



LUND UNIVERSITY
School of Economics and Management

NEKN01 Master's Thesis

Testing the Big Push Hypothesis - The Case of Montserrat

Authors:
Josefin Kilman
Josefine Lundin

Supervisor:
Therese Nilsson

August 2014

Abstract

The idea of a big push is one of the earliest theories in development economics and the original justification for foreign aid. The past 30 years have witnessed the publication of numerous studies on aid effectiveness with varying results. This thesis proceeds from the discussion regarding the relationship between aid, economic growth and poverty reduction. The big push hypothesis implies increased aid and investments aiming to raise economic growth and thus reduce poverty. In this study, the hypothesis is examined by two methodological approaches, a macro study on developing countries and a case study of Montserrat. In 1997, Montserrat suffered from volcanic eruptions and has since received substantial amounts of development aid from the UK. Departing from a panel data regression analysis on 79 developing countries between 1982 and 2010, the results indicate that a big push of aid promotes economic growth. However, when analyzing the aid-poverty relationship through conducting interviews with stakeholders in Montserrat, a big push of aid has not reduced poverty. This is due to the lack of sustainable economic and social development resulting in high cost of living, few employment opportunities, short-term character of implemented projects and an insufficient welfare system. Thus, combining the results from both approaches, this thesis concludes that the theoretical framework of the big push hypothesis is questioned.

Keywords: *Big push of aid, Montserrat, economic growth, poverty reduction, panel data regression, interviews*

Acknowledgments

First and foremost, we want to thank the Swedish International Development Cooperation Agency (SIDA) and the Department of Economics at Lund University for giving us the opportunity to travel to Montserrat and conduct research for our study. We are truly grateful for this unique experience.

We would also like to thank our supervisor on field, Angela Greenaway. Without your help regarding interviews and providing us with material on field this thesis would never have been possible. Further, special thanks to all the interviewees.

We would also like to thank Clover and David Lea for their hospitality and accommodation while on field. Thank you for your warm welcome and guiding hand during our stay in Montserrat.

Last but not least, we wish to thank our supervisor, Therese Nilsson, for the inspiration and guidance she has provided us with during the entire process.

Any errors are our own.

The image shows two handwritten signatures in black ink. The signature on the left is 'Josefin Kilman' and the signature on the right is 'Josefine Lundin'. Both are written in a cursive, flowing style.

Josefin Kilman and Josefine Lundin
Lund, August 2014

Table of contents

1. Introduction	1
2. The relationship between a big push of aid, economic growth and poverty reduction	6
<i>2.1 Theoretical framework</i>	6
2.1.1 Previous research on the effectiveness of aid	7
2.1.2 Connecting economic growth and poverty	8
Part I – Macro focus	10
3. Empirical Model and Method	10
<i>3.1 Approach</i>	10
3.1.1 Model	10
3.1.2 Measuring a big push	11
<i>3.2 Results</i>	12
4. Conclusions from macro focus	16
Part II – Micro focus	18
5. Background	18
<i>5.1 Economic history and poverty situation in Montserrat</i>	18
<i>5.2 A big push to Montserrat</i>	19
6. A case study of Montserrat	20
<i>6.1 Interviews and empirical strategy</i>	20
<i>6.2 Analyzing the results</i>	21
6.2.1 Implemented investment strategies	21
6.2.2 Effect on poverty	23
7. Conclusions from case study of Montserrat	32
8. Discussion and concluding remarks	34
9. References	37
Appendices A-H	

Abbreviations

Following abbreviations are presented in the order of their occurrence.

UNCTAD – United Nations Conference on Trade and Development

OLS – Ordinary least squares

2SLS – Two stage least squares

GMM – Generalized Method of Moments

UK – United Kingdom

GDP – Gross Domestic Product

QoG – The Quality of Government Institute

OT – Overseas Territory

GoM – Government of Montserrat

CDB – Caribbean Development Bank

IMF – International Monetary Fund

EU – European Union

PPA – Participatory poverty and hardship assessment

DFID – Department for International Development

ICAI – Independent Commission for Aid Impact

SID – Statistics on International development

MSLC – Montserrat Survey of Living Conditions

PIU – Project Implementation Unit

BNTF – Basic Needs Trust Fund

DMCA – Disaster Management Coordination Agency

NGO – Non-governmental organization

PWHC – Price Water House Coopers

EC – East Caribbean Dollar

ILO – International Labour Organization

HMG - Her Majesty's Government

SDP – Sustainable Development Plan

CPP - Country Policy Plan

1. Introduction

How developing countries can escape poverty has for centuries been a controversial subject. A majority of economists agree that economic growth is important for achieving poverty reduction since it mainly determines the material well-being of people (Aghion and Howitt, 2009:2). Various theories explain how a country can achieve sustainable economic growth. Originally developed by Rosenstein-Rodan in 1943, the big push theory has been influential in development economics, but became less popular during the market-oriented 80s and 90s (Easterly, 2006). However the big push theory made a comeback in the new millennium and this thesis aims to contribute to this discussion.

Poor countries are generally short on capital and are therefore constrained by low levels of savings and investments resulting in low economic activity. Foreign aid has been one of the main instruments for countries to break these constraints and one core objective is poverty reduction. There are cases of undeveloped countries caught in poverty traps, out of which they need a big push. This push, involving increased aid aimed to increase rates of savings and investments, should lead to a take off in per capita income, all necessary for a permanent reduction in poverty (see e.g. UNCTAD, 2006:3 and Kraay and McKenzie, 2014). Even if economic growth is essential for reducing income poverty, the link is far from automatic. Various countries have experienced a decrease in income poverty due to economic growth, while other countries have experienced the opposite, increased income poverty despite economic growth. Thus, the pattern of growth is crucial in order for the poor to participate in the benefits from economic growth (Lensink and White, 2000).

A number of research articles examine if, and how, foreign aid promotes growth and/or reduces poverty. Table 1 presents a summary of selected research on the subject, including descriptions of the studies, the methods used and results. Notably, the findings are mixed.

Table 1. *Summary of previous research*

	Promotes growth and/or reduces poverty	Does not promote growth and/or reduces poverty	Sample and description of study	Estimation method	Comments on the results
Boone (1996)		x	Examines the effectiveness of foreign aid programs using data on 96 countries between 1971-1990.		Aid does not significantly increase economic growth, nor benefit the poor when analyzing different human development indicators.
Burnside and Dollar (2000)	x		Examine the relationships among aid, economic policies and growth using a policy index (budget surplus,	OLS and 2SLS	Aid has a positive impact on economic growth in developing countries, but conditioned on

			inflation rate and an openness dummy) to interact with aid using a panel of 56 countries and four-year time periods from 1970-1993.		sound fiscal, monetary, and trade policies. The result is robust.
Hansen and Tarp (2001)	x		Examines the relationship between foreign aid and economic growth for 56 countries and five periods, covering the years 1974-1993.	OLS and GMM	Aid increases economic growth, and this result is not conditional on sound economic policies.
Collier and Dollar (2002)	x		Examine the “poverty-efficient” allocation of aid and compares it with actual aid allocations. Further examine the aid-growth relationship using a panel of 59 countries and four-year averages, 1974-1997.	OLS	The poverty impact of aid could be doubled if the actual allocation of aid increases. Further, aid leads to economic growth, which in turn typically reduces poverty, though conditioned on sound policies.
Easterly, Levine and Roodman (2004)	x	x	Examine if aid influences growth in the presence of good policies. Panel of 56 countries and four-year time periods from 1970-1997 by adding data to the original Burnside and Dollar (2000) study.	OLS and 2SLS	The result that aid affects economic growth positively only in sound policy environments is not robust.
Clemens, Radelet, Bhavnani and Bazzi (2004)	x		They re-analyze data from three influential aid-growth studies: Boone (1996), Burnside & Dollar (2000; 2004) and Rajan & Subramanian (2008).		Substantial increases in aid have a positive effect on investment and growth, regardless of the policy climate when altering the time frame and instruments in the original regressions.
Easterly (2006)		x	Examines the concepts of poverty traps, big push of aid and investment, and take offs ¹ in per capita income in 127 countries for 1950-		Take offs are uncommon in the data, and restricted to the Asian tigers. And even then, the take offs do not seem strongly linked

¹ The take off is defined as a 6 percent per capita growth, from a starting point of stagnation over the last few decades. The basic thought is that a big push of aid will enable countries to break out of a poverty trap.

			2001.		with either aid or investment.
Rajan and Subramarian (2008)		x	Examine the effects of aid on economic growth in cross-sectional and panel data for the years 1960-2000.	OLS and GMM	A little robust evidence of a positive relationship between aid and economic growth, regardless of policy environments.
Chong, Gradstein and Calderon (2009)		x	Examine the effect of foreign aid on income inequality and poverty reduction for the period 1971-2002 with both cross-section and panel estimations.	GMM	No significant relationship between aid and poverty reduction. Both estimations suggest that good institutions may be necessary for aid to reach the poor, but this result is not robust.
Dalgaard and Hansen (2010)	x		They reassess the aid effectiveness results in Burnside and Dollar (2000), using the same data set as the original study but with a modified model setting.		The finding that aid works only in good policy environments is not robust, and depends on the deletion of a few observations. Thus, aid affects growth positively in any policy environment.

Various papers find that aid promotes growth/reduces poverty (see e.g. Burnside and Dollar, 2000; Hansen and Tarp, 2001; Dalgaard and Hansen, 2010; Collier and Dollar, 2002; and Clemens et al., 2004). However, some argue that this result is conditioned on a good policy environment (see e.g. Burnside and Dollar, 2000 and Collier and Dollar, 2002) while there are those opposing the belief that a good policy environment is necessary for aid to have a positive effect on economic growth (see e.g. Hansen and Tarp, 2001; Dalgaard and Hansen, 2010; Easterly et al., 2004; and Clemens et al., 2004).

Some studies claim that there is no evidence of any effect of aid on economic growth, regardless of the institutional quality of the recipient (see e.g. Boone, 1996; Rajan and Subramarian, 2008; and Chong et al., 2009). Boone (1996) finds that aid finances consumption rather than investment. Rajan and Subramarian (2008) note that cross-country growth regressions may suffer from noise in the data, which makes it hard to establish any relationship. Finally, Chong et al. (2009) argue that corruption, poor institutions or misallocation of resources might explain the poor link. In addition, Easterly (2006) examines the concepts of poverty traps, big pushes of aid, investment and a take off in per capita income. The result indicates low support for take offs and they are seldom strongly associated with either aid or investment.

Theoretically, a big push of aid and the investments following should lead to economic growth and poverty reduction. However, the dispersion and lack of earlier research on the big push subject encourage us to further examine this relationship. The overall objective of this thesis is, therefore, to investigate on both a macro and micro level if a

big push of aid affects economic growth and poverty. We particularly aim at answering the following research question: - *does a big push of aid promote economic growth and poverty reduction?*

This study uses two methodological approaches. First, we focus on a macro level through a panel data regression analysis, where we aim to generally investigate if a big push of aid promotes economic growth. The examination is based on a panel consisting of observations from 79 low and lower middle-income countries in the period 1982-2010. A panel data regression using an estimated big push variable gives us the general understanding of the effect of receiving a large amount of aid on economic growth.

Second, we focus on the micro level through a case study in Montserrat, where we aim to evaluate the effect on poverty in an economy after receiving a big push of aid. We believe that the case of Montserrat is applicable for this research since it is a perfect example of an economy that has received a big push of aid. After volcanic eruptions in the 1990s, the UK provided development aid to Montserrat with the purpose of helping Montserrat achieve sustainable economic growth (GOV.UK, 2014).

Country case assessments have an important role to play in understanding the aid-poverty relationship, since they give us an opportunity to map the investments made, their ability to target the poor, and to draw conclusions on the effect on poverty. A case study further helps to answer: *Who benefits from economic growth? Does this economic growth foster poverty reduction?* This is crucial when further investigating economic growth in connection to poverty. In addition, results found on a macro level are regularly used by aid agencies to inform policy and it is therefore important to test whether these results are generalizable to different country cases. A case study is further needed since an econometric analysis is incomplete if we are to understand the true impact of a big push because it does not account for initial conditions at the point at which the aid is received. Hence, the two-fold method is of importance.

The case study in Montserrat is primarily based on interviews with stakeholders as well as a review of policy documents retrieved on field. The aim is to collect opinions from a broad spectrum of stakeholders. Accordingly, interviews with representatives from the government, other civil servants within the public sector and representatives from the private sector have been conducted.

The opportunity to conduct a case study in Montserrat, in combination to this thesis' estimated big push variable, contributes to current literature within the subject in two aspects. First, a qualitative study enables us to identify the land specific poverty aspects in Montserrat. Second, the use of our own estimated big push variable, instead of using a level of aid variable included in previous research (see e.g. Hansen and Tarp, 2001), allows us to identify the effect on economic growth of aid when measured as the standard deviation from the mean.

The panel data regression results show that a big push of aid promotes economic growth in developing countries. In addition, the case study in Montserrat indicates that a big push of aid was unable to reduce poverty in a sustainable way. Theoretically, appropriate sectors have been targeted. Yet, the general view among the stakeholders is that the people in Montserrat have not been able to participate in or benefit from

positive growth effects during the rebuilding. This is due to the lack of sustainable economic and social development resulting in high costs of living, low employment opportunities, short-term character of implemented projects and insufficient welfare systems.

The following chapter provides the theoretical approach for this thesis. The first part of the study presents the panel data regression and results. Chapter four concludes the findings from the macro study. The second part begins with background information and the definition of a big push of aid in the case of Montserrat. Chapter six explains the empirical strategy for the case study and the results. Chapter seven concludes the findings from the micro study. This is followed by a discussion and concluding remarks in chapter eight, where the findings are summarized and analyzed with the empirical and theoretical perspectives in mind.

2. The relationship between a big push of aid, economic growth and poverty reduction

This chapter presents the theoretical framework on how a big push of aid affects economic growth and poverty. For a deeper analysis, suggested mechanisms behind the relationship are stated through a summary of previous research.

2.1 Theoretical framework

The big push theory was developed in the 1940s and is one of the earliest theories of development economics. Originally, the theory provided an explanation of how developing countries can industrialize through broad-based investment and coordination (Murphy et al., 1989). Developing countries generally lack the capital required to provide this big push in investments. Hence, the big push hypothesis became the justification for foreign aid. Then, as now, there were economists who advocated a big push involving a combination of a large increase in aid, and a simultaneous increase in investment in numerous sectors, leading to economic growth and poverty reduction (Easterly, 2006).

A modified neoclassical growth model provides a good analytical framework for an empirical investigation on the connection between a big push of aid and economic growth (Burnside and Dollar, 2000). Thus, in spirit of previous research, this thesis uses a simple Solow-model (Kraay and McKenzie, 2014). We compare the prediction of a big push of aid with the prediction of the Solow model. The standard Solow growth model is built around the familiar neoclassical aggregate production function $Y = A_t F(K, L)^2$ with constant returns to scale. Capital accumulates according to the following function $\dot{k} = sAf(k) - (n + \delta)k^3$. Poverty traps represent an inefficient equilibrium at low levels of per capita income and arise from various sources, including both market and institutional failures (Snowdon, 2009).

The main reason why some countries are poor is that the level of capital per person is low (Kraay and McKenzie, 2014). When the population grows faster than capital is accumulated, the amount of capital per person declines. Capital accumulates when households save a part of their income or it is taxed to finance government investments. However, capital diminishes⁴, or depreciates simply as time goes by. The capital stock increases when savings exceed depreciation. Still, even if there is a positive net capital accumulation, capital must accumulate fast enough to keep up with population growth in order for growth in per capita income to increase (Sachs, 2005:245).

In summary, both household savings and government investments raise the capital stock in an economy. A higher capital stock leads to economic growth which, in turn, raises household income. In a stable economy, incomes rise as household savings and government investments are able to keep up with depreciation and population growth. However, savings in developing countries are generally low resulting in a fall in capital per person and a negative growth rate of per capita income. Foreign aid helps to push

² Y is real output, K is capital, L is labor input and A_t is a measure of exogenously determined technology.

³ s is the domestic savings rate, n is the rate of population growth, δ is the rate of depreciation and \dot{k} (dk/dt) equals capital deepening.

⁴ $f'(k) > 0$ and $f''(k) < 0$.

the process of capital accumulation and increases household incomes by acting as an income transfer. Foreign aid has different purposes and runs through different channels. For instance, humanitarian and food aid goes directly to households while development aid mainly finances government budgets and public investments (Sachs, 2005:246).

The income transfer that aid provides may or may not produce growth. The outcome depends on how aid is used. On the one hand, aid may be invested, so that domestic output increases. On the other hand, it may be consumed. To the extent that it is invested, it is effective (Burnside and Dollar, 2000). If the foreign assistance is extensive, and lasts long enough, the capital stock rises sufficiently to lift households out of poverty. Thus, households can save for the future and taxation supports public investment, putting the economy on a path of sustained economic growth (Sachs, 2005:246). Figure 1 presents the chain of mechanisms.

Figure 1. *The relations between a big push of aid, economic growth and poverty*



As seen above, a big push of aid leads to an increase in the capital stock, which in turn leads to an increase in GDP per capita. However, if the investments from aid are not targeted towards changing fundamental factors in the economy (e.g. improving technology, institutions and enforcing macroeconomic stability, social insurance and so forth), foreign aid is ineffective in raising long-run growth. If only the capital stock is increased, then the depreciation rate exceeds the investment rate and the Solow model predicts that countries are pushed back to their steady-state level of capital and GDP (Kraay and McKenzie, 2014).

2.1.1 Previous research on the effectiveness of aid

Previous research suggests several mechanisms through which foreign aid may affect economic growth in either a positive or negative direction. As seen in Table 1, various papers conclude that aid promotes economic growth (see e.g. Burnside and Dollar, 2000; Hansen and Tarp, 2001; Dalgaard and Hansen, 2010; Collier and Dollar, 2002; Feeny and McGillivray, 2011; and Clemens et al., 2004). Although this overall message from the literature is clear, disagreements on the environments in which aid works best, remain, and the process by which aid drives economic growth is still unclear.

A range of studies underline the importance of including country specific effects when evaluating the aid-growth relationship in order to capture the *differences in policy climates across the recipients*. Burnside and Dollar (2000) include a policy index interacting with an aid variable to capture the differences in policy climates across recipients. The results indicate that aid has a positive effect on economic growth, but conditioned on a good policy environment, i.e. when sound fiscal, monetary and trade policies are in place. Hence, the results state that the mechanism between aid and economic growth is that good policies promote economic growth. In addition, various institutional and policy distortions lower the return to capital and reduce growth rates.

Accordingly, the impact of aid is greater in *low distortion environments* (Burnside and Dollar, 2000).

In the same spirit, Collier and Dollar (2002) qualify the argument that aid promotes economic growth when the recipient countries have *sound institutions* in place. When analyzing the aid-poverty relationship, they find that the policies that are positive for growth are positive to the same extent for income of the poor. Hence, if donors want to achieve poverty reduction, they should allocate aid to low-income countries with good policies.

On the other hand, some researchers question whether a good policy environment is necessary for aid to have a positive effect on economic growth (see e.g. Hansen and Tarp, 2001; Dalgaard and Hansen, 2010; Easterly et al., 2004; and Clemens et al., 2004). They all obtain a positive effect of aid on growth regardless of policy environment. By reassessing and adding data to the original Burnside and Dollar (2000) paper, Easterly et al. (2004) find that the original result is not robust. In the same vein, Clemens et al. (2004) alter the time frame and instruments and find that aid has a positive effect on investments and economic growth, even without a good policy or institutional climate.

Feeny and McGillivray (2011) present a different explanation of how foreign aid can affect economic growth. Using the Kuznet curve, they aim to identify the *growth efficient level* of foreign aid. They find that many countries receive levels lower than this growth efficient level, which they estimate to be around 20 percent of recipient GDP. Hence, they conclude that aid flows can increase dramatically without inducing diminishing returns on economic growth. A big push in aid levels can therefore lead to an increase in economic growth and, by implication, reductions in poverty (Feeny and McGillivray, 2011).

Thus, the relationship between aid and economic growth is subject to *diminishing returns* (see e.g. Hansen and Tarp, 2001 and Clemens et al., 2004). There are several explanations underlying the diminishing returns relationship. First, there are *deficits in the delivery of aid*, which could restrict the capacity of recipients to effectively handle inflows. For instance, high levels of aid place a large administrative burden on recipients with excessive negotiation, management and reporting requirements. With many donors operating in many different sectors, aid projects and programs are often uncoordinated. Second, aid mainly funds *capital investments*, which are subject to *diminishing returns* (Feeny and McGillivray, 2011).

2.1.2 Connecting economic growth and poverty

The big push theory does not provide an explanation to how economic growth can lead to poverty reduction. Therefore, including an explanation to the growth-poverty relationship widens the theoretical approach. Poverty is commonly defined as the state when people “cannot afford certain pre-determined consumption needs” (Ravallion, 2004). There are multiple dimensions of poverty and the focus in this thesis is on the economic aspects, i.e. income poverty. Dollar and Kraay (2001) state that the income of the poor is tightly linked with overall incomes, and therefore growth of per capita GDP is translated into proportional growth of income of the poor. However, rapid and sustained poverty reduction requires pro-poor growth. This means that the effect on poverty depends on the pace and pattern of growth that improve the ability for people

to participate in and benefit from economic growth. OECD (2006) highlights seven important areas to focus on when targeting the poor.

First, *economic growth must be sustained* over the long term. For growth to be sustained, it should be spread across sectors and regions and include the workforce. Policies for sustaining economic growth such as macroeconomic stability, institutional quality, democratic and effective governance and a favorable investment climate as described above should all promote the engagement of the poor by increasing their incentives and opportunities for employment and entrepreneurship.

In the same spirit, *private sector development* provides opportunities for the poor through employment. Third, adequate access to *infrastructure services* promotes growth patterns beneficial to the poor, mainly since reliable infrastructure reduces the production and transaction costs of doing business. Fourth, *agricultural productivity* improves the lives of people by meeting consumption needs and providing a basis for incomes. Fifth, establishing *risk mitigation instruments and social protection* increase the incentives among the poor to take on risk that they are generally reluctant to. Sixth, *well functioning markets* are important since market failures undermine pro-poor growth. When markets have failed or market outcomes have not been pro-poor, government interventions are often large, providing goods and services themselves (OECD, 2006).

Finally, for economic growth to reach the poor, *income inequality* must be addressed. Economic growth, inequality and poverty are interlinked and can be described as three sides of a triangle (Bourguignon, 2004). Inequality in the distribution of assets, which is common in developing countries, reduces the ability of poor people to benefit from economic growth (OECD, 2006). Bourguignon (2004) notes that a change in poverty depends on economic growth in two different ways: the initial income distribution and the change in the income distribution caused by economic growth. Economic growth must be faster and sustained longer to achieve a given level of poverty reduction when the level of income inequality is high to begin with (Bourguignon, 2004).

Part I – Macro focus

3. Empirical Model and Method

This chapter presents the panel data regression, including the empirical strategy and results. Using an estimated big push variable, the purpose is to investigate if a big push of aid leads to economic growth in developing countries.

3.1 Approach

In deductive theory, the existing information within the field of study determines what data should be collected, interpreted and related to theory. This thesis uses a quantitative and deductive approach to get a general picture of the big push theory. The main purpose of the quantitative approach is to investigate if a big push of aid affects economic growth. The econometric method employed is a specific-to-general approach, where a simple model is estimated as a starting point. By adding further variables, the model is subsequently restricted. Using this method, we allow for extra layers of complexity by further adding variables that are likely to affect the model's dependent variable (Verbeek, 2008:59-60).

3.1.1 Model

We use panel data available from the QoG standard data set, spanning the time period 1946-2012. The balanced panel data consist of 79 countries and include yearly data for 1982-2010 (QoG, 2013a). Since Montserrat is classified as a small island developing area (see e.g. United Nations, 2013), we restrict our research to only include low income and lower middle-income countries in the panel data regression (see appendix A included countries). The purpose of this sample selection is two-fold: first, we want the same prerequisites as in the case study, and second, we want a large enough sample of countries to be able to draw confirmable conclusions. Restricting the examination to only developing countries also contributes to a homogeneous dataset. It further facilitates the analysis, as countries with similar income levels tend to grow similarly (Jones, 2002:127-132).

The model applied in this study is a two-way error component model with country and time fixed effects (see appendix B for Hausman test on fixed or random effect). The choice of fixed effects is motivated by the fact that it allows for different intercepts in the sample countries. Further, fixed effects are preferred when analyzing the impact of variables over a longer time period (Clark and Linzer, 2012). The estimated model is:

$$Y_{it} = \beta_1 X_{it} + \beta_2 \text{Big push} + \alpha_i + \tau_t + \varepsilon_{it} \quad (1)$$

where,

Y_{it} is the dependent variable, i = observation and t = time

β_1 is the coefficient for the explanatory variables

X_{it} is the vector of explanatory variables

β_2 is the coefficient for the big push variable

α_i is a time independent country fixed effect

τ_t is a time dependent fixed effect and

ε_{it} is the error term.

To be able to analyze if a big push of aid affects economic growth, control variables are required. The theoretical framework, together with the findings of earlier research, motivates the choice of control variables (see e.g. Collier and Dollar, 2002 and Burnside and Dollar, 2000). The variables represent a country's government expenditure, health as measured by fertility rate, education as measured by average years of schooling, and finally political and economic stability measured by a polity index and inflation. In line with previous findings, average years of schooling and political stability are expected to have a positive effect on economic growth. Further, government expenditure, fertility rate and inflation are expected to have a negative effect on economic growth (see e.g. Barro and Sala-i-Martin, 2004:518-530).

Theoretically, the relationship between a big push of aid and economic growth is subject to diminishing returns. Further, countries receiving a big push of aid are more likely to experience increased economic growth when good institutions are in place. To control for these two effects, a squared big push variable and an interaction variable between polity index and big push are included (for a description and sources of the variables see appendix C and for descriptive statistics on all variables see appendix D).

Furthermore, all variables are tested for stationarity (see appendix E for test result). GDP growth per capita, polity and inflation are differentiated and measured in terms of the natural logarithm. Average school years is second differentiated and logged. The big push variable is second differentiated. Finally, government expenditure is only differentiated. The big push variable and the polity index are normalized to eliminate negative values. The White robust standard error is applied to control for heteroscedasticity.

Problems of simultaneity and reverse causation are common when analyzing the aid-growth relationship (Chong et al., 2009). There is a negative correlation to the extent that donors respond to negative growth shocks by providing more assistance, as in the case of a natural disaster. On the other hand, aid may increase to countries that have used it well in the past, or to countries where donors have strategic or commercial interests (see e.g. Rajan and Subramanian, 2008 and Burnside and Dollar, 2000).

To handle the reverse causality problem in the panel data regression, both an ordinary least squares (OLS) and a two-stage least square (2SLS) method approach are used when (1) is estimated. In the 2SLS approach, an instrument for the endogenous variables big push and big push squared is applied. In line with previous research (see e.g. Brückner, 2010), this paper uses internal instruments, represented by lagging the big push variable and the big push squared one period. The choice of instruments is motivated by the high probability that the big push variable is correlated with its own lags. However, it is unlikely that the aid allocation decision is based on future growth (see appendix F for test statistics on the validity of instruments).

3.1.2 Measuring a big push

In order to capture the effect of a big push of aid on economic growth, we create a big push variable. Contrary, previous research uses the level of aid to estimate the relationship between aid and economic growth (see e.g. Chong et al., 2009; Collier and Dollar, 2002; and Hansen and Tarp, 2001). Yet, using the level of aid does not capture an extensive increase in aid, which this study aims to examine. Based on data on ODA (see

appendix C for description and source), the variable is measured as the standard deviation from the mean aid received.

The variable is calculated according to

$$\text{Big push}_{it} = \text{Average aid for country}_i - \text{Aid}_{it}$$

Measuring a big push, as above, we assume that it affects economic growth independently of its size. We consequently assume that a positive big push may affect economic growth in a positive way to the same extent that a negative big push may affect economic growth negatively. Consequently, the definition is fairly wide, which must be taken into consideration in the analysis.

3.2 Results

The regression result consists of four equations where control variables are added to test the robustness of the result. Further, two estimators, OLS and 2SLS, are used for sensitivity analysis (Blundell and Bond, 1998). When the estimated coefficients below show a similar result for both estimators, the result is considered robust. Table 2 presents the results of the panel regressions. In equation four, the interpretation of the big push variable and polity variable is not straightforward since the interaction term between the two is included. The estimated coefficient of the big push variable captures the effect on economic growth when polity equals zero and vice versa (Braumoeller, 2004). Therefore, equation four is only used when interpreting the interaction term.

Table 2. Regression results

Dependent variable: GDP growth per capita

Equation	1		2		3		4	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
c	0.243** (0.045)	0.252* (0.051)	0.090* (0.033)	0.120** (0.083)	0.048*** (0.004)	0.044*** (0.005)	0.034*** (0.002)	0.039*** (0.003)
Big push	0.671*** (0.572)	0.512* (0.600)	0.382** (0.001)	0.034** (0.034)	0.039* (0.081)	0.031** (0.211)	0.02** (0.09)	0.01* (0.126)
Big push^2	-0.023** (0.121)	-0.023* (0.231)	-0.012** (0.048)	-0.013** (0.049)	-0.000*** (0.001)	-0.071** (0.004)	-0.001** (0.021)	-0.083 (0.003)
Inflation			-0.012*** (0.023)	-0.000*** (0.042)	-0.005*** (0.001)	-0.004*** (0.003)	-0.038** (0.021)	-0.004** (0.043)
Edu			0.531*** (0.023)	0.539** (0.051)	0.226** (0.022)	0.239** (0.048)	0.359* (0.091)	0.319* (0.121)
Polity					-0.024** (0.007)	-0.025*** (0.009)	-0.009** (0.006)	-0.004** (0.012)
Fertility					-0.000*** (0.004)	-0.007*** (0.009)	-0.000** (0.001)	-0.000** (0.004)
Gov exp					0.013 (0.009)	0.010 (0.011)	0.04 (0.012)	0.015 (0.019)
Big push*Polity							-0.753 (0.625)	-0.537* (0.698)
Number of countries	79	79	79	79	79	79	79	79
Observations	1561	1561	1561	1561	1561	1561	1561	1561
R-squared (within)	0.12	0.1	0.17	0.14	0.34	0.20	0.39	0.24

Significant levels: *p<0.10, **p<0.05, *** p<0.01. Coefficients and standard errors in parentheses are reported. Country and time fixed effects are used. Period weights.

The coefficient of the big push variable indicates a significant result with the correct sign in all three equations above and for both estimators. Thus, it cannot be rejected on any of the three significance levels that a big push of aid initially has a positive effect on economic growth, indicating that the result is robust, on a ten percent significance level. This shows that a big push of aid has a positive effect on economic growth for low and lower middle-income countries.

In the first three of the estimated equations, the intercept is positive and significant. It is intuitive to assume that there is some economic growth even though the independent variables are zero. Yet, because the intercept is positive in all estimated regressions,

there are other variables that are expected to affect economic growth but are left outside the model.

Further, a big push of aid seems to follow the theoretical hypothesis outlined in chapter two; a big push increases economic growth, however, with a diminishing effect. The coefficient for the big push variable varies between 0.031 and 0.512 and the big push squared coefficient lies between -0.71 and -0.013. Considering 2SLS in the first three estimated equations, the indication is that economic growth increases quite drastically initially, and declines more slowly after a turning point. This result is in line with Feeny and McGillivray (2011), who conclude that there is an optimal level of aid.

For the big push variable and the squared big push variable, the sizes of the coefficients in equations one to three are similar whether the equation is estimated with OLS or 2SLS, indicating that the result for both variables is robust. As is seen above, the standard error for the estimation with 2SLS provides higher standard errors compared to OLS, which shows that the model is correctly specified with both estimators (Blundell and Bond, 1998).

Inflation is negative and significant in all of the regression output, suggesting that a higher inflation rate inhibits economic growth. However, the coefficient appears to be small, i.e. a 1 percent higher inflation decreases economic growth by 0.005 percent using OLS in equation three. This is in line with previous studies (see e.g. Barro and Sala-i-Martin, 2004:533). Further, a low and stable inflation rate is seen as an approximation for stable macroeconomic institutions. Thus, in line with previous studies, the result indicates that good institutions promote economic growth.

When extending the regression and including average years of schooling, the already existing variables remain significant. In comparison to other included variables, the average schooling coefficient is quite large and significant on a ten percent level in all regressions. Thus, as expected, a higher education level within a country contributes to higher economic growth, in accordance with earlier research (see e.g. Barro and Sala-i-Martin, 2004:524).

When extending the model and controlling for polity, fertility rate and government expenditure in equation three, the big push variable coefficient becomes smaller using 2SLS. Yet, a big push of aid has a significant effect on economic growth on a ten percent level. A possible explanation for the decrease in the coefficient is that the importance of a big push decreases when controlling for additional mechanisms. Comparing the coefficient for equation one and three using the 2SLS estimator, we see that the coefficient decreases from 0.512 to 0.031. This indicates that if foreign aid increased by 1 percent, economic growth would increase by 0.031 percent. The similarity of both estimations in all equations indicates that endogeneity does not affect the results.

Previous literature suggests that government expenditure has a negative effect on economic growth (see e.g. Barro and Sala-i-Martin, 2002:526). Our analysis shows ambiguous results. The coefficients are positive but not significant on any level, with a coefficient value of 0.013 when using OLS and 0.01 when using 2SLS in equation three. This result can strengthen the findings in Snowdon (2009): that government expenditure is land-specific and aid does not promote economic growth when the

fundamentals in the economy are unchanged. Therefore, an explanation of why government expenditure does not appear to be significant is thus that government investments in projects that do not fundamentally change the economic performance within a country, would merely, have a diminishing effect on economic growth. This is indicated in our sample and according to theory (see e.g. Snowdon, 2009).

Moving on to equation four, the big push variable multiplied with the polity IV index is included to control if political stability, together with a big push of aid, has a significant effect on economic growth. The polity index measures the degree of democracy in a country. Assuming that political stability and democracy foster good institutions and macroeconomic stability, polity should be significant with a positive coefficient according to theory (see e.g. Burnside and Dollar, 2000). Yet, as is seen in equation four, the interaction variable is only significant on a ten percent level using 2SLS. However, the most striking result is that the coefficient is negative, indicating that politically stable countries that receive a big push of aid will get lower economic growth. A possible explanation for this is that the index only measures the degree of democracy. Hence, democracy is being used as an indicator for good institutions in this thesis. However, it has to be taken into consideration that a high level of democracy does not necessarily have to imply sound fiscal, trade and monetary policy. Further, inflation and polity may be correlated which could be an explanation for the ambiguous result.

In connection, the polity measure shows rather ambiguous results in equation three. The coefficient is significant but negative for both estimators. Yet, this is in line with some previous research (see e.g. Helliwell, 1994) which found that democracy has a negative, though insignificant, effect on economic growth. The main argument is that democracies undermine investments in favor of consumption. This could further explain the unexpected result of the interaction variable between polity and big push. Finally, as seen in equation three, fertility rate has a significant and negative effect on economic growth when using both OLS and 2SLS. This implies that having more children affects economic growth negatively, which is in accordance with earlier research (see e.g. Barro and Sala-i-Martin, 2004:525).

As illustrated in Table 2, all regression equations using OLS show low within R-square values. Still, the within R-square values for 2SLS are invalid and are not used as indicators of explanation degree (Blundell and Bond, 1998). The low rates of explanation in the OLS estimations can be due to high variance in the data which is common for developing countries. Noteworthy and taken into consideration should be the fact that the model may still suffer from autocorrelation, explaining some of the ambiguous results.

4. Conclusions from macro focus

The success of foreign aid in raising economic growth has been subject to much debate. Numerous researches have examined the effect of foreign aid on economic growth, with ambiguous results. The lack of previous research encourages us to estimate a big push variable and study its effect on economic growth.

By performing an examination and analyzing the different aspects of foreign aid, this part concludes that a big push of aid has a positive effect on economic growth which, according to the big push theory, leads to poverty reduction. The result is robust using two different estimators and controlling for several variables. One of the main contributions of this thesis is the use of a big push variable instead of a regular ODA variable used in most of previous research. This identifies the effect on economic growth that foreign aid has when given in positive amounts, but also in negative amounts, both in relation to the average amount of aid given. This study, therefore conclude that receiving a big push of aid increase economic growth in developing countries. This is in line with previous research on the aid-growth relationship (see e.g. Hansen and Tarp, 2001 and Clemens et al., 2004).

One possible explanation for our result is that the analysis only includes developing countries. It is possible to assume that aid given to developing countries comes with obligations and guidelines which can contribute to an efficient use of aid. Further, the size of the coefficient of the big push variable may vary across countries depending on how the money is implemented. Important to highlight is that receiving a big push of aid, i.e. receiving aid above average, should be the result of an event in the economy such as a natural disaster. This provides evidence for our result of increased economic growth, since rebuilding an economy after a disaster should result in economic growth in the short term, captured by using yearly data. Further, the wide measure of the big push variable could be an explanation for the positive result.

In addition, we conclude that there seems to be an optimal level of aid that promotes economic growth, since the big push squared variable shows diminishing returns. This implies that receiving a substantial amount of aid will not continuously increase economic growth. Thus, it is possible to believe that there are additional factors that must be addressed to achieve sustainable economic growth that can prevent the diminishing returns to scale. This further proves that there is an efficient level of aid as is found in Feeny and McGillivray (2001).

This thesis contributes to the aid debate by providing evidence that a big push of aid can work. Even though our economic model does not provide evidence of what the money should be invested in, it provides a guideline for donor countries in their goal to promote development in developing countries. Thus, the size and significance of the control variables give an indicator of what sectors to invest in to achieve economic growth.

Potential issues with endogenous variables are often highlighted in research on foreign aid and economic growth. In this thesis, internal instruments are used by adding a lag to the big push and the big push squared variable. This provides suitable instruments, but not perfect ones which has to be taken into account in the analysis (see e.g. Griliches and

Hausman, 1986). Yet, since the OLS and 2SLS results show similar coefficient sizes, there are reasons to expect that the data do not suffer from endogeneity. In addition, the availability and quality of data for developing countries are constraining factors. Rationally, a higher variance is expected for this data. These constraints may explain some of the non-significant results and unexpected signs of coefficients. Finally, economic growth is a wide subject and numerous explanatory factors can be included in the model. All models are simplifications of the real conditions observed, though, which means that there is a risk that important explanatory factors are left out, lowering the power of explanation. Even though this thesis contributes to a wider knowledge on the aid-growth subject, unexplained factors still remain.

The lack of previous research on the big push subject further indicates the importance of this result; increased aid does promote economic growth. The main implication of this part of the thesis is that we assume that the aid-growth relationship is positive, as predicted by the big push hypothesis. This leads us to further investigate if economic growth is pro-poor through the case study of Montserrat. We want to take the implications of the regression results in the macro study and see whether these implications can be applied in specific cases. These results are regularly used by aid agencies to inform policy and thus it is important to test whether these results are generalizable to different country cases. Second, a case study is crucial since the econometric analysis is incomplete if we are to understand the true impact of a big push because it does not account for initial conditions at the point at which the aid is received. This is problematic because according to the theoretical framework and current literature, conditions could potentially matter and therefore we need an indept study of the conditions of an aid receiving country.

Part II – Micro focus

5. Background

This chapter presents a description of the economic history and poverty situation in Montserrat, focusing on the implications after the volcanic crisis in the 1990s.

5.1 Economic history and poverty situation in Montserrat

Montserrat is a self-governing British Overseas Territory (OT) located in the Caribbean. The Queen is the head of state and government is executed through a Governor appointed by the Queen and a democratically elected Premier (GoM and CDB, 2009). The economy of Montserrat is the result of a range of unique factors and developments following hurricane Hugo in 1989 and the volcanic crisis in 1995. In July 1995, the Soufrière Hills volcano began venting ash and gases, and continued to do so with increasing intensity for several years. A major eruption in June 1997 resulted in 20 deaths and the destruction of many villages. The volcano left more than half of the island uninhabitable, including the former capital Plymouth where the industrial, commercial and government center, airport, port, and the best agricultural land were located. Although the volcano has been inactive since early 2010, certain areas are still evacuated in case of volcanic activity (IMF, 2012).

Prior to the eruptions, the economy was booming, the tourism industry was large, and both the private and agriculture sector were doing well. There were two major implications of the volcanic crisis. Firstly, there was a large reduction of the population. It fell from approximately 11,000 in 1991 to 3,500 in 1997, and has since recovered to about 5,000 in 2011 (GoM Statistics Department, 2001). A significant portion of the emigrants moved to the UK where Montserratians were granted full residency rights (IMF, 2012). Secondly, there was a steep economic decline after the near total destruction of Plymouth's infrastructure, reducing economic growth to approximately minus 20 percent in 1996-1997 and leading to increased hardship on the population. However, since 2000, the economy has recovered with positive growth rates (GoM and CDB, 2009).

Reconstruction started in the beginning of 2000 and the recovering economy is based mainly on government services and construction, contributing 38 percent and 11 percent, respectively, to GDP (GoM and CDB, 2009). The traditional sectors of agriculture and tourism have seen a sharp decline in the contribution to GDP (EU, 2012). The island remains heavily dependent on imports of merchandise goods and the main export good is volcanic sand (GoM and CDB, 2009).

Regarding the level of income poverty, a survey of living conditions states that 36 percent of the population was poor⁵ in 2009. Further, approximately 20 percent of the

⁵ The terms hardship and poverty are often used interchangeably in Montserrat and are both defined as the absence of income or resources necessary to sustain basic needs, or have difficulty in meeting those needs. People are classified as poor if their total expenditures fall below the general poverty line including the minimum cost food basket together with an allowance for non-food expenditure (GoM and CDB, 2009).

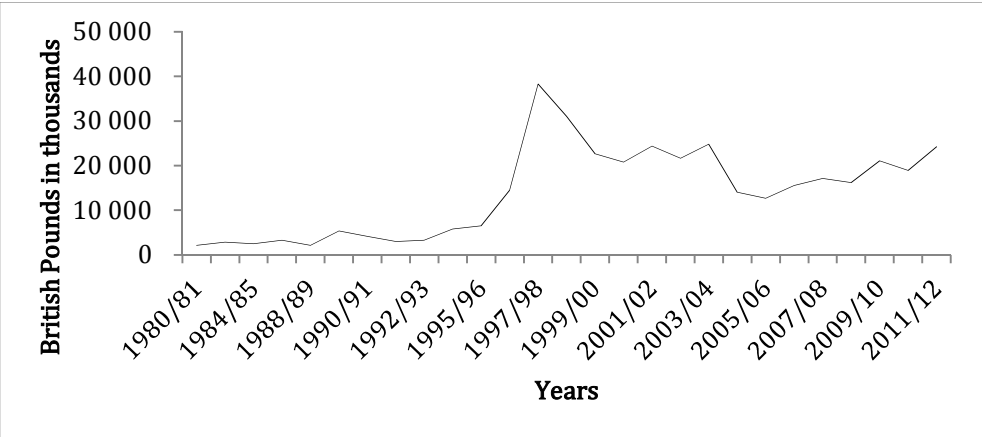
population is classified as vulnerable⁶ and the level of indigence⁷ lies at 3 percent of the population (GoM and CDB, 2009). This is consistent with the findings from the latest PPA (2001)⁸ that the level of severe poverty on the island is low and few people suffer from famine (Development Unit, GoM, 2001). Hence, the overall level of poverty, especially if the vulnerable are included, is high - around half of the population falls into these two groups. This is high compared to other countries in the area, with only Belize and Guyana having a higher level of poverty (GoM and CDB, 2009).

5.2 A big push to Montserrat

Montserrat’s economy remains heavily dependent on foreign aid and receives funding mainly from the UK Department of International Development (DFID) (ICAI, 2013a). Prior to the volcanic eruptions, Montserrat had a balanced recurrent budget⁹ and received only capital inputs. However, the eruptions created a substantial budget deficit, reflecting both a decline in revenue and increasing expenditures. Therefore, Montserrat became a recipient of budgetary aid in 1996 and has since remained largely dependent on assistance from the UK, which accounts for an average of 60 percent of total revenue (Clay et al., 1999).

Data covering 1980-2011 shows that, on average, Montserrat has received 14 million pounds annually. As is seen in Figure 2 below, there is a large spike between 1997 and 1998 when Montserrat received approximately 38 million pounds. The amount of aid increased by 165 percent from 1996 to 1998. In the case of Montserrat, we define this spike as a big push of aid. DFID’s overall objective of the funding is to help Montserrat achieve sustainable economic growth and increased financial independence (GOV.UK, 2014). All support is provided as a grant with no financing charge to Montserrat (ICAI, 2013b). DFID provides three different kinds of support: budget support to meet shortfalls in expenditures, capital development funds for infrastructure projects and third funding for technical expertise within the GoM (Clay et al., 1999). Other contributing partners are the EU and the CDB (ICAI, 2013b).

Figure 2.
Aid to Montserrat from DFID 1980-2012, current prices
 (Source: SID, 2014)



⁶ People are classified as vulnerable if their total expenditures fall below the vulnerable poverty line (GoM and CDB, 2009).
⁷ People are classified as indigence or severe poor if their total expenditures fall below the indigence line, defined as the cost of the minimum cost food basket (GoM and CDB, 2012).
⁸ See appendix H for further information regarding the PPA (2000).
⁹ The recurrent budget consists of ongoing revenues and expenditures. Thus, a recurrent budget takes variable revenues into account, opposed to fixed revenue as is included in the capital budget (The World Bank, 2005).

6. A case study of Montserrat

This chapter presents the methodological approach for the case study in Montserrat and the results.

6.1 Interviews and empirical strategy

Based on a case study of Montserrat, this study investigates the impact a big push of aid has on poverty. Theoretically, a big push of aid should lead to investments in several sectors further leading to a takeoff in economic growth and a reduction in poverty. For investments to reduce poverty they must be pro-poor and economic growth must reach the lower part of the income distribution. The results below are presented in two parts. The first part briefly presents the investments¹⁰ made after a big push of aid to get a general picture of what the aid was invested in. The second part presents the effect a big push has had on poverty among the population in Montserrat. This division is made to be able to distinguish the effect on poverty qualitatively.

To answer the research question, a total of 24 interviews were conducted. The ambition was to collect opinions from a broad spectrum of stakeholders. Accordingly we interviewed representatives from the government, other civil servants within the public sector and representatives from the private sector. The selection method was to conduct a dialogue with:

- (i) Representative ministries for the purpose of this thesis: Ministry of Finance and Economic Management; Ministry of Agriculture; Office of the Premier; Ministry of Education, Health, Community Services, Sports and Youth; Cabinet Secretariat, and the Department of Social Services
- (ii) Other representatives from the public sector: The University of West Indies, Project Implementation Unit¹¹, Basic Needs Trust Fund¹², DFID and the Disaster Management Coordination Agency¹³
- (iii) Representatives from the private sector: Bank of Montserrat and The Montserrat Reporter

We motivate our choice of stakeholders by the fact that officials of government and other branches of the public sector are updated and well informed on the implementation of aid money, as well as its effect on the population. However, it is important to remember that there might be some bias issues regarding their position and political role in society, which must be taken into consideration when analyzing the results. Therefore, we widened our sample to also include representatives from the private sector to broaden the spectrum. We found interviews to be the most appropriate method of assessment since it enabled us to get a deeper understanding of the process of rebuilding an economy with development aid, the investments made and how they have affected poverty in Montserrat. Further, raw data from the survey of living

¹⁰ Investment prior to 2000 is often classified as emergency investment, while investment after 2000 is classified as longer-term sustainable investments by GoM (GoM and DFID, 1998).

¹¹ Project Implementation Unit (PIU) has a mandate from the GoM to manage identified capital projects (mniaive.com, 2012).

¹² The Basic Needs Trust Fund (BNTF) works with poverty reduction by providing infrastructure to empower poor and vulnerable in targeting communities (GoM and CDB, 2009).

¹³ The Disaster Management Coordination Agency (DMCA) is a branch within GoM with the mandate for disaster planning and response (EU, 2012).

conditions (MSLC) in 2008 and/or for other poverty indicators were unavailable. Thus, collecting our own data and calculating new poverty lines to be able to make a comparison over time were not possible within the frame of this thesis.

The interviews were designed as open based discussions (see appendix G for examples of questions) with no permanent questionnaire but rather with the opportunity for the respondents to freely elaborate on the economic development. Although not followed in any strict manner, the interviews were held with respect to three themes for structure, linked to a literature analysis to frame the research: what the money has been invested in, the role of the money and its importance as well as the effect on poverty among the population, i.e. a semi structured interviewing approach was followed (Bernard, 2006:212).

In addition to the interviews, the results depart from a number of policy documents collected on field (see appendix H for a thorough description of the reports and sources). Further, the statistics presented are collected from the Statistics Department within the GoM. All data available are presented within this thesis.

6.2 Analyzing the results

6.2.1 Implemented investment strategies

"This government does not see the volcano as an emergency, we did not have a volcanic crisis, we had a volcanic situation, which created opportunities for Montserrat" (Reuben T. Meade, 140417).

In analyzing policy documents as well as interviews with stakeholders within the public and private sector, it is possible to outline several investment strategies made by the GoM after receiving a big push of aid. First, the emergency assistance consisted of support for evacuees from Montserrat, including relocation grants for those who moved to other Caribbean islands or the UK as a result of the crisis. GoM also implemented wide-ranging assistance with volcano monitoring and disaster preparedness, including the establishment of the Montserrat Volcano Observatory and long-term international experts required to monitor the volcano (GoM and DFID, 2004; GoM and DFID, 2003; and John Skerritt, 140520).

Second, access was a main priority since it was important to get people on and off the island. An emergency jetty was established and both helicopter and ferry services were implemented. The helicopter service was removed in 2005 when the new airport was built. The ferry and cargo service still remains from the temporary jetty. Third, a wide range of essential infrastructure had to be rebuilt and upgraded, including water storage and distribution facilities, new power generator and distribution facilities, upgraded and extended roads as well as a new fuel depot (GoM and DFID, 2004).

Fourth, housing was one of the key investments after the eruption, and highly prioritized during the re-building. DFID provided funding for over 1000 dwelling units. Various government projects were introduced such as a public private partnership-financing program and a rent transfer program to enable residents to buy or build houses again (Angela Estwick, 140508). Prior to the volcanic eruptions, 72 percent of the population owned their own house in Montserrat. This dropped to 38 percent in

2001 and has since recovered to 59 percent in 2009 proving the efforts of GoM and DFID to provide housing for the people in Montserrat (GoM and CDB, 2009).

Fifth, on the social side, health and community services were addressed by establishing critical infrastructure facilities. These included a reallocation of a new hospital into an old school building and the construction of three new health clinics. In addition, strengthening of GoM's delivery of key health services was achieved through technical assistance and partnerships with NGO's (GoM and DFID, 2004 and John Skerritt, 140520). Further, 30 high dependency, warden-supported housing units for the elderly were built, as well as care units in the community program for less dependent elderly people (GoM and DFID, 2000). A social welfare assistance program intended for the most vulnerable was put in place to meet their needs. This included and still includes a monthly cash allowance of a fixed amount of money for people in need and family members. Also the pension system was improved in connection with the crisis to deal with the increased numbers of people retiring early because of the emergency situation (PWHC, 1999).

Sixth, the education sector was of great concern (Philip Chambers, 140520). The main investments made were the construction of a new secondary school and the construction/rehabilitation of two primary schools. Furthermore, since many skilled workers left, GoM had to put in assistance to increase the quality of education by strengthening school staff skills. In addition, over 120 scholarships were provided for regional or UK training and for several universities throughout the region (GoM and DFID, 2004; Colin Riley, 140507; and Kenya Lee, 140520).

Regarding public administration, the main investment involved the construction of the new Government Headquarters facility, together with construction of a remand center, police and fire stations. In addition, substantial support was provided from DFID to strengthen all GoM Departments through the provision of long-term on-island experts and training (GoM and DFID, 2004 and Kenya Lee, 140520).

Finally, most private sector operators in Montserrat lost all fixed assets and their means of production after the crisis. However, they were poorly compensated by insurance companies (GoM and DFID, 2000). Some attempts to reestablish the private sector and increase small businesses included and still include training and loans with interest rates below market rates. Further, development of basic tourism infrastructure was implemented to stimulate employment opportunities (GoM and DFID, 2004).

A brief overview of what the GoM are currently working on includes a number of projects all aimed at increasing economic growth and reducing aid-dependency (Dr Kato Kimbugwe, 140604). GoM's strategic growth plan identifies three areas requiring significant public investment: electricity generation from geothermal; new town and port development; and improved sea and air access (Reuben T. Meade, 140417). The geothermal project aims at lowering the cost of living for consumers and makes the island an attractive place for investment (Howard A. Fergus, 140506). Further, many have highlighted the importance of re-developing the tourism sector. Unfortunately, the existing airport is too small to generate enough traffic to raise those numbers due to its inability to take on larger aircraft. The investment in the port and the new town center will be critical since it will reduce the transaction costs of imported goods. Increasing

access will further lead to spillover effects on the rest of the economy. The main goal is to increase small business development and overall economic activity (John Skerritt, 140520 and Easton Taylor Farrell, 140520).

6.2.2 Effect on poverty

As touched upon above, the volcanic crisis had three principal impacts on the population: a general collapse in the economy, loss of physical assets and sources of income, and a loss of population (GoM and CDB, 2009).

It is clear that the subject is of complex nature and related to many different issues. However a number of themes, brought up during the interviews, have been identified in relation to how the aid money has affected poverty in Montserrat. Within some of these themes, we have been able to identify two standpoints: positive and negative effects. In comparison with prior the volcanic crisis, a majority of the stakeholders interviewed agreed that there is a larger struggle among the population now and that the aid money received has not been able to target the poor. Many agreed that the investments made so far have been unable to ease the large hardships of the population after the crisis.

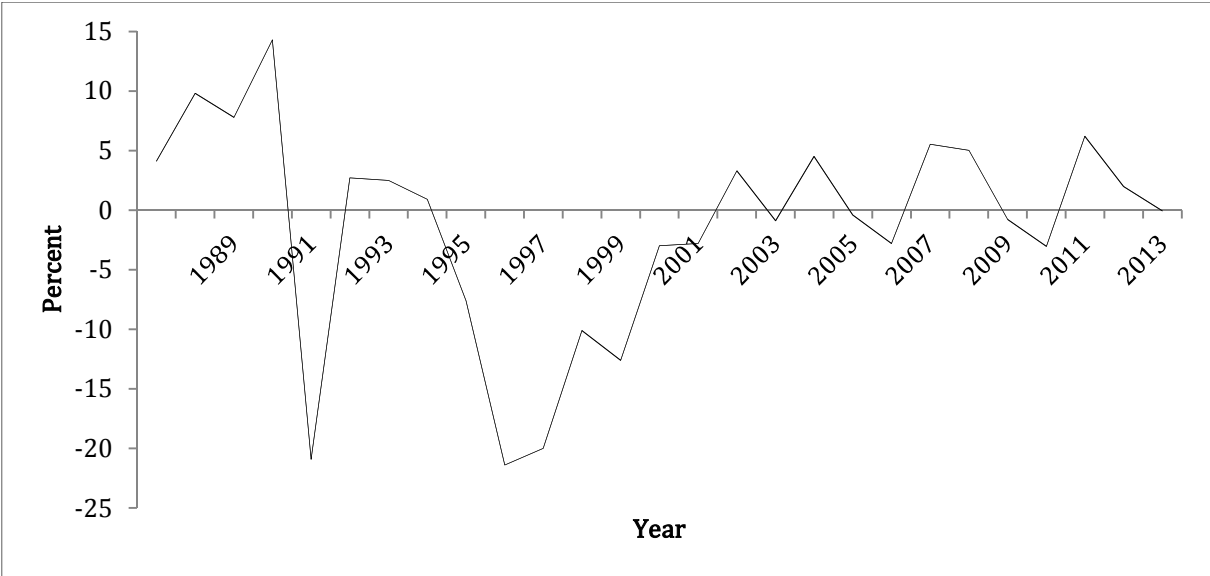
The primary causes of poverty in Montserrat identified are economic: factors such as low economic activity and lack of sustainable development have led to a high cost of living, low wages, lack of employment and lack of optimized welfare support, all of which were mentioned during the interviews. On the other hand, there are those implying that the crisis and the re-development have been an opportunity forcing the island to deal with different social issues. An improvement of the safety nets and basic fundamentals of the economy, have been able to target the poor and most importantly will continue to do so. We present these two standpoints identified within the themes.

Sustainability in economic and social development

“Because of the uncertainty we took too long to start focusing on sustainability. I believe that we failed during those first ten years in trying to build the economy in the north of the island (...). We did receive substantial funds after the volcanic crisis, the question is if those funds were used to create economic activity and the answer is no. If we had targeted some major sectors with those funds we would have been better off, and with respect to the amount of money we received we should have been better off”. (Easton Taylor Farrell, 140520)

After the volcanic eruptions, Montserrat managed to increase its economic growth. This result is rather straightforward since rebuilding a country after a natural disaster results in economic activity. Figure 3 below shows the development of the growth rate of GDP between 1987-2013.

Figure 3. GDP growth in constant prices, EC Dollar million, 1987-2013



(Source: GoM Statistics Department, 2014)

However, as illustrated in Figure 3, the economic performance of Montserrat continues on a slow path of recovery. After a balanced and sustainable development during the 1980s with growth rates averaging 5 percent, we see a sharp decline in the early 1990s after hurricane Hugo and also a large and extensive decline in 1995 after the volcanic crisis. The economy recorded positive growth rates for the first time in six years in 2002, but the development has been far from balanced since. As empirically shown in chapter three, a big push of aid leads to economic growth. It is of interest to analyze if this economic growth has been pro-poor.

First, there is a consensus among the stakeholders that there has been a *lack of sustainable investments aimed at transforming the economy*. Possible reasons brought up by stakeholders are the *risk factor* regarding the volcano, the *lack of resources* in connection with the large decrease in population, and *mismanagement of aid money* in relation to the dependence situation, all of which have contributed to more hardship for the population.

Because of uncertainty and the continuation of smaller eruptions into the 2000s, it took too long time for the GoM to focus on a sustainable development. Neither insurance companies nor the GoM made a standpoint in reducing the perception of Montserrat being a small and dangerous island. This led to low levels of private investments and a small capital market during the rebuilding, compared to if the risk level had been reevaluated earlier (Colin Riley, 140507 and Billy Darroux, 140414). In connection, the implementation of development projects has not been consistent and there has been a *lack of continuity*, which have led to low economic activity. This has further led to a lack of any sustainable employment, especially for people within the construction sector (Elijah Silcott, 140604 and Angela Estwick, 140508). This is one of the arguments for why a low amount of money has been able to target the poor in connection with the investments made. Mr. Silcott from the Ministry of Health commented on the implementation of a hospital project by saying:

“The implementation is too slow due to the way DFID handle the projects. For instance the new hospital has taken many years and is still not in place, and for a year there has not been any activity (...) there is no sustainability of the work of DFID”. (Elijah Silcott, 140604)

Starting the development plans in 1998, many agree that Montserrat should be further ahead. However, due to continuation of eruptions there were particular times when GoM had to go into emergency mode, which set the development back and each time restarted the focus. The feeling of “starting all over again” impacted the population to a large extent not only by increasing uncertainty, but also reducing the opportunities on the island within every sector of the economy (Angela Greenaway, 140528). Further, the investments made during the development phase in the early and mid-2000s were to a large extent temporary short-time solutions, that later became permanent. The representative of DFID in Montserrat, Dr Kimbugwe commented on this by saying:

“Everything that we did in the beginning of the 2000s was a temporary short-term solution and at the time I do not think that we had a clear strategy on how to get Montserrat back on its feet again (...) As time passed, we started to think as a development agency that we needed to transit from a development phase to a growth phase. The question was how to now start building infrastructure that will catalyze further economic activity and development (...). From about 2009 every intervention done, has been on the basis that we are spending now to save in the future”. (Dr Kato Kimbugwe, 140604)

In addition, the *cost-effectiveness approach by DFID* led to many temporary projects in the early stages of the re-development, as opposed to long-term solutions (Philip Chambers, 140520 and Colin Riley, 140507). There are investments made pointing to the *short-term approach* during the first years of re-building, affecting poverty negatively. One is within the transportation sector. Both the ferry and the helicopter service during the post-emergency years were highly subsidized. This stopped when the new airport was completed in 2005 but the ferry had to be re-subsidized in 2008 and is still subsidized to this day. So is the airport (Philip Chambers, 140520, GoM and DFID, 2003 and GoM and DFID, 2004). Furthermore, the *new airport is limited* and is not an investment that contributes to the long-term development of Montserrat, due to its inability to take larger aircraft (Angela Greenaway, 140528). The *lack of proper access* impacts the population in Montserrat negatively in a number of ways. It increases the transaction costs of getting things to Montserrat in terms of both food import and cargo. It further hinders the tourism sector from growing and it makes it costly for people to get on and off the island (John Skerit, 140520 and Jermaine Wade, 140520).

In the same spirit, the volcanic crisis left the island *highly resource limited*, making both the economic and social rebuilding challenging. There was loss of land, infrastructure and population. The *decrease of population* had many implications for the remaining population, mainly a large brain drain resulting in a *shortage of skills* on the island. Young people and the well education migrated for education and work abroad (Howard A. Fergus, 140506). Many approved projects are years behind, mostly because there is

the same set of people involved in many projects (Joseph Irish, 140520). For Montserrat to have a stable economy, more skilled people with the knowledge on how things work on the island are required (Jermaine Wade, 140520).

Finally, many have brought up the *dependence relationship* and the constraints put on the implementation of different economic and social projects. For instance, quite a bit of funding has been spent on consultancies. More often these consultancies have led to piles of studies rather than investment and employment opportunities on the ground (Philip Chambers, 140520 and Gracelyn Cassel, 140416). A continuing discussion on the island questions the *efficiency in the use of aid money* from the UK (David Lea, 140603). Further, aid received has come with regulations, which have often been uncoordinated and inefficient leading to a slow implementation of projects (Colin Riley, 140507 and Jermaine Wade, 140520).

On the other hand, there are those pointing to the fact that all of the investment made so far was targeted towards the poor and helped develop the basic fundamentals of the economy. Mr Skerritt, Hon. Financial Secretary within the Ministry of Finance, Economic Development, Tourism and Culture comments:

“During the re-building, the main focus was on the social side investing in a new hospital and health services, education and basic infrastructure such as housing and water and electricity facilities, all targeted towards the people and most importantly with the objective to sustain people on island”. (John Skerritt, 140520).

Cost of living – import dominated and frozen wage rates

“In the public sector there has not been any increase in salary for at least 8 years, but yet you have rising inflation. So your salary, in terms of what it can buy, the purchasing power, is reduced, which is a challenge for all of the population”. (Philip Chambers, 140520)

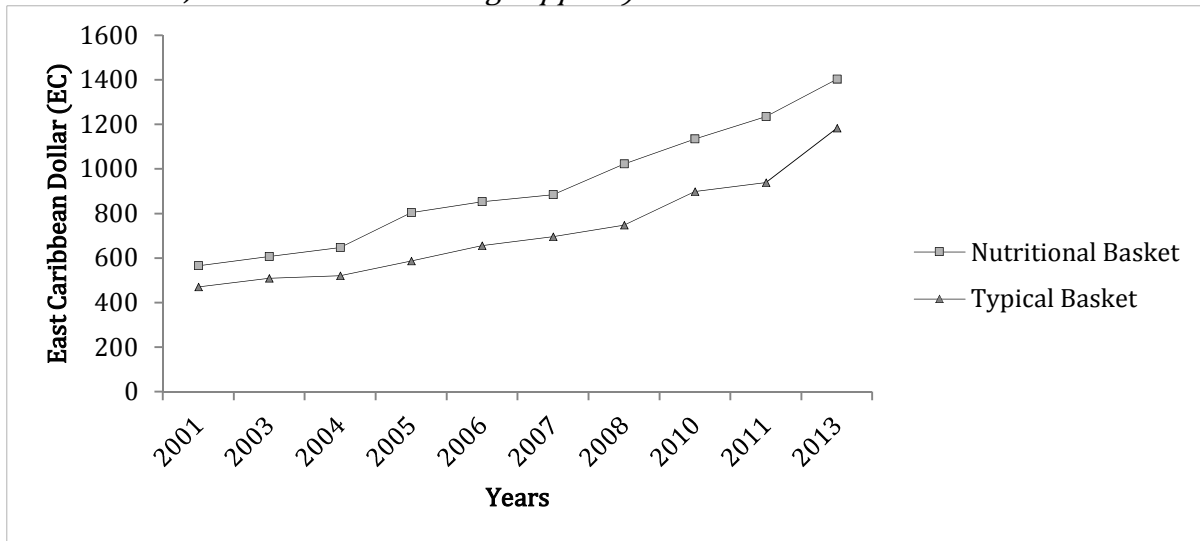
One of the main findings during the interviews was that the *cost of living has increased* significantly after the volcanic crisis, putting a larger hardship on the population. Thus, so far the GoM has been unable to ease these hardships for the population. A lot of people in Montserrat find it hard to make ends meet. Many express that their salary is consumed in bills for water, electricity, and gas, as well as food expenditures, and there is little disposable income left for people to enjoy what they are working for (Jermaine Wade, 140520). Mrs. Estwick at the Cabinet Secretariat comments on the increased cost of living:

“Cost of living is very high in Montserrat, and it keeps going up. I can tell from one month to the next that you can get two dollars increase on some items in the stores, and in connection to that we have not had a salary increase for years. So while on the one hand the government is helping me on the social side of things in terms of giving me housing, at the same time my electricity bill is going up and water bill is going up, the cost of food is going up. For instance, I was able to buy all different types of meats for my household so I could have a varied diet, but now I am not able to do that

because fish is very expensive (...) so instead of eating those meals two days a week I introduce chicken. So it is not that I am poor, but you must adjust downwards to make ends meet". (Angela Estwick, 140507)

Poverty and hardship have generally been analyzed through a cost of living basket devised by GoM's Social Services Department and is updated annually (GoM Statistics Department, 2013). Figure 4 gives an overview of the evolvement of the cost of living from 2001 and forward.

Figure 4. *Cost of living – Average monthly cost for a typical and a nutritious basket (basic items of food, toiletries and cleaning supplies)*

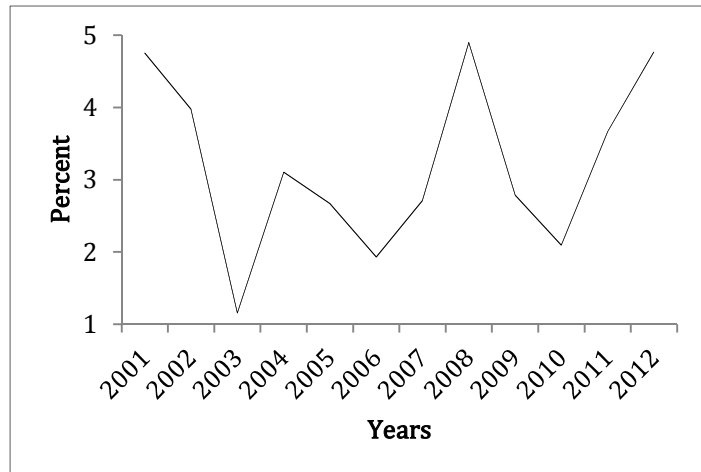


(Source: GoM Statistics Department, 2013)

As illustrated in Figure 4, there is a clear increasing trend for both types of baskets. For instance the nutritional basket has on average increased by 10 percent per year. Around 2008 the trend increases, with an increase in the cost of living of 15 percent between 2007 and 2008, most likely due to the global financial crisis affecting Montserrat. Due to budget constraints, salaries within the public sector, which is the single largest provider of employment, have been frozen since 2006 (Kenya Lee, 140520). As seen in figure 4, the cost of living has increased by 65 percent between 2006 and 2013. Thus, it is quite clear that there is a larger struggle to make ends meet among the population compared to prior to the volcanic crisis (Joseph Irish, 140520 and Kenya Lee, 140520). However, the basket of goods used is from the 1980s. When doing the annual review, prices are collected but some of the goods simply do not exist anymore, which makes the measure underrated (Angela Estwick, 140507).

Figure 5. Annual inflation rate (period average percent)

Further, the increased cost of living affects all sectors on the island and could be an explanation for why the private sector has not seen any large increase in activity. Small businesses such as restaurants and supermarkets are the main actors on the market and the cost of the factors of production they cannot control has increased, so the factor they can control, labor, has suffered (Kenya Lee, 140520). In this regard, the annual inflation rate has been rather



(Source: GoM Statistics Department, 2014)

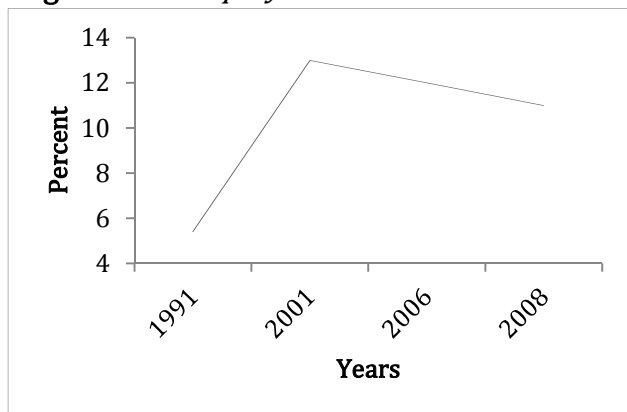
unstable as is seen in Figure 5. The *economic instability* discourages the investment climate (Donald Romeo, 140605).

It is argued that the increased cost of living is out of control due to the fact that Montserrat became *highly dependent on imports* after the volcanic crisis (Easton Taylor Farrell 140520). Prior to the volcanic eruptions, a large proportion of the population was semi-self-sufficient and not dependent on buying food to the same extent as now. The land on the northern part of the island, now settled, is dry and not as fertile as the south side. Therefore, many have found it difficult to rely on agriculture (Hubert Buffonge, 140527). However, one of the main goals of the current government, which came into office in 2009, has been to reduce the import dependence by training fishermen and providing farmland with better soil (Mervin Browne, 140523). Thus, representatives from the Ministry of Agriculture point to the fact that GoM never really injects significant funds into the agriculture sector, due to the high risk (Easton Taylor Farrell 140520). It all comes back to the problem of access discussed above, the transaction cost of getting things to Montserrat is higher than it could be (Joseph Irish, 140520).

Labor market – private sector and educational requirements

Figure 6. Unemployment rate

The labor market is rather inactive in Montserrat. During the interviews, stakeholders have expressed concerns regarding *employment opportunities* on the island (Teresena Fergus, 140528; Easton Taylor Farrell, 140520; and Angela Estwick, 140508). Statistics indicate that the unemployment rate has increased after the volcanic eruptions from 5.4 percent in 1991 to 13 percent in 2001, as is seen in Figure 6. After 2001 the unemployment rate has



(Source: GoM Statistics Department, 2014)

been rather stable around 12 percent up until 2008. This is high compared to the average unemployment rate of 6.4 percent recorded in 2012 within the Caribbean

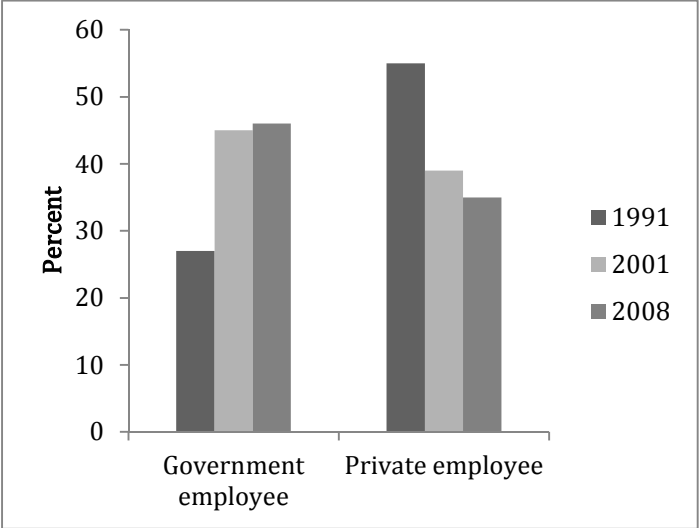
countries (ILO, 2014).

Further, there is a struggle to find sustained employment in Montserrat, especially within the construction sector. The industry fluctuates with peaks and lows and the discontinuity of projects makes it difficult for people to save and plan for the future (Owen Lewis 140521). Mr. Silcott from the Ministry of Health comments by saying:

“The way the money has been administered over the years suggests keeping people in poverty, because when project A finishes, funded by the UK, it takes about two years until project B starts, so there is no continuity in the development process. That keeps people in poverty because we do not get any sustained employment. The individual working in the project provides the opportunity to save some money, but if the next project comes two years later, it will not be enough to raise the standards of living” (Elijah Silcott, 140604).

Figure 7. Type of worker

Because of the almost *non-existent private sector*, few employment opportunities are provided. Comparing to prior to the volcanic eruptions, in 1991, private employment has been reduced by 20 percentage points as seen in Figure 7 (Source of figure: GoM and CDB, 2009). *Small businesses are struggling* due to the limited market size, further constraining the economy (Philip Chambers, 140520). As is seen in Figure 7, the pattern of employment has changed between 1991 and 2008.



The government sector has become the largest employer. In addition, the jobs available require skills that have been limited in Montserrat since the volcanic eruptions due to a loss of human capital. Thus, technical labor is imported to a much larger extent than prior to the volcanic eruptions (Angela Estwick, 140507).

Due to the low supply of jobs it has become more important to require certain qualifications and degrees, especially within the public sector, which not all can meet. Thus, those people that did not invest in higher education prior to the volcano may experience hardship now because they do not have the skills required for employment (Hubert Buffonge, 140527). The general trend for young people is to go abroad to get an education, due to the lack of higher education in Montserrat. However, since the job market is not a vibrant one, few return to the island (Teresena Fergus, 140528).

On the other hand, there are those expressing the opportunities coming from education. Mrs. Bufonge, working at the Bank of Montserrat, comments:

“For instance, job wise, everybody wants to see papers nowadays. In town, back then, nobody cared about papers but now degrees and certificates are important for employers to know that you have a higher education, so that has worked as a motivation for a lot of people”. (Brenda Buffonge, 140527)

Hence, the difficulties of job search associated with requirements of certifications for people without higher education, might be temporary as new local projects emphasizing technical and vocational programs might be an effective signal for developing the local labor market (Philip Chambers, 140520).

Housing – changed quality

“The focus of the rebuilding has been wrong, in my view, in terms of housing, especially the first housing projects were of poor quality and there is no space between the houses, they were and still are also expensive” (Bennette Roach, 140605)

The largest social infrastructure project has been the construction of houses for misplaced persons and families. There is a tradition of home ownership on the island. Many stakeholders have expressed the importance of the investment in housing projects. However, the new housing infrastructure changed the expected way of living for the population. The new houses built were not of the same quality as before, often small and built close to each other, which is not in accordance with Montserrat standards (Gracelyn Cassel, 140416 and Joseph Irish, 140520).

Stakeholders have discussed the problem concerning mortgages in Montserrat. Some people had outstanding mortgages on properties that were destroyed by the volcanic eruptions and were still expected to pay mortgages on these buildings. This made it difficult to apply for new mortgages since assets were lost in the eruption leading to non-payment of mortgages and consequently a poor credit rating (Brenda Buffonge, 140527).

Welfare support

Prior to the volcanic eruption, Montserrat had a social welfare system, which was highly dependent upon local family and community structures for support. The guiding principles of social welfare policy were to emphasize personal responsibility together with family and community support, to provide a basic safety net for vulnerable groups. However, the volcanic crisis placed a large proportion of the population in need of governmental support and assistance (PWHC, 1999 and Aldean Williams, 140523).

The current welfare system provides financially for those who cannot support themselves. However, the support is far from optimized (Philip Chambers, 140520 and Colin Riley, 140507). Financial assistance benefits are currently \$600 per head of household and \$350 for each additional member living in the household (Teresena Fergus, 140528 and GoM Statistics Department, 2013). There has not been an increase in this amount since 2007 even though the cost of living has increased significantly as described above. Mrs. Fergus, who is the Director of Social Services, comments on this by saying:

“Regarding the welfare system, we are in the process of reviewing the amount of money, because we did a cost of living assessment in terms of the food basket and we found that the nutritional basket costs 1400 EC a month, so the 600 EC we give is not enough (...) we do need more resources and money to reach our target and meet the needs. Because the needs and the problems have increased. Before you had population and family members for support. After the volcano you had extended families abroad, elderly persons left by themselves and disabled persons”. (Teresena Fergus, 140528)

Further, the system is means-tested and the criteria for receiving social welfare support are tight. Currently, the system rules out benefits to virtually all but elderly and disabled. However, the ones receiving welfare support still struggle, since the amount received is only half of what is needed to survive on food alone (Donald Romeo, 140605). In addition, if the Department of Social Services believes that an individual have relatives that can help financially, they are less likely to give them full assistance (Mervin Brown, 140523).

On the other hand, there are stakeholders pointing to the fact that, compared to prior to the eruptions, there are significantly improved welfare systems in place in Montserrat helping the poor in a more extensive and effective way. The current Premier, Mr. Meade comments:

“There are slightly better standards of living now than before the volcanic situation because it has forced us to deal with a lot of housing issues and other social issues”. (Reuben T. Meade 140417)

In addition, some have pointed to the fact that, during the rebuilding, the funds and technical assistance from the UK helped implement welfare systems similar to the ones in the UK. Before, there was not a big emphasis on the government to provide housing and help those in need, which has been the case in recent time. Further, this was a condition from the British Government during the rebuilding, since stronger safety nets are crucial in a modern society. Since one of the objectives of the work of DFID is poverty reduction, improving the social welfare program was prioritized (Philip Chambers, 140520).

7. Conclusions from case study of Montserrat

The aim of the case study in Montserrat is to analyze the effect on poverty after a big push of aid. Theoretically, a big push of aid should lead to investments in several sectors, further leading to a take off in economic growth and a reduction in poverty. We have found evidence that this hypothesis may be questioned in the case of Montserrat. Statistics collected in Montserrat shows an upswing in economic growth after the eruptions with mainly positive growth rates after the 2000s. Hence, the purpose is to investigate if the economic growth is pro-poor.

In this case study we analyze the aid-poverty relationship. There are a number of sectors that should be targeted in order for growth to reach the poor. Due to the lack of data, we are unable to measure the effect on poverty quantitatively and the conclusions drawn are not of a general character, but rather used as an indication for other developing countries that have received aid. In connection, sample bias in choosing interviewees must be taken into consideration when discussing the results. It is also important to have in mind that the results are based on the subjective views of those interviewed.

The overall result is that the GoM has been able to target the poor during the rebuilding. However, not to such a large extent that the general feeling on the island is that their standard of living has improved, compared to prior to the volcanic eruptions. Despite the considerable funding and attempts to rebuild the island, the general view among the stakeholders is that there still is a large struggle among the population. The main finding is that the economic and social investments and development so far are not of sustained character. The lack of resources, the risk factor and the dependence on aid have led to low economic activity, making the reduction in income poverty small. Further, this has led to a high cost of living, low wages, few employment opportunities in a small private sector, poor quality of housing projects and insufficient social safety nets.

Clearly, GoM has found it difficult to make the appropriate decisions on projects with a clear economic and social benefit to the island and the people. Further, some of the investments in the beginning of the rebuilding that were of a temporary character became permanent, restraining the economic and social recovery in the longer term. As stated in the theoretical chapter, in order to increase long-term economic growth some of the fundamentals in the economy must be addressed. Our results indicate that this has not yet been done in the case of Montserrat. Still, the current focus of GoM is to invest in fundamental sectors with the hope of achieving sustained economic growth and self-sufficiency.

According to pro-poor growth theory, the appropriate sectors have been targeted in Montserrat. Investments in infrastructure, private sector development and social protection services have been implemented with the received aid money. Even though some improvements have been seen, so far they have been insufficient in raising standards of living in a sustainable way. Though, to keep in mind is that without these investments income poverty would be significantly higher in Montserrat. Based on the results in section 6.2.2 we have identified several factors explaining why a big push of aid in Montserrat has not led to poverty reduction. For instance, DFID's and GoM's inability to consult and take the population's requests into consideration when rebuilding the island has led to an insufficient use of aid money. Second, the

continuation of eruptions has set back the economic and social recovery. Based on the results in Montserrat, we conclude that the aid-poverty relationship in the case of Montserrat is negative up to this point in time.

Nevertheless, an important aspect is that the aid-financed investments so far have contributed to better service delivery (health, education, water supply etcetera). With the provision of these services, non-income poverty should be reduced as a result, as indicated by some stakeholders. Further, technical assistance has been a large part of the aid-package, and helps build capacity and foundations for better policies and stronger institutions, which in turn could lead to a more sustainable development and larger poverty reduction in the near future.

Finally, when comparing the responses from the stakeholders interviewed in connection to collected statics in Montserrat, the results corresponds to each other. This indicates that the results presented in section 6.2 and the drawn conclusions above are of a robust character. Thus, the sample bias of interviews seems not to be a concern within the study.

8. Discussion and concluding remarks

How aid affects economic growth and poverty has been a subject of discussion for centuries. The methods previously employed to study the subject range from detailed case studies to regression analyses of the growth impact of aid on large samples of countries. The diverse results from the existing literature within the subject encourage us to further investigate the relationship between a big push of aid, economic growth and poverty reduction. Using both a macro part and a real case study of the island Montserrat, this thesis aims to answer - *does a big push of aid promote economic growth and poverty reduction?* Studying the aid-growth relationship on a macro level through a regression analysis, the results indicate that a big push of aid has a positive effect on economic growth. This implies that it is possible to raise economic growth in developing countries through increased foreign aid. This result further implies that foreign aid works as an income transfer and raises the capital stock, as discussed in the theoretical section. The positive and significant result for the big push coefficient found in the macro part could be explained by the fact that the countries included in the sample has invested in fundamental sectors of the economy. Thus, in accordance with the theoretical framework, this raises economic growth.

However, the big push hypothesis not only states that increased aid should lead to economic growth; the main objective is seen by many as poverty reduction. Therefore, doing a case study in Montserrat, which suffered from a natural disaster and received a large amount of foreign aid, we further study the aid-poverty relationship by investigating if economic growth in Montserrat can be considered being pro-poor. This is done by conducting interviews with stakeholders and mapping the investment strategies during the rebuilding and their effect on poverty among the population in Montserrat.

Theoretically, growth should be targeted towards areas such as private business development, infrastructure and agriculture development, as well as improving social safety nets to increase the possibility of the poor to participate in positive growth effects. The main finding from the case study in Montserrat is that GoM has invested in the appropriate sectors according to pro-poor theory. Funding has gone into major infrastructure projects such as improving access, health and education provision. Nonetheless, our results indicate that the investments made so far has not been enough to raise the standards of living of the people in a sustainable way. Further, our results show that many of the investments made were of a short-term character. This has led to a lack of projects that can provide wealth.

A possible explanation for this result is that the amount of funding has not been enough. This result can further be explained by the fact that aid often is subject to diminishing returns. As shown empirically in the macro section, aid money show a diminishing effect on economic growth. Many stakeholders in Montserrat have expressed concerns regarding the efficient use of aid money, thereby proving this hypothesis. Further, the large public sector in Montserrat has led to market failures such as a high cost of living. Therefore, the lack of a private sector further explains that economic growth to some extent has not been able to target the poor.

The overall result indicates that the big push hypothesis is perceived not to hold in the case of Montserrat. Thus, the majority of the stakeholders have expressed concerns regarding the economic and social development based on aid money. A majority of stakeholders feel that the money has not been able to target the poor through employment opportunities and decreasing the high cost of living. Therefore, answering our research question, our results indicate that a big push of aid can increase economic growth when measured as the deviation from average, in a panel data analysis. However, in the case of Montserrat, our results indicate that a big push of aid has not resulted in poverty reduction. Important to highlight is that this conclusion is based on a qualitative approach, leaving us with results specific for Montserrat and perhaps not possible to generalize upon. Despite this, the results are of significance since defining poverty is highly land-specific and difficult to measure.

Our results indicate one interesting aspect, that economic growth is not the only determinant in poverty reduction. The results from the case study shows that when analyzing economic growth in relation to poverty reduction, economic growth does not seem to be enough to reduce poverty. Thus, economic growth cannot be equalized with poverty reduction. However, it is important to remember that the economic and social development from the aid money has been crucial to help the people of Montserrat cope with the destruction after the volcanic eruptions. Without the implemented investments the level of poverty on the island would have been higher.

Combining the results from the two parts, the results are shown to be different. On a macro level, a big push of aid does lead to increased income. However, in the case study, stakeholders express concerns regarding the ability of aid money to increase incomes of the population. We have identified three reasons why this could be the case. First, as brought up in the theoretical part, inequality must be addressed in the discussion on the growth-poverty relationship. For growth to be pro-poor, the entire income distribution of the population must be addressed for all to benefit from growth effects. It is possible to conclude that a significant amount of money has reached the Montserratian economy, which has led to economic growth. However, the economic growth has not led to poverty reduction, which theoretically could be explained by an unequal income distribution in Montserrat. If this is due to high inequality prior to the eruptions or increasing inequality during the rebuilding, we cannot say within the frame of this thesis.

Second, in the case study, the stakeholders found it hard to compare how poverty has evolved from the big push of aid up until now. They found it easier and more appropriate to compare prior to the volcanic eruptions up until now, which further could explain the negative relationship between a big push of aid and poverty in the case of Montserrat. Finally, both studies use different measures and aspects of economic growth and poverty. Thus, again this indicates that economic growth and poverty reduction cannot be equalized. One central issue to address within this context regards how extensive a poverty reduction must be for economic growth to be equalized with poverty reduction.

When testing the big push hypothesis, our results contradict previous theoretical assumption that a big push of aid leads to economic growth and poverty reduction. Thus, economic growth does not necessarily lead to poverty reduction. This thesis further

extend the big push hypothesis by providing an explanation to how economic growth can affect poverty reduction after implementing a big push of aid.

The result in Montserrat confirms some of the empirical findings mentioned in the literature review and from the empirical study. This is that the conditions seems to matter and seems to be a critical factor of success of the big push. The devastation of the volcanic eruptions has fundamentally changed the institutional environment in Montserrat and these conditions may not be compatible with foreign aid aimed at economic growth. Further, one needs to be careful about any conclusive remarks from the case study because it seems fairly difficult to disentangle any lingering devastation effects of the eruptions compared to the inherent effectiveness of a big push policy.

This thesis provides further guidelines to the subject of a big push of aid, economic growth and poverty reduction. However, the results do not establish a full understanding of the aid-growth-poverty relationship. Further research within the subject is required. During the writing process we have thought of several aspects that would be interesting for further study. Additional case studies, both quantitative and qualitative, are of importance to understand the land specific growth and poverty indicators and to find new approaches and theories for development economics. In addition, we hope that this study will stimulates further investigations in this field and hopefully will inspire researchers to do more case studies on aid, economic growth and poverty.

9. References

- Aghion, Philippe and Howitt, Peter, 2009. *The economics of growth*, The MIT Press Cambridge, London.
- Barro, Robert, J. and Sala-i-Martin, Xavier, 2004. *Economic Growth*. 2nd edition, Cambridge: The MIT Press
- Bernard, H. Russell, 2006. *Research methods in anthropology - Qualitative and quantitative approaches*, AltaMira Press: Oxford.
- Blundell, Richard and Bond, Stephen, 1998. "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, vol. 87, pp. 115-143.
- Boone, Peter, 1996. "Politics and the effectiveness of foreign aid", Centre for Economic Performance Discussion Paper No. 272.
- Bourguignon, François J., 2004. "The Poverty-growth-inequality triangle." Indian Council for Research on International Economic Relations, New Delhi Working Papers 125.
- Braumoeller, Bear F., 2004. "Hypothesis Testing and Multiplicative Interaction Terms." *International Organization*, vol. 58, pp. 807-820.
- Brückner, Marcus, 2010. "On the Simultaneity Problem in the Aid and Growth Debate." Universitat Pompeu Fabra.
- Burnside, Craig and Dollar, David, 2000. "Aid, Policies and Growth", *The American Economic Review*, Vol. 90, No. 4, pp. 847-868.
- Chong, Alberto et al., 2009. "Can foreign aid reduce income inequality and poverty?", *Public Choice*, vol. 140, pp. 59-84.
- Clark Tom S. and Linzer Drew A, 2012. "Should I use Fixed or Random Effects?", *The Society for political methodology*.
- Clay, Edward et al., 1999. "Department for international development, 1999, An Evaluation of HMG's Response to the Montserrat Volcanic Emergency, Volume I". Electronic:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/67966/ev635.pdf. Retrieved: 14/05/02.
- Clemens et al., 2004. "Counting chickens when they hatch: timing and the effects of aid on growth", *The Economic Journal*, vol. 122, pp. 599-617.
- Collier, Paul and Dollar, David, 2002. "Aid allocation and poverty reduction", *European Economic Review*, vol. 46, pp. 1475-1500.
- GoM and CDB, 2012. "Final report – Country Poverty Assessment", vol. 2, Supplementary material. Electronic: http://www.gov.ms/wp-content/uploads/2013/03/MONT_Vol-2_Final-v11.pdf. Retrieved: 14/04/22.
- GoM and DFID, 2000. *Country Policy Plan 1999/2000 – 2001/2002*. Received on field from public library.
- GoM and DFID, 2004. *Country Policy Plan 2004/05 – 2006/07*. Received on field from public library.
- Dalgaard, C-J and Hansen, H, 2010. "On Aid, Growth and Good Policies", *Journal of Development Studies*, vol. 37, no. 6, pp. 17-41.

- Development Unit, GoM, 2001. Making ends meet - A participatory Poverty and Hardship Assessment of Montserrat (PPA), Final report. Electronic: http://www.devunit.gov.ms/documents/PPA_Final_Report_Oct2001.pdf. Retrieved: 14/05/05.
- Dollar, David and Kraay, Aart, 2001. "Growth is good for the poor", *Development research group*, The World Bank.
- Easterly, William, 2006. "Reliving the 1950s: the big push, poverty traps, and takeoffs in economic development", *Journal of Economic Growth*, vol. 11, pp. 289-318.
- Easterly et al., 2004. "Aid, Policies, and Growth: Comment", *The American Economic Review*, Vol. 94, No.3, pp. 774-780.
- EU, 2012. "Single Programming Document of Montserrat, 10th European Development Fund", Electronic: https://webgate.ec.europa.eu/multisite/devco/sites/devco/files/spd-10th-EDF-montserrat-20120430_EN_0.pdf. Retrieved: 14/07/13.
- Feeny and McGillivray, 2011. "Scaling-up foreign aid: will the "big push" work?", *The World Economy*.
- GOV.UK, 2014. "UK and Montserrat", Electronic: <https://www.gov.uk/government/world/montserrat>. Retrieved: 14/07/10
- GoM and CDB, 2009. *Montserrat Survey of Living Conditions 2009*, Vol. 1. Electronic: http://www.caribank.org/uploads/2012/12/Montserrat-2009-vol-1_v7.pdf. Retrieved: 14/04/12.
- GoM and DFID, 1998. "Sustainable Development Plan, Montserrat Social and Economic recovery Program - a Path to Sustainable Development 1998 to 2002". Retrieved on field from Ministry of Finance, Economic Development, Tourism and Culture.
- GoM and DFID, 2003. "Montserrat Sustainable Development Plan 2003-2007". Electronic: http://www.devunit.gov.ms/documents/mni_sdp_03_07.pdf. Retrieved: 14/04/24.
- Griliches, Zvi and Hausman, Jerry A., 1986. "Errors in variables in panel data". *Journal of Econometrics*, vol. 31, pp. 93-118.
- Helliwell, John F., 1994. "Empirical Linkages Between Democracy and Economic Growth". *British Journal of Political Science*, vol. 24, no. 2, pp. 225-248.
- Hansen, Henrik and Tarp, Finn, 2001. "Aid and growth regressions", *Journal of Development Economics*, Vol. 64, pp. 547-570.
- ICAI, 2013a. "DFID's Support to Montserrat – Terms of Reference". Electronic: <http://icai.independent.gov.uk/wp-content/uploads/2013/07/TOR-DFIDs-Support-to-Montserrat.pdf>. Retrieved: 14/07/14.
- ICAI, 2013b. "DFID's Support to Capital Projects in Montserrat". Electronic: <http://icai.independent.gov.uk/wp-content/uploads/2013/12/16-July-2013-ICAI-Montserrat-report-FINAL.pdf>. Retrieved: 14/07/14.
- ILO, 2014. "The Latin American and Caribbean unemployment rate could fall to 6.2% in 2013". Electronic: http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_228167/lang--en/index.htm. Retrieved: 14/08/10.

- IMF, 2012. "United Kingdom - Montserrat - British Overseas Territory". Country Report No. 12/9. Electronic: <http://www.imf.org/external/pubs/ft/scr/2012/cr1209.pdf>. Retrieved: 14/05/26.
- Jones, Charles I., 2002. *Introduction to Economic Growth*. 2nd edition. New York: W.W Norton & Company.
- Kraay, Aart and McKenzie, David, 2014. "Do Poverty Traps Exist? Assessing the Evidence", *Journal of Economic Perspectives*, vol. 28, no. 3, pp. 127-148.
- Lensink, Robert and White, Howard, 2000. "Aid allocation, poverty reduction and the assessing aid report", *Journal of International Development*, vol. 12, pp. 399-412.
- mnialive.com, 2012. "Montserrat Open for Development and Business". Published: 12/12/19. Electronic: <http://www.mnialive.com/articles/montserrat-open-for-development-and-business>. Retrieved: 14/08/10.
- Murphy et al., 1989. "Industrialization and the Big Push", *The Journal of Political Economy*, vol. 97, no. 6, pp. 1003-1026.
- OECD, 2006. "Promoting Pro-Poor Growth – Key Policy Messages". Electronic: <http://www.oecd.org/dac/povertyreduction/43773640.pdf>. Retrieved: 14/06/28.
- PWHC, 1999. *Social Welfare Review Report*. Received on field from the Department of Social Services.
- QoG, 2013a. "QoG Standard Dataset", Electronic: <http://www.qog.pol.gu.se/data/datadownloads/qogstandarddata/>. Retrieved: 14/05/10.
- QoG, 2013b. "QoG Standard Codebook", Electronic: http://www.qogdata.pol.gu.se/codebook/codebook_standard_20dec13.pdf. Retrieved: 14/05/10.
- Rajan, Raghuram G and Subramanian, Arvind, 2008. "Aid and Growth: What does the cross-country evidence really show?", *The review of Economic and Statistics*, vol. 90, no. 4, pp. 643-665.
- Ravallion, Martin, 2004. "Pro-Poor Growth: A Primer", World Bank Policy Research Working Paper 3242.
- Rostenstain-Rodan, P.N., 1943. "Problems of Industrialization of Eastern and South-Eastern Europe", *The Economic Journal*, Vol. 53, No. 210/211, pp. 202-211
- Sachs, Jeffrey, 2005. *The End of Poverty: Economic Possibilities for Our Time*. New York: The Penguin Press.
- Snowdon, Brian, 2009. "The Solow Model, Poverty Traps, and the Foreign Aid Debate", *History of Political Economy*, vol. 41, pp. 241-262.
- Statistics on International Development (SID), 2014. *Data on DFID Expenditure in Montserrat*, Retrieved on field 14/04/26.
- GoM Statistics Department, 2001. *Montserrat Census 2011, Selected Tables*. Retrieved on field 14/05/09.
- GoM Statistics Department, 2014. *Raw data on GDP growth, inflation rate, unemployment rate*. Retrieved on field 14/05/20.

- GoM Statistics Department, 2013. *Cost of living report*. Retrieved on field from the Department of Social Services 14/05/26.
- The World Bank, 2014. "Participation and Civic Engagement", *Participatory Poverty Assessment (PPA)*. Electronic: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTPCENG/0,,contentMDK:20507689~pagePK:148956~piPK:216618~theSitePK:410306,00.html>. Retrieved: 14/05/06.
- The World Bank, 2013. "Countries and Economies", data for low income and lower middle-income countries. Electronic: <http://data.worldbank.org/country>. Retrieved: 14/07/02.
- The World Bank, 2005. "Integration of Recurrent and Capital "Development" Budgets: Issues, Problems, Country Experiences, and the Way Forward". Electronic: <http://www1.worldbank.org/publicsector/pe/StrengthenedApproach/CapitalRecurrentIntegration.pdf>. Retrieved: 14/08/10.
- UNCTAD, 2006. "Economic Development in Africa: Doubling Aid: Making the 'Big Push' Work". Geneva: United Nations Conference on Trade and Development.
- Verbeek, Marno, 2008. *A guide to Modern Econometrics*. 3rd edition. Chichester: John Wiley & Sons Lt.

Oral resources

- Aldean Williams – Manager Basic Needs Trust Fund - 140523
- Angela Estwick – Cabinet Secretariat –140508
- Angela Greenaway – Cabinet Secretariat –140528
- Bennette Roach – The Montserrat Reporter - 140605
- Billy Darroux - Disaster Management Coordination Agency - 140414
- Brenda Buffonge - Bank of Montserrat –140527
- Colin Riley – Ministry of Education, Health, Community Services, Sports & Youth - 140507
- David Lea – Private sector –140603
- Donald Romeo – Private sector - 140605
- Dr Kato Kimbugwe – DFID 140604
- Easton Taylor Farrell – Ministry of Agriculture - 140520
- Elijah Silcott – Permanent Secretary of Health, Community & Social Services 140604
- Gracelyn Cassel – University of West Indies – 140416
- Howard A. Fergus - University of West Indies - 140506
- Hubert Buffonge – Private sector –140527
- Jermaine Wade – Ministry of Education, Health, Community Services, Sports & Youth - 140520
- John Skerritt - Ministry of Finance and Economic Management - 140520
- Joseph Irish - Ministry of Finance and Economic Management - 140520
- Kenya Lee - Ministry of Finance and Economic Management - 140520
- Mervin Browne - Manager Basic Needs Trust Fund –140523
- Owen Lewis – Project Implementation Unit –140521
- Philip Chambers – Ministry of Education, Health, Community Services, Sports & Youth - 140520
- Reuben T. Meade – Office of the Premier - 140417
- Teresena Fergus - Department of Social Services –140528

Appendices

Appendix A – Summary of countries

Source: The World Bank, 2014	
Afghanistan	Paraguay
Armenia	Philippines
Bangladesh	Rwanda
Benin	Samoa
Bhutan	Sao Tome and Principe
Bolivia	Senegal
Burkina Faso	Sierra Leone
Burundi	Solomon Island
Cambodia	Somalia
Cameroon	South Sudan
Cape Verde	Sri Lanka
Central African Republic	Sudan
Chad	Swaziland
Comoros	Syria
Congo, Democratic Republic	Tajikistan
Cote d'Ivoire	Tanzania
Djibouti	Togo
Egypt	Uganda
El Salvador	Ukraine
Equatorial Guinea	Uzbekistan
Ethiopia	Vanuatu
Eritrea	Vietnam
Georgia	Yemen
Gambia	Zambia
Ghana	Zimbabwe
Guatemala	
Guinea	
Guinea-Bissau	
Guyana	
Haiti	
Honduras	
India	
Indonesia	
Kenya	
Kiribati	
Kyrgyzstan	
Laos	
Lesotho	
Liberia	
Madagascar	
Malawi	
Mali	
Mauritania	
Micronesia	
Mongolia	
Moldova	
Morocco	
Mozambique	
Myanmar	
Nepal	
Nicaragua	
Niger	
Nigeria	
Pakistan	

Appendix B – Hausman test: Fixed versus Random effect

The Hausman specification test compares the fixed effects versus random effects under the null hypothesis that random effects are preferred. Thus, the Hausman test tests if the individual effects are uncorrelated with the other regressions in the model. If the model is correlated, i.e. the model is misspecified, a fixed effect model is preferred (Clark and Linzer, 2012).

As seen below, the Hausman test rejects the null hypothesis with a p-value of 0.0155 and 0.0176 (cross-section and period random effect) at the five percent significance level. Thus, a fixed effect is preferred.

	Chi-sq. Statistic	Chi-sq d.f.	Prob.
Cross-section random (Null hypothesis: no misspecification)	18.877	8	0.0155
Period random (Null hypothesis: no misspecification)	18.527	8	0.0176

Appendix C – Description of variables

Variable	Source ¹⁴	Description ¹⁵
GDP growth	World Bank WDI (2013)	GDP per capita in PPP. The data is in constant 2005 international dollars. The variable is logged and differentiated
Big push	Aid from World Bank WDI (2013)	This variable is based on aid data according to below and calculated as follows: $\text{Big push}_t = \text{average aid} - \text{aid}_t$ The variable is second differentiated and normalized
Inflation	World Bank WDI (2013)	Inflation is measured as the annual growth rate of the GDP implicit deflator, i.e. it shows the rate of price change in the economy as a whole. The variable is logged and differentiated.
Education	Barro & Lee (2010)	Average schooling years for the total population aged 15 and over. The variable is interpolated, from a five-year basis to a yearly basis. Further, the variable is logged and second differentiated.
Polity	Marshall & Jaggers (2011)	The polity IV index of democracy measures the degree to which civil liberties to all citizens are assured, the existence of institutionalized restrictions on the exercise of power by the executive and the presence of institutions and actions through which citizens can express preferences about alternative policies and leaders. The scale ranges from +10 (strongly democratic) to -10 (strong autocratic). The variable is logged, differentiated and normalized.
Government expenditure	World Bank WDI (2013)	Government consumption expenditure as percent of GDP. Includes all government current expenditures for purchases of goods and services. Further, it includes expenditures on national defense and security. The variable was only differentiated, since it was already a percent share.
Fertility	World Bank WDI (2013)	Fertility Rate (Births per woman).
Aid	World Bank WDI (2013)	This data is the basis of the big push variable, and consists of net official development assistance and Aid (ODA) in constant USD. It consists of disbursements of loans made on concessional terms and grants from DAC and non-DAC members as well as multilateral institutions to promote economic growth and welfare.

¹⁴ Data on all variables is collected from the QoG standard dataset (QoG, 2013a).

¹⁵ Descriptions from <http://www.qog.pol.gu.se/data/> (QoG, 2013b)

Appendix D – Descriptive data

	Mean	Median	Maximum	Minimum	Std. Dev	Observations
GDP growth	1975.31	1532.19	31968.62	100.89	2072.89	2181
Big push	1562726	4560000	97500000	-1590000	6950000	2179
Inflation	2.23	2.19	10.19	-5.31	1.35	2067
Education	4.51	4.10	11.10	0.62	2.25	1782
Polity	-0.80	-2.00	10	-10	6.27	2251
Government Expenditure	2.58	2.57	4.24	0.71	0.48	1996
Fertility rate	4.924	5.16	8.66	1.10	1.57	2476

Appendix E – Test for stationary variables¹⁶

	GDP growth	Big push	Inflation	Education	Polity	Government Expenditure	Fertility rate
	Statistic Prob**	Statistic Prob**	Statistic Prob**	Statistic Prob**	Statistic Prob**	Statistic Prob**	Statistic Prob**
Null: Unit root (assumes common unit root process) Levin, Lin & Chu t*	-23.85 0.0000	-80.52 0.0000	-13.28 0.0000	-33.43 0.0000	-46.12 0.0000	-33.38 0.0000	-4.88 0.0000
Null: Unit root (assumes individual unit root process) Im, Pesaran and Shin W-stat	-26.85 0.0000	-79.75 0.0000	-16.18 0.0000	-26.97 0.0000	-31.66 0.0000	-36.33 0.0000	-4.09 0.0000
ADF – Fisher Chi-square	950.06 0.0000	2414 0.0000	601.66 0.0000	840 0.0000	586 0.0000	1270 0.0000	295 0.0000
PP- Fischer Chi-square	974.393 0.0000	2589 0.0000	634.06 0.0000	849 0.0000	586 0.0000	1414 0.0000	301 0.0000
Method: Individual intercept and trend Null: unit root (assumes common unit root process) Levin, Lin & Chu t*	-23.58 0.0000	-71.13 0.0000	-12.82 0.0000	-33.68 0.0000	-42.7 0.0000	-33.72 0.0000	-12.01 0.0000
Null: Unit root (assumes individual unit root process) Im, Pesaran and Shin W-stat	-24.36 0.0000	-76.06 0.0000	-12.43 0.0000	-26.05 0.0000	-16.12 0.0000	-28.96 0.0000	-17.40 0.0000
ADF- Fisher Chi-square	9.44 0.0000	4877 0.0000	537 0.0000	749.05 0.0000	608 0.0000	1057 0.0000	838 0.0000
PP-Fisher Chi-square	1399 0.0000	16641 0.0000	829 0.0000	958.18 0.0000	1134 0.0000	2841 0.0000	2117 0.0000

¹⁶ The table shows test results for the following changes to the variables: GDP growth per capita, polity, inflation and average school years are differentiated and measured in terms of the natural logarithm. The big push variable is second differentiated. Finally, government expenditure is differentiated.

Appendix F – Testing the instruments

In order for an instrument to be valid the covariance between the instrument and error term must be zero. Furthermore, the instrument must be correlated with the endogenous explanatory variables (Verbeek, 2008:151), in this case the big push variable and the big push variable squared. The 2SLS estimator can be obtained in two steps, where both can be estimated using least squares. In the first step the endogenous variables are regressed upon all instruments. Further, the original equations are estimated while including the instruments on the right hand side (Verbeek, 2008:162), as is seen in (1)-(4) below where (1)-(2) is for the big push variable and (3)-(4) is for the big push squared variable. As shown in Table 3, the instrument for the big push variable is significant in the first estimation, indicating that they are correlated. In addition, the instrument is non-significant in the second estimation, indicating that the instrument and the dependent variable are uncorrelated. The same hold for the big push squared variable in Table 4. This proves the validity of the instrument used for both variables.

(1) Big push = β_1 Big push(-1) + $\beta_2 X_{it}$ + α_i + τ_t + ε_{it} , X_{it} is the vector of explanatory variables

(2) GDP growth per capita = β_1 Big push(-1) + $\beta_2 X_{it}$ + β_3 Big push + α_i + τ_t + ε_{it} , X_{it} is the vector of explanatory variables

Table 3. *The big push variable.*

	First estimation	Second estimation
	Dependent variable: Big push	Dependent variable: GDP growth per capita
Big push (-1)	-0.490*** (0.013)	0.000 (0.000)

Significant levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Coefficients and standard errors in parentheses are reported. Country and time fixed effects are used. Period weights.

(3) Big push² = β_1 (Big push(-1))² + $\beta_2 X_{it}$ + α_i + τ_t + ε_{it} , X_{it} is the vector of explanatory variables

(4) GDP growth per capita = β_1 (Big push(-1))² + $\beta_2 X_{it}$ + β_3 Big push² + α_i + τ_t + ε_{it} , X_{it} is the vector of explanatory variables

Table 4. *Big push squared variable.*

	First estimation	Second estimation
	Dependent variable: Big push ²	Dependent variable: GDP growth per capita
Big push ² (-1)	0.362*** (0.026)	0.000 (0.000)

Significant levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Coefficients and standard errors in parentheses are reported. Country and time fixed effects are used. Period weights.

Appendix G - Examples of questions for interviews

Practical questions

- What was your position/role during the rebuilding after the volcanic eruption? What is it now?
- Tell us about your organization, branch of government etc.

Investment strategies

- After the eruption – what major “longer-term” sustainable investments have been made within your department/sector?
- What has the largest focus during the re-development been, and what is your view on the economic development?
- What were the main goals? Have they been accomplished?
- What did you expect that the outcome would be? Is the result today what you expected?
- Would you have done something different? What do you think the outcome would have been?
- Main challenges? Were there any concerns with the rebuilding?

Focus on poverty reduction

- Was poverty reduction one of the concerns during the rebuilding? The main concern?
- Did your sector work to reduce poverty? What were the main reforms after the volcanic eruptions with the purpose of reducing poverty?
- According to your own perception: have the investments made been able to raise standards of living among the people? Target the poor?
- Are people better or worse off compared to prior to the eruption?
- What are the main reasons why the population in Montserrat suffers from poverty? What are the main struggles among the people?
- What do people in Montserrat miss? Lack?
- Are there any current poverty reduction programs or similar going on within your department/sector?
- Do you think poverty exists in Montserrat?
 - If yes, how would you define the poverty in Montserrat
 - If no, what are the main reasons why poverty does not exist in Montserrat
- Do you think poverty existed in Montserrat before the volcanic eruption?
- Do you have any suggestions for investments that would decrease poverty in Montserrat?

The importance of aid

- How important was the aid from the UK for you to be able to invest? Could you have done the rebuilding without the big push of aid?
- Do you believe that the money has been implemented correctly? Have you been able to invest in what you believe in? What the people believe in?

Appendix H - On field documents and resources used for analysis ¹⁷

	Author(s)	Objective(s)	Approach(es)
Montserrat Survey of living conditions (2009)	GoM and CDB	The main objective is to identify the characteristics and causes of poverty in Montserrat by evaluating how efficient current policies and programs are in terms of their impact on the poor and vulnerable groups of the population.	It involves four principal components: a review of available reports and statistics; a sample household survey; a number of Participatory Poverty Assessments (PPA) ¹⁸ ; and an institutional analysis.
Sustainable Development Plan 1998-2002 (1998) and Sustainable Development Plan 2003-2007 (2003)	GoM and DFID	The SDP sets out the policy framework for social and economic recovery and the key policy framework for GoM. Four areas are highlighted: developing the north of Montserrat, efficiency and effectiveness in the public sector, private sector development and improving social welfare systems.	The SDP was prepared using a participatory approach, involving discussions with members of the Montserratian public both on island and overseas, private sector businesses, GoM officials, non-governmental and regional organizations.
Country Policy Plan 2000 and 2004-2007	GoM and DFID	The purpose of the CPP is to outline the specific projects and activities to be funded by HMG, which would lead to the achievement of the objectives of the SDP, i.e. how the UK will contribute to achieving policy objectives and promote development in Montserrat.	
Participatory Poverty and Hardship Assessment (PPA) (2000)	The Development Unit working with the PPA team, GoM Departments and people of Montserrat.	The main objective is to identify vulnerable groups and provide detailed and qualitative information on poverty and hardship in Montserrat from the perspective of the poor themselves.	Developed through interviews and assessments among the communities in Montserrat.
Social welfare review report 1999	Price Water House Coopers (PWHC).	The purpose of the study is to review the current systems of social welfare in Montserrat and make recommendations for reforms to meet the immediate and future needs of the population.	

¹⁷ Raw data on GDP growth, inflation rate and unemployment rate used in the analysis was retrieved on field from the Statistics Department, GoM (GoM Statistics Department, 2014).

¹⁸ A PPA is defined as a research process where the views of the poor are included in the analysis of poverty to understand poverty in its local, institutional and social context (The World Bank, 2013).