1.405.558	3.531.372	7.951.706
22	2005	7.277.198	2.613.135	3.996.365	13.886.698
23	2006	10.953.074	5.438.156	5.445.361	21.836.591
24	2007	6.372.727	3.740.129	6.498.961	16.611.817
25	2008	6.674.469	4.698.904	7.131.717	18.505.090

Source: BI 2010

Appendices 4

Table 4.8
Economy growth rate Aceh 2004-2008 (percentage)

	Lapangan Usaha / *Industrial Origin*	2004	2005	2006	2007*)	2008**)
	-1	-1	-2	-3	-4	-5
1	Pertanian/Agriculture	6.00	-3,89	1,52	3,62	0,81
2	Pertambangan dan Penggalian/Mining and Quarrying	-24.00	-22,62	-2,58	-21,10	-27,31
	a.Pertambangan Migas/*Oil & Gas Mining*	-24.40	-22,99	-4,27	-22,56	-28,85
	b.Penggalian dan Penggaraman/ *Mining and Quarrying*	7.30	0,78	78,77	16,58	-1,01
3	Industri Pengolahan/Manufacturing Industries	-17.80	-22,30	-13,18	-10,10	-7,73
	a.Industri Migas/*Oil & Gas Industries*	-11.60	-26,19	-17,33	-16,74	-12,96
	b.Industri Tanpa Migas/*Non Oil & Gas Industries*	-37.30	-5,11	1,08	8,57	3,57
4	Listrik dan Air minum/Electricity and water supply	19.50	-1,95	12,06	23,70	12,73
5	Bangunan & konstruksi/Building & construction	0.90	-16,14	48,41	13,93	-0,85
6	Perdagangan, hotel & restoran/Trade, hotel & restaurants	-2.60	6,64	7,41	1,70	4,59
7	Pengangkutan & Komunikasi/Transportation & Communication	3.60	14,39	10,99	10,95	1,38
8	Bank & Lembaga keuangan lainnya/Banking & Other Financial Intermediaries	19.40	-9,53	11,77	6,02	5,16
9	Jasa-jasa/Services	20.10	9,65	4,41	14,30	1,21
	PDRB Migas / *GRDP (Oil and Gas)*	-9.60	-10,12	1,56	-2,36	-5,27
	PDRB Tanpa Migas /*GRDP (Non Oil and Gas)*	1.80	1,22	7,70	7,23	1,88

Source: BPS 2010

Appendices 5

Table 4.9
CPI raw food Aceh and Indonesia 2004-2009

2002=100 Periods	Food							2002=100 Periods	Food							2002=100 Periods	Food						
	Banda Aceh			Indonesia			Difference		Banda Aceh			Indonesia			Difference		Banda Aceh			Indonesia			Difference
	Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM	
Jan-04	102.38	-3.24%	-1.18%	105.92	1.74%	1.42%	-3.34%	Jan-06	183.24	51.95%	5.21%	131.98	15.22%	4.29%	38.84%	Jan-08	107.8	10.14%	2.00%	108.4	10.58%	2.77%	-0.58%
Feb-04	100.22	-3.67%	-2.11%	104.39	1.04%	-1.44%	-3.99%	Feb-06	192.41	62.66%	5.00%	133.54	18.30%	1.18%	44.08%	Feb-08	110.9	12.47%	2.92%	110.4	11.92%	1.85%	0.47%
Mar-04	100.19	-1.62%	-0.03%	104.54	3.37%	0.14%	-4.16%	Mar-06	176.96	44.99%	-8.03%	132.37	17.13%	-0.88%	33.69%	Mar-08	109.2	9.90%	-1.53%	112.1	13.73%	1.56%	-2.59%
Apr-04	104.44	4.52%	4.24%	106.4	6.23%	1.78%	-1.84%	Apr-06	167.22	25.57%	-5.50%	131.24	16.38%	-0.85%	27.42%	Apr-08	108.0	7.58%	-1.13%	113.0	15.81%	0.79%	-4.43%
May-04	102.33	2.54%	-2.02%	106.98	6.85%	0.55%	-4.35%	May-06	178.73	35.28%	6.88%	131.61	16.55%	0.28%	35.80%	May-08	114.4	19.67%	5.97%	115.0	18.14%	1.76%	-0.48%
Jun-04	101.32	1.41%	-0.99%	108.02	8.76%	0.97%	-6.20%	Jun-06	183.16	41.20%	2.48%	133.08	17.00%	1.12%	37.63%	Jun-08	118.9	25.32%	3.92%	116.4	19.17%	1.28%	2.11%
Jul-04	103.37	5.30%	2.02%	108.48	10.03%	0.43%	-4.71%	Jul-06	185.02	38.41%	1.02%	134.4	15.77%	0.99%	37.66%	Jul-08	119.0	18.54%	0.11%	118.6	19.90%	1.85%	0.37%
Aug-04	103.65	-0.34%	0.27%	106.17	7.78%	-2.13%	-2.37%	Aug-06	189.55	32.78%	2.45%	133.94	15.22%	-0.34%	41.52%	Aug-08	116.9	15.02%	-1.83%	119.7	20.08%	0.94%	-2.38%
Sep-04	103.6	3.95%	-0.05%	104.73	6.81%	-1.36%	-1.08%	Sep-06	193.1	37.73%	1.87%	134.77	15.45%	0.62%	43.28%	Sep-08	118.4	14.40%	1.29%	122.0	20.12%	1.90%	-2.96%
Oct-04	102.56	3.47%	-1.00%	106.1	6.17%	1.31%	-3.34%	Oct-06	197.74	22.56%	2.40%	137.7	10.00%	2.17%	43.60%	Oct-08	114.5	13.33%	-3.24%	122.8	18.96%	0.71%	-6.76%
Nov-04	104.86	4.80%	2.24%	108.53	6.04%	2.29%	-3.38%	Nov-06	191.29	16.63%	-3.26%	138.6	8.05%	0.65%	38.02%	Nov-08	116.3	14.95%	1.57%	122.0	18.02%	-0.67%	-4.66%
Dec-04	108.41	4.64%	3.39%	111.1	6.38%	2.37%	-2.42%	Dec-06	200.91	15.36%	5.03%	142.92	12.94%	3.12%	40.58%	Dec-08	121.2	14.75%	4.20%	122.7	16.35%	0.57%	-1.21%
Jan-05	120.59	17.79%	11.24%	114.55	8.15%	3.11%	5.27%	Jan-07	97.8	14.40%	4.34%	98.0	14.40%	4.34%	-0.18%	Jan-09	120.1	11.42%	-0.97%	123.6	14.07%	0.76%	-2.90%
Feb-05	118.29	18.03%	-1.91%	112.88	8.13%	-1.46%	4.79%	Feb-07	98.6	9.40%	0.42%	98.6	9.40%	0.42%	-0.02%	Feb-09	118.2	6.55%	-1.57%	124.8	13.06%	0.95%	-5.32%
Mar-05	122.05	21.82%	3.18%	113.01	8.10%	0.12%	8.00%	Mar-07	99.4	19.74%	0.66%	98.6	19.74%	0.66%	0.80%	Mar-09	120.4	10.27%	1.90%	124.5	11.03%	-0.26%	-3.26%
Apr-05	133.17	27.51%	9.11%	112.77	5.99%	-0.21%	18.09%	Apr-07	100.4	26.13%	-0.46%	97.6	26.13%	-0.46%	2.87%	Apr-09	118.1	9.35%	-1.95%	122.8	8.70%	-1.33%	-3.87%
May-05	132.12	29.11%	-0.79%	112.92	5.55%	0.13%	17.00%	May-07	95.6	11.92%	-5.16%	97.3	11.92%	-5.16%	-1.76%	May-09	120.6	5.40%	2.15%	122.5	6.55%	-0.25%	-1.55%
Jun-05	129.72	28.03%	-1.82%	113.74	5.30%	0.73%	14.05%	Jun-07	94.9	9.29%	0.07%	97.7	9.29%	0.07%	-2.90%	Jun-09	119.7	0.67%	-0.75%	122.3	5.02%	-0.18%	-2.11%
Jul-05	133.68	29.32%	3.05%	116.09	7.02%	2.07%	15.15%	Jul-07	100.4	19.42%	10.38%	98.9	19.42%	10.38%	1.52%	Jul-09	122.3	2.75%	2.17%	123.7	4.29%	1.14%	-1.12%
Aug-05	142.75	37.72%	6.78%	116.25	9.49%	0.14%	22.80%	Aug-07	101.6	19.25%	2.30%	99.7	19.25%	2.30%	1.92%	Aug-09	126.6	8.35%	3.52%	125.3	4.66%	1.29%	1.06%
Sep-05	140.2	35.33%	-1.79%	116.73	11.46%	0.41%	20.11%	Sep-07	103.5	17.97%	0.78%	101.5	17.97%	0.78%	1.89%	Sep-09	131.9	11.42%	4.16%	128.3	5.21%	2.43%	2.77%
Oct-05	161.34	57.31%	15.08%	125.18	17.98%	7.24%	28.89%	Oct-07	101.1	9.59%	-4.87%	103.3	9.59%	-4.87%	-2.12%	Oct-09	126.1	10.10%	-4.38%	128.7	4.76%	0.28%	-2.00%
Nov-05	164.01	56.41%	1.65%	128.27	18.19%	2.47%	27.86%	Nov-07	101.2	11.40%	-1.67%	103.4	11.40%	-1.67%	-2.11%	Nov-09	126.4	8.66%	0.24%	127.6	4.60%	-0.82%	-0.96%
Dec-05	174.16	60.65%	6.19%	126.55	13.91%	-1.34%	37.62%	Dec-07	105.6	15.73%	9.11%	105.5	15.73%	9.11%	0.17%								

Source: BPS 2010

Table 4.10
CPI transport Aceh and Indonesia 2004-2009

2002=100	Transport							2002=100	Transport							2002=100	Transport						
Periods	Banda Aceh			Indonesia			Difference	Periods	Banda Aceh			Indonesia			Difference	Periods	Banda Aceh			Indonesia			Difference
	Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM	
Jan-04	108.51	3.88%	3.04%	107.99	2.48%	0.04%	0.48%	Jan-06	185.52	62.85%	0.65%	165.29	44.11%	-0.05%	12.24%	Jan-08	99.4	-0.39%	0.14%	100.3	0.63%	0.50%	-0.86%
Feb-04	108.5	3.46%	-0.01%	108.12	2.50%	0.12%	0.35%	Feb-06	185.8	63.10%	0.15%	165.55	44.19%	0.16%	12.23%	Feb-08	99.6	-0.39%	0.19%	100.4	0.83%	0.12%	-0.79%
Mar-04	108.85	4.04%	0.32%	108.31	2.61%	0.18%	0.50%	Mar-06	185.45	31.67%	-0.19%	165.77	31.23%	0.13%	11.87%	Mar-08	99.7	-0.34%	0.05%	100.6	0.90%	0.14%	-0.88%
Apr-04	109.26	4.14%	0.38%	108.79	1.99%	0.44%	0.43%	Apr-06	185.45	31.67%	0.00%	165.89	30.75%	0.07%	11.79%	Apr-08	95.0	-5.05%	-4.73%	98.8	-1.06%	-1.75%	-3.88%
May-04	113.49	8.28%	3.87%	113.01	5.89%	3.88%	0.42%	May-06	185.45	31.67%	0.00%	166.18	30.92%	0.17%	11.60%	May-08	96.7	-3.34%	1.80%	100.7	0.80%	1.95%	-4.02%
Jun-04	113.51	7.97%	0.02%	113.09	5.88%	0.07%	0.37%	Jun-06	185.55	31.53%	0.05%	166.35	30.75%	0.10%	11.54%	Jun-08	102.1	2.11%	5.64%	109.5	9.47%	8.72%	-6.74%
Jul-04	113.53	7.12%	0.02%	113.12	5.76%	0.03%	0.36%	Jul-06	185.58	31.51%	0.02%	166.48	30.80%	0.08%	11.47%	Jul-08	102.3	2.13%	0.17%	110.3	10.18%	0.71%	-7.25%
Aug-04	113.77	7.99%	0.21%	113.57	6.13%	0.40%	0.18%	Aug-06	185.6	31.52%	0.01%	166.5	30.70%	0.01%	11.47%	Aug-08	102.4	2.21%	0.08%	110.3	10.08%	-0.01%	-7.16%
Sep-04	113.83	8.05%	0.05%	113.61	6.11%	0.04%	0.19%	Sep-06	185.61	31.54%	0.01%	166.48	30.15%	-0.01%	11.49%	Sep-08	102.4	2.23%	0.02%	110.5	10.31%	0.22%	-7.35%
Oct-04	113.84	8.05%	0.01%	113.66	6.09%	0.04%	0.16%	Oct-06	185.61	1.49%	0.00%	167.24	1.70%	0.46%	10.98%	Oct-08	102.4	2.26%	0.03%	110.6	9.92%	0.10%	-7.41%
Nov-04	113.92	8.18%	0.07%	114.2	5.94%	0.48%	-0.25%	Nov-06	185.61	1.40%	0.00%	166.89	0.95%	-0.21%	11.22%	Nov-08	102.5	2.27%	0.03%	110.3	9.82%	-0.31%	-7.10%
Dec-04	113.92	8.18%	0.00%	114.25	5.84%	0.04%	-0.29%	Dec-06	185.63	0.71%	0.01%	167.06	1.02%	0.10%	11.12%	Dec-08	99.0	-0.25%	-3.33%	107.3	7.49%	-2.74%	-7.66%
Jan-05	113.92	4.99%	0.00%	114.7	6.21%	0.39%	-0.68%	Jan-07	99.8	11.43%	1.17%	99.7	11.43%	1.17%	11.01%	Jan-09	96.8	-2.67%	-2.28%	104.6	4.25%	-2.53%	-7.43%
Feb-05	113.92	5.00%	0.00%	114.81	6.19%	0.10%	-0.78%	Feb-07	100.0	15.56%	3.63%	99.6	15.56%	3.63%	14.34%	Feb-09	95.6	-4.07%	-1.25%	102.0	1.59%	-2.43%	-6.31%
Mar-05	140.84	29.39%	23.63%	126.32	16.63%	10.03%	11.49%	Mar-07	100.0	16.48%	1.48%	99.7	16.48%	1.48%	14.24%	Mar-09	95.7	-3.94%	0.18%	102.3	1.70%	0.25%	-6.38%
Apr-05	140.84	28.90%	0.00%	126.88	16.63%	0.44%	11.00%	Apr-07	100.0	15.73%	0.56%	99.9	15.73%	0.56%	14.00%	Apr-09	95.7	0.75%	-0.07%	102.3	3.58%	0.07%	-6.51%
May-05	140.84	24.10%	0.00%	126.93	12.32%	0.04%	10.96%	May-07	100.0	11.49%	-1.13%	99.9	11.49%	-1.13%	13.86%	May-09	95.7	-1.01%	0.02%	102.3	1.60%	0.00%	-6.49%
Jun-05	141.07	24.28%	0.16%	127.23	12.50%	0.24%	10.88%	Jun-07	100.0	11.59%	0.23%	100.0	11.59%	0.23%	13.73%	Jun-09	95.8	-6.23%	0.07%	102.6	-6.31%	0.25%	-6.66%
Jul-05	141.12	24.30%	0.04%	127.28	12.52%	0.04%	10.87%	Jul-07	100.2	10.97%	0.35%	100.1	10.97%	0.35%	13.77%	Jul-09	96.3	-5.87%	0.55%	102.9	-6.71%	0.28%	-6.41%
Aug-05	141.12	24.04%	0.00%	127.39	12.17%	0.09%	10.78%	Aug-07	100.2	10.68%	-0.05%	100.2	10.68%	-0.05%	13.73%	Aug-09	96.3	-5.94%	0.00%	102.9	-6.72%	-0.02%	-6.39%
Sep-05	141.11	23.97%	-0.01%	127.91	12.59%	0.41%	10.32%	Sep-07	100.2	10.36%	0.44%	100.2	10.36%	0.44%	13.65%	Sep-09	96.4	-5.85%	0.11%	103.8	-6.09%	0.89%	-7.11%
Oct-05	182.88	60.65%	29.60%	164.45	44.69%	28.57%	11.21%	Oct-07	100.2	8.05%	0.48%	100.6	8.05%	0.48%	13.15%	Oct-09	96.2	-6.10%	-0.24%	103.0	-6.85%	-0.71%	-6.67%
Nov-05	183.04	60.67%	0.09%	165.32	44.76%	0.53%	10.72%	Nov-07	100.2	8.18%	0.38%	100.4	8.18%	0.38%	13.49%	Nov-09	96.2	-6.09%	0.04%	103.0	-6.64%	-0.08%	-6.56%
Dec-05	184.33	61.81%	0.70%	165.38	44.75%	0.04%	11.46%	Dec-07	99.3	9.15%	1.34%	99.8	9.15%	1.34%	13.24%								

Source: BPS 2010

Table 4.11
CPI prepared food Aceh and Indonesia 2004-2007

2002=100 Periods	Prepared Food							2002=100 Periods	Prepared Food						
	Banda Aceh			Indonesia			Difference		Banda Aceh			Indonesia			Difference
	Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM	
Jan-04	111.07	5.81%	1.55%	110.75	4.38%	0.36%	0.29%	Jan-06	167.54	22.37%	0.23%	132.8	13.86%	0.94%	26.16%
Feb-04	111.01	3.36%	-0.05%	111.52	4.31%	0.70%	-0.46%	Feb-06	167.01	28.86%	-0.32%	133.66	13.99%	0.65%	24.95%
Mar-04	110.99	3.21%	-0.02%	111.94	4.31%	0.38%	-0.85%	Mar-06	166.79	28.52%	-0.13%	134.44	12.82%	0.58%	24.06%
Apr-04	110.99	2.92%	0.00%	112.3	3.19%	0.32%	-1.17%	Apr-06	168.22	23.36%	0.86%	135.02	12.67%	0.43%	24.59%
May-04	111.11	3.44%	0.11%	112.54	3.32%	0.21%	-1.27%	May-06	168.69	23.71%	0.28%	135.43	12.75%	0.30%	24.56%
Jun-04	111.88	3.44%	0.69%	112.71	3.32%	0.15%	-0.74%	Jun-06	169.02	24.95%	0.20%	135.78	11.73%	0.26%	24.48%
Jul-04	112.05	3.81%	0.15%	112.97	3.78%	0.23%	-0.81%	Jul-06	169.07	24.44%	0.03%	136.2	11.58%	0.31%	24.13%
Aug-04	112.41	3.17%	0.32%	113.36	4.11%	0.35%	-0.84%	Aug-06	169.14	21.51%	0.04%	136.68	11.41%	0.35%	23.75%
Sep-04	112.96	3.33%	0.49%	113.56	4.03%	0.18%	-0.53%	Sep-06	168.7	17.77%	-0.26%	136.86	10.28%	0.13%	23.26%
Oct-04	112.96	3.67%	0.00%	113.89	4.19%	0.29%	-0.82%	Oct-06	168.56	9.80%	-0.08%	137.74	7.54%	0.64%	22.38%
Nov-04	112.88	3.74%	-0.07%	114.65	4.63%	0.67%	-1.54%	Nov-06	168.56	4.49%	0.00%	138.39	5.87%	0.47%	21.80%
Dec-04	114.8	4.96%	1.70%	115.7	4.85%	0.92%	-0.78%	Dec-06	170.28	1.87%	1.02%	139.93	6.36%	1.11%	21.69%
Jan-05	136.91	23.26%	19.26%	116.63	5.31%	0.80%	17.39%	Jan-07	172.3	2.83%	1.17%	141.2	6.29%	0.87%	22.05%
Feb-05	129.61	16.76%	-5.33%	117.26	5.15%	0.54%	10.53%	Feb-07	172.1	3.02%	-0.13%	142.1	6.29%	0.65%	21.10%
Mar-05	129.78	16.93%	0.13%	119.16	6.45%	1.62%	8.91%	Mar-07	171.8	3.00%	-0.15%	142.6	6.05%	0.36%	20.49%
Apr-05	136.36	22.86%	5.07%	119.84	6.71%	0.57%	13.79%	Apr-07	171.9	2.18%	0.06%	143.1	6.00%	0.38%	20.10%
May-05	136.36	22.73%	0.00%	120.11	6.73%	0.23%	13.53%	May-07	172.2	2.07%	0.17%	143.8	6.17%	0.47%	19.74%
Jun-05	135.27	20.91%	-0.80%	121.52	7.82%	1.17%	11.32%	Jun-07	173.8	2.81%	0.92%	144.3	6.25%	0.33%	20.45%
Jul-05	135.86	21.25%	0.44%	122.06	8.05%	0.44%	11.31%	Jul-07	174.0	2.94%	0.16%	144.8	6.34%	0.40%	20.16%
Aug-05	139.2	23.83%	2.46%	122.68	8.22%	0.51%	13.47%	Aug-07	174.3	3.03%	0.13%	145.5	6.47%	0.48%	19.75%
Sep-05	143.24	26.81%	2.90%	124.1	9.28%	1.16%	15.42%	Sep-07	174.2	3.24%	-0.06%	146.2	6.82%	0.45%	19.14%
Oct-05	153.51	35.90%	7.17%	128.08	12.46%	3.21%	19.85%	Oct-07	174.4	3.45%	0.11%	146.9	6.67%	0.51%	18.68%
Nov-05	161.32	42.91%	5.09%	130.72	14.02%	2.06%	23.41%	Nov-07	175.2	3.93%	0.46%	147.6	6.63%	0.43%	18.72%
Dec-05	167.15	45.60%	3.61%	131.56	13.71%	0.64%	27.05%	Dec-07	175.4	3.01%	0.13%	148.9	6.41%	0.91%	17.80%

Source: BPS 2010

Table 4.12
CPI housing Aceh and Indonesia 2004-2009

2002=100	Housing							2002=100	Housing							2002=100	Housing						
Periods	Banda Aceh			Indonesia			Difference	Periods	Banda Aceh			Indonesia			Difference	Periods	Banda Aceh			Indonesia			Difference
	Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM			Rate	YOY	MTM	Rate	YOY	MTM	
Jan-04	115.85	6.88%	0.87%	116.11	8.45%	0.42%	-0.22%	Jan-06	156.14	18.62%	0.42%	142.49	13.06%	0.70%	9.58%	Jan-08	107.8	10.14%	2.00%	103.7	5.78%	1.73%	3.96%
Feb-04	116.77	7.25%	0.79%	116.85	8.27%	0.64%	-0.07%	Feb-06	156.02	18.65%	-0.08%	143.28	13.26%	0.55%	8.89%	Feb-08	110.9	12.47%	2.92%	103.7	5.06%	0.02%	6.97%
Mar-04	117.3	7.06%	0.45%	117.63	7.69%	0.67%	-0.28%	Mar-06	157.07	18.41%	0.67%	143.79	13.02%	0.36%	9.24%	Mar-08	109.2	9.90%	-1.53%	104.5	5.58%	0.79%	4.51%
Apr-04	119.98	8.95%	2.28%	119.08	8.84%	1.23%	0.76%	Apr-06	158.97	15.47%	1.21%	144.4	12.82%	0.42%	10.09%	Apr-08	108.0	7.58%	-1.13%	105.6	6.27%	1.03%	2.27%
May-04	120.15	8.37%	0.14%	119.82	8.43%	0.62%	0.28%	May-06	163.16	18.99%	2.64%	144.83	12.75%	0.30%	12.66%	May-08	114.4	19.67%	5.97%	106.8	7.28%	1.17%	7.12%
Jun-04	120.42	7.73%	0.22%	120.48	7.94%	0.55%	-0.05%	Jun-06	163.37	19.02%	0.13%	145.3	12.84%	0.32%	12.44%	Jun-08	118.9	25.32%	3.92%	108.0	8.71%	1.14%	10.06%
Jul-04	120.74	7.77%	0.27%	121.09	7.99%	0.51%	-0.29%	Jul-06	164.86	20.62%	0.91%	145.6	12.72%	0.21%	13.23%	Jul-08	119.0	18.54%	0.11%	110.0	9.95%	1.80%	8.24%
Aug-04	121.21	7.84%	0.39%	121.88	7.87%	0.65%	-0.55%	Aug-06	165.19	18.05%	0.20%	146.03	12.48%	0.30%	13.12%	Aug-08	116.9	15.02%	-1.83%	110.6	10.03%	0.53%	5.70%
Sep-04	124.33	9.53%	2.57%	122.43	6.96%	0.45%	1.55%	Sep-06	166.4	18.21%	0.73%	146.44	12.26%	0.28%	13.63%	Sep-08	118.4	14.40%	1.29%	111.9	11.02%	1.22%	5.77%
Oct-04	124.5	9.52%	0.14%	122.78	6.90%	0.29%	1.40%	Oct-06	170.77	13.08%	2.63%	146.82	4.80%	0.26%	16.31%	Oct-08	114.5	13.33%	-3.24%	112.2	10.85%	0.24%	2.10%
Nov-04	124.63	9.16%	0.10%	123.09	6.78%	0.25%	1.25%	Nov-06	171.22	10.59%	0.26%	147.25	4.43%	0.29%	16.28%	Nov-08	116.3	14.95%	1.57%	112.4	10.91%	0.23%	3.47%
Dec-04	127.86	11.33%	2.59%	124.19	7.40%	0.89%	2.96%	Dec-06	171.97	10.61%	0.44%	148.34	4.83%	0.74%	15.93%	Dec-08	121.2	14.75%	4.20%	113.0	10.92%	0.52%	7.26%
Jan-05	131.63	13.62%	2.95%	126.03	8.54%	1.48%	4.44%	Jan-07	97.8	11.43%	1.17%	98.0	11.43%	1.17%	-0.16%	Jan-09	120.1	11.42%	-0.97%	113.0	8.97%	-0.06%	6.29%
Feb-05	131.5	12.61%	-0.10%	126.51	8.27%	0.38%	3.94%	Feb-07	98.6	15.56%	3.63%	98.7	15.56%	3.63%	-0.08%	Feb-09	118.2	6.55%	-1.57%	113.3	9.26%	0.28%	4.32%
Mar-05	132.65	13.09%	0.87%	127.22	8.15%	0.56%	4.27%	Mar-07	99.4	16.48%	1.48%	99.0	16.48%	1.48%	0.39%	Mar-09	120.4	10.27%	1.90%	113.5	8.62%	0.20%	6.09%
Apr-05	137.67	14.74%	3.78%	127.99	7.48%	0.61%	7.56%	Apr-07	100.4	15.73%	0.56%	99.3	15.73%	0.56%	1.03%	Apr-09	118.1	9.35%	-1.95%	113.6	7.64%	0.12%	3.89%
May-05	137.12	14.12%	-0.40%	128.45	7.20%	0.36%	6.75%	May-07	95.6	11.49%	-1.13%	99.6	11.49%	-1.13%	-3.97%	May-09	120.6	5.40%	2.15%	113.7	6.49%	0.09%	6.03%
Jun-05	137.26	13.98%	0.10%	128.77	6.88%	0.25%	6.59%	Jun-07	94.9	11.59%	0.23%	99.4	11.59%	0.23%	-4.52%	Jun-09	119.7	0.67%	-0.75%	113.8	5.33%	0.04%	5.19%
Jul-05	136.68	13.20%	-0.42%	129.17	6.67%	0.31%	5.81%	Jul-07	100.4	10.97%	0.35%	100.0	10.97%	0.35%	0.39%	Jul-09	122.3	2.75%	2.17%	113.9	3.56%	0.08%	7.39%
Aug-05	139.93	15.44%	2.38%	129.83	6.52%	0.51%	7.78%	Aug-07	101.6	10.68%	-0.05%	100.5	10.68%	-0.05%	1.11%	Aug-09	126.6	8.35%	3.52%	114.1	3.23%	0.21%	10.94%
Sep-05	140.77	13.22%	0.60%	130.45	6.55%	0.48%	7.91%	Sep-07	103.5	10.36%	0.44%	100.8	10.36%	0.44%	2.65%	Sep-09	131.9	11.42%	4.16%	114.3	2.16%	0.18%	15.36%
Oct-05	151.02	21.30%	7.28%	140.1	14.11%	7.40%	7.79%	Oct-07	101.1	8.05%	0.48%	101.2	8.05%	0.48%	-0.13%	Oct-09	126.1	10.10%	-4.38%	114.6	2.17%	0.24%	10.03%
Nov-05	154.82	24.22%	2.52%	141	14.55%	0.64%	9.80%	Nov-07	101.2	8.18%	0.38%	101.4	8.18%	0.38%	-0.17%	Nov-09	126.4	8.66%	0.24%	114.8	2.08%	0.15%	10.13%
Dec-05	155.48	21.60%	0.43%	141.5	13.94%	0.35%	9.88%	Dec-07	105.6	9.15%	1.34%	101.9	9.15%	1.34%	3.68%								

Source: BPS 2010

Appendices 6

Table 4.13
Inflation 2003-2009

Inflation per Year	2003											
	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	8.68	7.60	7.17	7.62	7.15	6.98	6.27	6.51	6.33	6.48	5.53	5.16
Aceh Province	7.56	6.51	7.38	7.40	7.80	7.30	6.78	7.68	6.11	6.36	3.75	3.90
Banda Aceh (Aceh)	7.64	6.55	7.49	7.28	7.15	6.63	6.60	7.74	6.05	6.18	3.25	3.87
Lhokseumawe (Aceh)	7.34	6.41	7.06	7.72	9.62	9.20	7.29	7.48	6.29	6.86	5.20	4.00
Medan (North Sumatera)	9.66	10.23	8.41	8.36	7.33	7.93	6.72	7.86	6.56	7.86	6.70	6.10
	2004											
Inflation per Year	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	4.82	4.59	5.11	5.92	6.47	6.83	7.20	6.67	6.26	6.22	6.18	6.40
Aceh Province	3.25	2.50	3.66	5.49	4.97	4.56	5.93	4.80	6.03	5.83	6.33	7.07
Banda Aceh (Aceh)	3.54	2.93	3.77	6.16	5.94	5.37	6.35	4.54	6.38	6.18	6.44	6.97
Lhokseumawe (Aceh)	2.44	1.27	3.33	3.61	2.29	2.34	4.75	5.55	5.04	4.84	6.00	7.35
Medan (North Sumatera)	3.61	3.54	4.90	6.05	5.92	7.05	8.19	6.87	7.32	6.64	6.32	6.65
	2005											
Inflation per Year	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	7.32	7.16	8.82	8.12	7.40	7.42	7.84	8.33	9.07	17.89	18.38	17.11
Aceh Province	12.82	12.13	15.65	17.64	17.51	17.14	15.91	18.78	18.66	32.47	34.34	35.01
Banda Aceh (Aceh)	13.98	13.14	17.43	20.41	20.15	19.47	19.23	22.78	22.02	37.45	39.35	41.11
Lhokseumawe (Aceh)	9.50	9.24	10.65	9.74	9.98	10.52	6.44	7.48	9.05	18.29	20.06	17.58
Medan (North Sumatera)	9.43	7.96	8.87	9.20	9.39	8.67	9.20	10.29	10.97	23.40	25.01	22.91

Inflation per Year	2006											
	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	17.03	17.92	15.73	15.40	15.60	15.53	15.15	14.90	14.55	6.29	5.27	6.60
Aceh Province	30.30	34.12	26.69	20.95	24.41	26.00	25.81	23.19	24.57	13.50	10.25	9.97
Banda Aceh (Aceh)	34.85	39.28	30.06	22.65	26.87	28.80	28.55	25.69	26.59	14.32	10.66	9.54
Lhokseumawe (Aceh)	16.75	18.93	16.59	15.62	16.74	17.41	17.06	15.11	18.09	10.78	8.91	11.47
Medan (North Sumatera)	19.76	22.46	21.06	19.18	19.48	18.91	17.78	16.65	16.64	5.10	3.73	5.96
Inflation per Year	2007											
	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	6.26	6.30	6.52	6.29	6.01	5.77	6.07	6.51	6.95	6.88	6.71	6.59
Aceh Province	9.54	8.82	12.33	13.88	8.79	7.86	11.27	11.38	11.50	8.31	8.53	9.44
Banda Aceh (Aceh)	9.44	9.04	13.19	15.06	9.24	8.55	11.76	11.66	11.94	8.50	9.31	11.00
Lhokseumawe (Aceh)	9.90	8.06	9.48	9.93	7.26	5.54	9.53	10.41	9.98	7.65	5.91	4.18
Medan (North Sumatera)	7.07	6.60	6.20	5.47	4.58	5.35	5.54	5.93	6.51	6.35	6.66	6.42
Inflation per Year	2008											
	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	1.77	0.65	0.95	0.57	1.41	2.46	1.37	0.51	0.97	0.45	0.12	-0.04
Aceh Province	2.08	1.86	0.19	-0.86	2.38	3.57	0.36	0.29	1.48	0.03	0.88	1.27
Banda Aceh (Aceh)	2.26	1.98	-0.76	-0.80	3.78	2.75	0.25	-0.56	1.67	-0.30	0.64	1.06
Lhokseumawe (Aceh)	1.89	1.74	1.13	-0.91	0.98	4.38	0.46	1.14	1.29	0.35	1.12	1.47
Medan (North Sumatera)	1.08	0.20	0.90	0.21	1.57	2.07	1.36	-0.36	0.21	1.36	0.37	0.51
Inflation per Year	2009											
	1	2	3	4	5	6	7	8	9	10	11	12
Indonesia	-0.07	0.21	0.22	-0.31	0.04	0.11	0.45	0.56	1.05	0.19	-0.03	0.33
Aceh Province	-0.62	0.02	0.10	-0.25	0.36	-0.23	0.89	1.26	2.05	-1.08	0.27	0.54
Banda Aceh (Aceh)	-0.30	-0.04	0.70	-0.47	0.63	-0.02	0.80	1.45	1.82	-1.30	0.45	-0.23
Lhokseumawe (Aceh)	-0.93	0.08	-0.50	-0.03	0.09	-0.43	0.97	1.06	2.28	-0.86	0.08	1.31
Medan (North Sumatera)	1.08	0.20	0.90	0.21	1.57	2.07	1.36	-0.36	0.21	1.36	0.37	0.51

Source : BPS Indonesia

References

Aceh, Modus. (2009, 07 09). *Modus Aceh.* (S. LS, Ed.) Accessed 08 15, 2010, from Megazine: http://www.modusaceh.com

Alamsyah, H., Joseph, C., Agung, J., and Zulverdy, D. (2001). 'Towards Implementation of Inflation Targeting in Indonesia'. *Bulletin of Indonesian Economic Studies , 37* (3), 309-324.

Bakhashi, H., Haldane, A. G., and Hatch, N. (1999). Some costs and benefits of price stability in the United Kingdom. In M. S. Feldtein, *The cost and benefits of price stability* (pp. 133-271). London, United Kingdom: The University of Chicago.

Bank Indonesia. (2009). 'Article: Bank Indonesia'. (B. I. division, Producer) Accessed September 10, 2010 http://www.bi.go.id/NR/rdonlyres/54EB4DB4-92B6-4EO4-983A-8D19D4FA16E2/14305/Inbox1.pdf

Bank Indonesia. (2006). 'boks: Bank Indonesia'. Accessed September 2010 http://www.bi.go.id

BAPPENAS. (2000). Accesed 2010 from Bappenas: http://bappenas.go.id/print/735/perkembangan-inflasi-/

Bappenas. (2009). 'Modules: Bappenas'. (B. H. pimpinan, Producer) Accessed 2010 from Bappenas goverment website: http://old.bappenas.go.id/modules.php?op=modload&name=News&file=article&sid=169

Benson, C., and Clay, E. J. (2004). 'Understanding the economic and financial impact in natural disaster'. *The World Bank* , 1-34.

BRR. (2006). *Aceh dan Nias dua tahun setelah tsunami; Laporan kemajuan tahun 2006*. BRR. Aceh: BRR.

Bulog Indonesia. (2004). *Indonesia Rice Policy in View of Trade Liberalization.* FAO, FAO rice conference. Rome: FAO.

Canavese, A. J. (1982). 'The Structuralist Explanation in the Theory of Inflation'. *World Development , 10* (7), 523-529.

Chiriko, R. S. (1993). 'Bussiness Fixed Investment Spending: Modelling Strategies, Empirical Result, and Policy Implications'. *Economic Literature , 31* (4), 1875-1911.

Chowdhury, A. (2002). 'Does inflation affect economic growth?' *The Asia Pacific Economy*, *7* (1), 20-34.

Christoplos, I. (2006). 'Links between relief, rehabilitation and development in the tsunami response'. London: Tsunami Evaluation Coalition.

CIA world Factbook (2010). 'Haiti inflation rate (consumer price): Index mundi'. Accessed September 2010 from Index Mundi: http://www.indexmundi.com

Develtere, P., and De Bruyn, T. (2009). 'The emergence of a fourth pillar in development Aid' *Development in Practice , 19*, 912-922.

Edwards, G. T. (1984). *How economic growth and inflation happen.* London: Macmillan Press.

FAO. (2009). *Evaluation of the FAO response to the pakistan eartquake.* FAO. FAO.

Ferris, E., and Petz, D. (2010). *Haiti six months on.* Brookings, Foreign policy. Haiti: The Brookings Institution.

Funke, O., and Gatewood, N. (2008). *Governing Disaster: explaining and resonding to variances in Inflation Rates Following Disaster Response in Aceh, Indonesia.* Germany: Hertie School of Governance.

Goeltom, M. S. (1999). 'Perubahan perspektif dalam mencari kebijakan moneter kasus Indonesia'. *Centre for strategic and International Studies (SCIS) , 28* (4), 335-371.

Hossain, A. (2006). 'Macroeconomic Development, Policies and Issues in Indonesia, 1950-2005: a Review.' *Malaysian Journal of Economic Studies , XXXXIII* (2), 19-67.

Indrawati, S. M. (1996). *Sumber-Sumber Inflasi di Indonesia. ISEI and PERHEPI seminar.* Jakarta: ISEI and PERHEPI.

International Finance Coorporation. (2007). *Aceh connection. IFC, Private enterprice partnership for Aceh and Nias.* Banda aceh: World Bank.

International Monetary Fund. (2004). 'Macro economic implications of natural disaster in the Caribbean'. *IMF working paper* , 1-25.

International Monetary Fund. (2010, August 2). 'Indonesia: Selected issues'. *IMF country report No. 10/285.*

Jayasuriya S, S. P., and Weerakon, D. (2005). 'Post Tsunami Recovery: issues and challenges in Sri Langka'. Accessed 12 August 16 July 2010 http://www.adbi.org/files/2005.10.dp39.tsunami.recovery.srilanka.pdf

Kay, C. b. (2005). 'Legacies Celso Furtado: Pioner of Structuralist Development'. *Development and Change , 36* (6), 1201-1207.

Kingsbury, D. (2006). *Peace in Aceh: A Personal Account of Helsinki Peace Process.* Jakarta: PT Equinox publishing Indonesia.

Komaruddin, D. (1967). *Pengawasan Inflasi; Suatu pidato Inagurasi jang disampaikan di Cambridge pada tanggal 4 Maret 1958* . Bandung: cv. Academica.

Lewis, J. (1999). *Development in disaster-prone places.* London, UK: Intermediate Technology Publications.

Lusted, M. A. (2008). *The 2004 Indian Ocean Tsunami.* (K. Kenny, Ed.) Minnesota: ABDO publishing company.

Mankiw, N. G. (2007). *Macroeconomics.* New york, USA: Worth publisher.

Marsyarafah, H., and McKeon, J. M. (2008). *Post tsunami AID effectiveness in Aceh; proliferation and coordination in reconstruction. World Bank, Poverty reduction and Economic Management.* Banda Aceh: Wolfensohn Center for Development.

Mishkin, F., and Posen, A. (1997). 'Inflation targetting lesson from four countries Federal Reserve Bank of New York' *Economic policy review 3* , 9-117.

Nicholas, H. (2008). 'Inflation in Sri Lanka: ideology vs reality' in Wimalaratne (ed) *The Economics of Proffesor W.D Lakshman*, Colombo: University of Colombo.

Oxfam International. (2009). *In the Wake of the Tsunami*. Oxford: Oxfam International Tsunami fund.

Parikh, A., Booth, A., and Sundrum, R. (1985). 'An econometric model of monetary sector in Indonesia'. *Journal of development studies , 21* (3), 406-421.

Pollin, R., and Zhu, A. (2005, October). 'Inflation and economic growth: A cross country non linear analyses'. *Political economy research institute , 109*, pp. 1-23.

Popp, A. (2006). 'The effect of natural disaster in long run growth'. Accessed July 2 2010. http://www.cba.uni.edu/economics/themes/popp.pdf

PRSP. (2005). *First quarter progress report 2005-2006*. Goverment of Pakistan, Finance division. Karchi: PRSP secretariat.

Ramakrishnan, U., and Vamvakidis, A. (2002). 'Forecasting Inflation in Indonesia'. *IMF working paper* , 1-22.

Sachs, J. D., and Larrain, F. B. (1993). *Macroeconomics in the Global Economy*. (S. Dietrich, Ed.) New york: Prentice hall, inc.

Siregar, H., and Ward, B. D. (2002). 'Were aggregate demand shocks important in explaining Indonesian macroeconomic fluctuations?' *The Asia Pasific Economy , VII* (1), 35-60.

Soelaksono, A. (2009). 'NGO and Donor coordination to speeds up reconstruction and avoid NGO competetion'. Accessed January 17 2010 urdi.org/.../ngo-and-donor-coordination-to-speed-up-reconstruction-and-avoid-ngo-competition.deo.

Tambunan, T. (1996). 'Sumber Inflasi dan kebijakan kontraktif di Indonesia'. *Ekononomi dan keuangan Indonesia , 44* (1), 55-73.

Taylor, L. (1983). *Structuralist Macroeconomics; Applicable models for the third world*. New York, United State of America: Basic Books, Inc.

The economist. (2005,). 'Disaster economics: Quantifying the impact of the earthquake on Pakistan' *The economist* , Vol: 13 Issue: 41 pp. 1-2.

UN OCHA. (2010). 'Haiti Earthquake; the situation report #34'. Accessed 15 July 2010. http://www.reliefweb.int/rw/rwb.nsf/db900SID/MUMA-84L2BM?OpenDocument

World Bank. (2007). 'Indonesia: Economic and Social update November 2007'. Accessed 15 July 2010.

http://siteresources.worldbank.org/INTINDONESIA/Resources/Country-Update/ecsos.update.nov2007.pdf