Master Thesis:

Evaluation of Donor Engagement in Conflict-Affected and Fragile States

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List of Abbreviations

The meanings of various abbreviations that are used throughout the thesis are presented below. A page on which each one is defined or used for the first time is also given.

Abbreviation	***Meaning***	***Page***
3SLS	Three-Stage Least Squares……	10
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung (English: German Federal Ministry for Economic Co-operation and Development)……	36
CPIA	Country Policy and Institutional Assessment…….....	16
DAC	Development Assistance Committee……	38
DFGLS	Dynamic Feasible Generalized Least-Squares……..	21
ERR	Economic Rate of Return…….	23
ESW	Economic and Sector Work……..	23
FZE	Finanzielle Zusammenarbeit Evaluierung (English: Financial Co-operation Evaluation)……	35
GDP	Gross Domestic Product……	7
GMM	Generalized Method of Moments……..	21
GNI	Gross National Income……..	7
HDI	Human Development Index…..…….	41
IBRD	International Bank for Reconstruction and Development……	55
ICRG	International Country Risk Guide……	32
IDA	International Development Association……	55
IEG	Independent Evaluation Group…….	28
IFC	International Financial Cooperation…….	23
IMF	International Monetary Fund……	26
IV	Instrumental Variable……	12
KFW	Kreditanstalt für Wiederaufbau (English: Reconstruction Credit Institute)…….	2

"Nine million children die each year of extreme poverty and disease conditions which are almost all preventable or treatable or both. Impoverished countries, with impoverished governments, can't solve these problems on their own. Yet with help they can."
— Jeffrey Sachs (2009), "Aid Ironies" in *The Huffington Post*.

"Remember, aid cannot achieve the end of poverty. Only homegrown development base on the dynamism of individuals and firms in free markets can do that."
— William Easterly (2006) in *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*.

Introduction

In the second half of the last century, a brave idea of providing aid to developing countries not only because of humanitarian reasons, but also because of a global economic interdependency was born. International organizations shared this view with a great enthusiasm and significantly increased their engagement in low-income countries believing that these nations need to and can be helped. This movement stirred an interest of the academia and, as a result, research on the outcomes of international donors' engagement in recipient countries started.

The main aim of this thesis is to analyze a broad spectrum of literature on aid effectiveness in developing countries and to summarize the main findings concerning an impact of state fragility and conflict on the efficiency of donor engagement. However, *the main focus of this research* lies in an own empirical analysis of some well-established hypotheses, as well as in a statistical testing of the outcomes obtained by other authors in a relevant field of study.

The effectiveness of foreign aid is one of the most intensively researched and discussed topics in development economics literature. It was analyzed on macro-, as well as microeconomic levels, using various empirical methodologies and econometric techniques. Even though a uniform conclusion about the impact of foreign assistance on the welfare of developing countries has not been reached, it is still rather interesting to keep track of the aid-effectiveness research development and to analyze its most debated controversies. For example, theoretical foundations of this field of study were laid in the Harrod-Domar growth model and the following-it two-gap theories, in which it is assumed that foreign assistance is positively correlated with savings and investments of development countries and can even lead to their faster economic growth. Such authors as Rahman (1968) and Griffin (1970), Gupta (1970), Griffin and Enos (1970), Weisskopf (1972) etc. attempted to test these ideas empirically through measuring an impact of aid on domestic savings. Later on, Papanek

(1972), Viovodas (1973), Mosley et al. (1987) and others argued that it is more reasonable to examine the effect of aid directly on economic growth, which formed a core of their statistical analyses.

Starting from the 1990's such researchers as Boone (1996), Burnside and Dollar (2000), Hasen and Tarp (2001), Collier and Dollar (2002), Easterly et al. (2004), Roodman (2007) etc. were trying to confirm or disprove a view that a macroeconomic impact of foreign assistance depends on the quality of domestic policy environment of a recipient country. At the same time, there were authors who decided to approach empirical testing of the aid effectiveness theories from a slightly different angle. Kaufmann and Wang (1995), Dollar and Svensson (2000), Ivanova et al (2001), Hemmer and Lorenz (2003), Dollar and Levin (2005) and others relied on project-level data in their empirical analyses and endeavored to determine which factors influence performance of development projects arguing that success on a project level is a pre-condition for a positive macroeconomic impact of aid.

An empirical research performed in this study is closely related to the latter approach. Namely, it is based on the analysis of projects financed by the World Bank (WB) and Kreditanstalt für Wiederaufbau (KFW) and aims at answering *the main research question*, which includes a determination of factors that are correlated with the outcomes of these donors' development projects and testing whether state fragility and conflict are among them. An empirical analysis is carried out using cross-section, as well as panel data estimations and applying some well-known econometric tools. Its *key contribution* to the relevant flow of literature lies in comparing empirical results of the well-researched WB with the relatively less-studied KFW data. Besides, there is a gap in project-level research of donor engagement in fragile and war-affected states, which this empirical study helps to fill.

The thesis is organized as following. *In the first chapter*, the main theoretical ideas and empirical findings in aid effectiveness literature are presented. In the beginning, some early research attempts, which investigate an impact of foreign aid on savings, investments, or economic growth of developing countries, are analyzed. Further on, the more recent statistically-advanced studies on the macro-level effects of aid are discussed. Afterwards, the main ideas of project-level research on donor engagement are summarized and the empirical studies that are closely related to the own statistical analysis reviewed. *In the second chapter*, an own empirical attempt is described in detail. Such aspects as data sources, main variables and methodology are discussed at first. Later on, some descriptive statistics and key regression results are presented. In the end, possible shortcomings and benefits of this empirical study are summarized, as well as areas for further research suggested.

I. Literature Review

Starting from the second half of the 20th century foreign aid was seen as an effective way of helping developing nations to catch up with their more prosperous neighbors. Such a view was inspired by some real-world examples. For instance, successful outcomes of the Marshall Plan in post-war Europe added to the general optimism about the effectiveness of foreign aid. It was believed that countries might need certain help from abroad, in order to escalate their economic development and finally achieve a self-sustaining growth. This idea got reflected in a few economic theories, which were modified and empirically tested numerous times during the following couple of decades.

In the early 1960's the effectiveness of aid was analyzed in the framework of two-gap theories, which were based on the Harrod-Domar growth model. According to White (1992), two-gap models assume that aid contributes to investment in developing countries and relieves either their saving or foreign exchange constraint [White, 1992, p.167]. In other words, if aid is properly used by a local government, and such issues as aid fungibility are omitted, then foreign assistance will work as an increment to investment, which in turn will lead to a faster economic growth of a developing country. An analysis of the Harrod-Domar model along with the two-gap growth theories is a starting point of this chapter.

Growing discussions about aid effectiveness among international organizations, politicians, as well as academia generated a need for some empirical testing of the previously-formulated theories. Macro- and micro-level findings of these empirical studies are presented later on in the chapter. It is shown that in contrast to the theoretical explanations, the empirical analyses using real-world data do not uniformly confirm or disprove effectiveness of foreign assistance. They rather point to the conditionality and complexity of aid impacts.

1.1 Main Theories of Aid Effectiveness

The Harrod-Domar growth model was developed and gained its popularity at the end of World War II. As Van Den Berg and Lewer (2007) summarize, the model was presented independently by Harrod (1939) and Domar (1946) [Van Den Berg and Lewer, 2007, p.82]. In a core of this model, lie the Leontief production function and an assumption of excess labor supply. According to other assumptions, output is linearly related to capital and substitution among production inputs is not possible. The main idea of the model is that

domestic and foreign savings (which also include aid) lead to accumulation of physical capital. In the Harrod-Domar model, capital accumulation is a key to economic growth, which can be shown through Equation 1:

$$\partial\, Y/Y = (1/K)\ \partial\, K/Y \quad (1)$$

where Y represents output, K stands for capital, and $1/K$ is a capital-output ratio in an economy, which is assumed to be constant. $\partial\, Y/Y$ denotes change in output, which equals economic growth by assumption. $\partial\, K/Y$ represents a change (e.g. a rise) of capital stock, i.e. net investment. It follows from Equation 1 that growth in an economy can be achieved by simply increasing the rate of investment. After substituting increasing capital stock $\partial\, K/Y$ by growing investment i, and accounting for a constant depreciation rate of capital δ, Equation 2 can be formulated as following:

$$\partial\, Y/Y = (1/K)i\ - \delta \quad (2)$$

In a closed economy, investment ratio i equals domestic savings ratio s. However, in an open economy this does not have to be the case. An open economy does not have to rely on its domestic savings only, but can also benefit from foreign inflows. So the investment ratio as a fraction of output in an open economy can be described by Equation 3:

$$i = s + a + f_p + f_o \quad (3)$$

where i stands for investment ratio, s represents domestic savings, a is aid, f_p is private foreign inflows and f_o is other foreign inflows as a fraction of Y. Since aid does not affect foreign private and other inflows, the marginal effect of aid on investment can be specified as following:

$$\partial\, i/a = \partial\, s/a + 1 \quad (4)$$

According to Equation 4, foreign aid is assumed to influence the rate of investment through its link with domestic savings. Moreover, as shown in Equation 2, an increase in physical capital accumulation (i.e. the rate of investment) is expected to lead to the output growth. Therefore, in an open economy not only domestic savings, but also foreign private and other inflows, as well as foreign aid through its impact on investments, are driving economic growth. Starting from 1960's this point of view gained popularity among researchers. For example, Rosenstein-Rodan (1961) argues that aid is able to substitute the lack of domestic savings in developing countries and lead to a faster economic development. The author even tries to calculate how much foreign assistance is needed for certain countries in order to achieve self-sustaining economic growth in a reasonable period of time [Rosenstein-Rodan,

1961, p.117]. However, his prediction about self-sustaining growth did not come true in most countries he analyzed, regardless of the levels of aid inflows in these nations.

Chenery and Strout (1966) develop one of the first *two-gap models*. Later on other two-gap or even three-gap models were introduced in the aid effectiveness literature. They were usually based on the classical Harrod-Domar growth model. At first, Chenery and Strout (1966) describe a situation with an investment-limited growth. Under this scenario, such internal restrictions as a lack of highly-skilled labor and a shortage of domestic savings hinder economic growth. Further on, the authors introduce a trade-limited growth, which is caused by a trade gap. The latter is defined as an inability of a developing country to cover its import expenses with export earnings [Chenery and Strout, 1966, p.683].

Chenery and Strout (1966) argue that in an early stage of economic development a country might experience an investment-limited growth. This is the case of a typical Harrod-Domar model, where a certain amount of investment is needed in order to achieve higher levels of output. However, as a country develops further, its average savings rate is also probable to increase. As a result, an investment constraint will be relieved either completely or at least to some extent. At the same time, imports are also likely to grow and might be expected to exceed export incomes of a country. This in turn will lead to the previously-defined trade gap [Chenery and Strout, 1966, p.719]. A solution to the trade-limited growth, similarly to the investment-limited growth, is foreign aid. Chenery-Strout's (1966) model shows that the aid efficiency is expected to be different in different countries depending on which of the constraints on growth are binding.

The Harrod-Domar growth model along with the two-gap models was harshly criticized numerous times. White (1992), for instance, argues against the two-gap models by pointing to their following shortcomings. First of all, they seem to be rather simplistic and do not usually account for many other factors (besides for capital accumulation and a trade gap), which might affect economic growth. Secondly, these models assume that aid will be spent one-to-one on investment, which is often not the way, in which the real-world local governments work. For example, it is not clear whether a government will allocate aid to savings or directly to consumption [White 1992, p. 176]. Moreover, this type of models does not account for the fungibility of aid, which might become an issue if a local authority is not putting an effort in line with foreign assistance organizations. This happens when a country's government decides, for instance, to lower tax rates instead of increasing public savings parallel to aid inflows, in order to gain popularity among tax-payers.

1.2 Empirical Testing of Aid Effectiveness Theories

1.2.1 Early-Literature Empirical Analysis of the Impact of Aid

Theoretical ideas presented in the previous section inspired an empirical investigation on the macro- and micro-economic influence of aid. Starting from the 1960's, researchers all over the world were trying to determine an impact of aid on country's savings, investment, as well as economic growth. In this early literature on aid effectiveness, an empirical analysis using cross-section data was usually applied. The main results of these first research attempts are shown in the Summary-Table below and are discussed in more detail further on in this subsection.

Summary-Table I. Early-Literature Empirical Findings: Effects of Foreign Capital Inflows/Aid on Domestic Savings, Investment, and Economic Growth:

Author's Name	***Year of Publication***	***Effect Found***
Effect of Foreign Capital Inflows/Aid on Domestic Savings/ Investment:		
Rahman	1968	Negative
Griffin	1970	Negative
Gupta	1970	No effect, positive
Griffin and Enos	1970	Negative
Weisskopf	1972	Negative (on ex ante savings)
Effect of Foreign Capital Inflows/Aid on Growth:		
Papanek	1973	Positive
Viovodas	1973	No effect
Mosley	1980	No effect
Mosley et al.	1987	No effect
Gupta and Islam	1983	Positive
Dowling and Hiemenz	1982	Positive

One can see from the Summary-Table I that the conclusions as for an impact of aid on domestic savings, investment, and growth are not uniform in the early literature on this topic. The results vary greatly depending on a sample size and a time period used, as well as econometric specifications applied. Equation 5 shows an example of an empirical model commonly used in the estimations of an impact of aid on domestic savings:

$$S/Y\ i = \alpha + \beta\ A/Y\ i + \mu\ Y\ i + \varepsilon\ i \qquad (5)$$

where $S/Y\ i$ represents domestic savings as a fraction of Gross National Income (GNI) or Gross Domestic Product (GDP) in a recipient country i; $A/Y\ i$ denotes foreign aid as a fraction of GNI or GDP; $Y\ i$ stands for initial income in a country. Some authors also used investment rate as a dependent variable in Equation 5, in order to estimate the impact of aid on country's investment. In some models it was controlled for the initial income $Y\ i$, while in other studies this variable was not included. Besides, it was not usually controlled for many other factors that might influence domestic savings besides from foreign aid. That is why such early studies on the impact of aid might suffer from omitted variable bias, among other econometric issues.

According to the Null Hypothesis in the early empirical research on aid effectiveness, the coefficient on foreign assistance β in Equation 5 is greater than zero. It is assumed that foreign aid increases domestic savings, as suggested in the two-gap models, and, consequently, has a positive effect on country's investments and its economic growth. For example, Chenery and Strout (1966) model discussed above suggests that savings rate is one of the most important constraints on growth in developing countries. Foreign assistance eases this constraint by providing some additional resources, which supplement domestic efforts, lead to higher investment and, as a result, faster economic growth. However, if coefficient β turns out to be negative, it indicates that the impact of aid on domestic savings (and probably on economic growth) is negative. This supports the argument that aid is often misused in developing countries, for example, when foreign inflows are used by local authorities to substitute rather than complement domestic savings.

Rahman (1968) and Griffin (1970) are among the first researchers, who empirically test two-gap theories and, consequently, find negative impact of foreign capital inflows on domestic savings. Rahman (1968) carries out analysis using similar empirical model as the one depicted in Equation 5. The author does not segregate between aid, private, and other capital inflows, which was a common shortcoming of many early empirical attempts in this area of research. Rahman (1968) argues that resources from abroad should not even be

expected to increase investment one-to-one, since at least part of them is used to substitute domestic savings [Rahman, 1968, p.137]. The author argues that local government's behavior does not correspond to the one described in two-gap models and that local authorities will put less effort into increasing public savings if foreign capital is available. Griffin (1970) conducts a similar type of analysis, using cross-country data as well. He also finds some evidence for a negative association between capital inflows and domestic savings. The author argues that capital inflows are more likely to contribute to the consumption than to the savings of a recipient country. Therefore, it is not unexpected that outcomes predicted in two-gap theories, namely a positive correlation between foreign aid and economic growth, are not observed in empirical analysis [Griffin, 1970, p.99].

Gupta (1970) criticizes the study carried out by Rahman (1968) and shows that if a sample of countries changes, the results do not hold any longer. Gupta (1970) finds no statistically significant impact of foreign capital inflow on domestic savings. Besides, the author implements one more type of empirical analysis using the same dataset, but categorizing developing countries into three groups according to their GNP per capita. After estimating regressions for each group separately, Gupta (1970) finds either no effect or even a positive influence of foreign inflows on domestic savings [Gupta, 1970, p.215].

Griffin and Enos (1970) were also among early aid-effectiveness-literature authors, who tried to estimate the impact of foreign assistance on domestic savings and argued to find evidence for some negative effects. Their dataset consists of thirty-two developing countries; an empirical model in this study is similar to the one shown in Equation 5, however, it does not include country's initial income [Griffin and Enos, 1970, p.321]. Griffin and Enos (1970) argue that foreign aid substitutes domestic savings in developing countries and therefore might be harmful and lead to the growth deterioration instead of improvement.

Weisskopf (1972) tests robustness of the results obtained by Griffin and Enos (1970). He suggests that it is not reasonable to keep in the dataset countries which had a net capital outflow, since then reverse causality between domestic savings and foreign inflows can occur [Weisskopf, 1972, p.28]. Weisskopf (1972) examines time-series data for forty-four developing countries and finds a negative effect of foreign capital inflows on ex ante domestic savings. The author argues that foreign inflows are probably taken into account by local governments while planning macroeconomic policies. As a result, foreign funds substitute at least partly domestic savings in recipient countries. However, this effect is not observed when ex post savings are considered. In this case, no significant or even a positive impact of foreign inflows on domestic savings is detected in Weisskopf (1972) study.

Papanek (1972) reviews a few early-literature studies on aid impact in developing countries and suggests some meaningful criticism. For example, the author points out that most of the previous studies, such as those of Rahman (1968), Griffin (1970), Weisskopf (1972) do not distinguish between foreign aid and other capital inflows. It might be, however, irrational to expect that aid and private capital flows have the same impact on domestic savings [Papanek, 1972, p.939]. According to Papanek (1972), most authors also fail to properly calculate total foreign inflows. He argues that most researchers determine foreign resource inflows as a difference between current imports and exports of goods and services. They usually ignore the net factor payments made to foreigners, even though they are of a considerable importance. For example, if the net factor payments (e.g. interest expenses) to abroad, which arise from past investments, are greater than the current foreign inflows, then it is not surprising that foreign contribution does not cause a faster economic growth.

Papanek (1972) also suggests that the evidence found by previous authors might indicate some correlation between foreign inflows and domestic savings; however, these findings are not enough to claim any casual relationship, mainly because of endogeneity problem [Papanek, 1972, p.940]. Endogeneity could arise from a reverse causality issue, as well as from the omitted variable bias. For example, countries with lower domestic savings might be receiving more foreign inflows precisely because of their low saving rates (i.e. reverse causality). Besides, both foreign capital inflows and domestic savings might be affected by a third factor (e.g. a real interest rate), which is not accounted for in the simple regressions of the early literature on aid effectiveness (i.e. an omitted variable bias).

Papanek (1973) was one of the first researchers who turned the focus from investigating an effect of aid on savings to estimating an impact of aid on economic growth. Papanek (1973) carries out cross-country analysis in an attempt to determine factors that affect growth, as well as an investment rate in developing countries. He uses a similar model as the one presented in Equation 6:

$$G\,i = \alpha + \beta\,S\,i + \mu\,A\,i + \eta\,FI\,i + \varphi\,FO\,i + \varepsilon\,i \qquad (6)$$

where G represents growth of per capita income in country i; S denotes domestic savings; A stands for foreign aid; FI represents foreign private investment; FO is other foreign inflows; and ε is an error term [Papanek, 1973, p.121]. The author finds some evidence for positive correlation between foreign aid and economic growth. However, since many other factors were not controlled for, the estimation might suffer from omitted variable bias among other statistical issues. Papanek (1973) recognizes this problem and argues that more detailed

research on the topic is needed before any casual relation between aid and growth can be declared.

Along with Papanek (1973), Viovodas (1973) argues that, in order to empirically test two-gap models, it is reasonable to estimate the effect of foreign inflows directly on growth rather than on savings. The author conducts an analysis for twenty-two developing countries, pooling their time series data into one dataset. Viovodas (1973) finds some evidence for a positive relation between a level of exports and economic growth. However, no statistically significant impact of foreign inflows on growth is observed in this study. The author argues that the evidence in support of the predictions of two-gap models is not found because in reality the main assumptions of these models are violated. Hence, foreign capital inflows are more probable to be consumed rather than invested. In addition, Viovodas (1973) suggests that the incremental capital-output ratio (i.e. *(1/K)* in Equation 1) is not likely to be constant in a real-world scenario, as it is assumed in the theoretical models. He predicts a positive correlation between capital-output ratio and foreign capital inflows [Viovodas, 1973, p.337].

An important contribution of Mosley (1980) research lies in the addition of a lagged aid variable to a well-known model shown in Equation 6. As a result, the author finds some evidence for a significant positive effect of a five-year lagged aid value on country's economic growth. At the same time, an impact of current aid flows appears to be statistically insignificant [Mosley, 1980, p.81]. Mosley (1980) also analyzes the impact of aid on domestic savings, in order to test the early-literature findings discussed above with some new data from the 1970's. In his study, a negative correlation between aid and savings is still found. However, the author acknowledges that such a result is probably a consequence of endogeneity problem [Mosley, 1980, p.80]. Mosley (1980) cannot deny reverse causality between the two variables, since, according to his observations, aid usually assists the poorest countries and donors are most actively engaged in the states with lowest domestic savings.

In comparison to previously discussed studies, Mosley et al. (1987) provide a more econometrically sophisticated analysis of the impact of aid on growth. The authors use Ordinary Least Squares (OLS) along with Three-Stage Least Squares (3SLS) estimations; they divide sample with respect to geographical regions, as well as income per capita. In the conclusion, Mosley et al. (1987) argue that there is no evidence for significant correlation between aid and growth [Mosley et al., 1987, p.628]. These results support a theoretical model presented by the authors, in which they suggest two scenarios. Namely, a domestic government might support donor engagement and put an effort into effective usage of aid leading to a faster economic growth. On the other hand, local authorities might choose to

spent aid on non-productive expenditures, resulting into foreign assistance to have no impact on country's growth. Besides, Mosley et al. (1987) argue that aid appears to have no influence on other development indicators either. In the regressions where mortality rate is taken as a dependent variable, for example, aid enters as a statistically insignificant factor.

Some contrary results as for the impact of aid on growth were obtained in the study conducted by Gupta and Islam (1983). These researchers conduct a cross-section data analysis for fifty-two developing countries. In their analysis, a large number of control variables were included into estimation. In order to diminish the effects of aggregation bias, the sample was divided into sub-groups according to country's per capita income. Gupta and Islam (1983) conclude that domestic savings, as well as foreign inflows significantly contribute to the economic growth of recipient countries. Moreover, the authors suggest that foreign aid has a larger impact than foreign private investments. However, according to this study, domestic savings are the most important determinant of economic growth in developing countries [Gupta and Islam, 1983, p.175].

Dowling and Hiemenz (1982) conduct research for countries in Asia and also argue in favor of positive effects of aid on economic growth. Their empirical analysis is based on a model similar to the one depicted in Equation 6, besides, some controls for government policy are added to the regressions. For example, it is accounted for a degree of openness of the economy, a share of public sector in economic activities, a role of government in domestic resource mobilization etc. [Dowling and Hiemenz, 1982, p.6]. The authors argue that aid positively influenced economic growth of Asian countries in 1970's. Moreover, they conclude that the middle-income Asian countries experienced a more rapid economic growth because they were able to utilize foreign aid more effectively, comparing to the less successful low-income countries in the region.

Doucouliagos and Paldam (2009) conduct a literature survey summarizing the main findings in the aid effectiveness literature. In addition to statistical shortcomings of many publications on aid effectiveness, the authors also suggest that such factors as institutional interests, ideology, data mining etc. might have contributed to such different and even contrary results on the effects of aid on economic growth. The authors carry out meta-analysis using information from all relevant studies, many of which were discussed above. Doucouliagos and Paldam (2009) take each regression outcome from these studies as a data point and obtain a total of 537 observations in their dataset [Doucouliagos and Paldam, 2009, p.443]. As a result of aggregating all available regression outcomes, the average effect of aid on growth turns out to be positive, but not statistically significant.

1.2.2 Empirical Investigation of Aid Effectiveness from the 1990's until present

Starting from the 1990's aid-effectiveness-literature authors significantly improved their empirical techniques and methodologies. For example, the endogeneity of aid was managed with the help of Instrumental Variable (IV) estimations; the usage of panel instead of cross-section data prevailed; a broader set of factors was controlled for in regressions etc. It became a common practice to use Official Development Assistance (ODA) data published by the Organization for Economic Co-operation and Development (OECD) as a proxy for foreign aid, instead of just total foreign inflows data. ODA includes only aid aimed at improving human or economic welfare of a recipient country, so military assistance is excluded. This makes these data one of the best sources for foreign aid information.

However, a more important change in the aid effectiveness literature of that time concerned a general focus of research. As shown in the previous subsection, some of the early-literature authors, such as Dowling and Hiemenz (1982) already suggested controlling for local governments' characteristics along with a foreign inflows variable in their growth regressions. They pointed out that not only aid, geographical position and initial level of economic development of a country might affect its economic growth, but characteristics of its government could also play a role. Boone (1996) could not confirm that more democratic governments spend aid more efficiently. On the other hand, Burnside and Dollar (2000) argued that the nature of local economic policies and institutions was crucial in determining the effectiveness of donor engagement. Starting from the 1990's, the idea that aid effectiveness depends on policy environment of a recipient country gained popularity among donor organizations and academia all over the world. The detailed debate on this topic is presented in this subsection and the main findings are shown in the Summary-Table II.

Boone (1996) constructs a theoretical model in which a government maximizes its utility by taking a choice of either to increase transfers to the poorest citizens or to implement some investments, which will decrease economic distortions. The author argues that if developing countries have governments that choose to spend foreign aid on transfers, then it is reasonable to expect an increase in consumption and an influence neither on investment, nor on economic growth of such economies. Boone (1996) tests his model empirically with the help of panel data on ninety-one countries for the time period of 1971-1990. He uses five-year- and decade-averaged data, in order to eliminate business cycle factors [Boone, 1996, p. 304]. The author estimates an impact of foreign aid not on growth directly, but rather on such macroeconomic variables as investment, consumption etc., as well as on a few Human

Development Indicators. As for methodological specification, Boone (1996) was one of the first researchers in aid effectiveness literature, who addressed the previously-discussed endogeneity problem with an introduction of instrumental variables for aid. In fact, the author uses three types of instruments, such as the logarithm of population, variables that capture political determinants of aid flows, and the twice-lagged aid [Boone, 1996, p. 309].

Summary-Table II. Empirical Findings of 1990's – present: Effects of Foreign Aid on Economic Growth Conditional on Policy Environment of a Recipient:

Author's Name	***Year of Publication***	***Effect of Aid Conditional on Good Policy Environment***
Boone	1996	No effect
Burnside and Dollar	2000	Positive
Hasen and Tarp	2001	No effect
Collier and Dollar	2002	Positive
Collier and Hoeffler	2004	Positive
Ram	2004	No effect
Easterly et al.	2004	No effect
Burnside and Dollar	2004	Positive
Dalgaard et al.	2004	No effect
Roodman	2007	No effect
Wright	2008	Positive (conditional on length of dictatorship)
Rajan and Subramanian	2008	No effect

As for the research outcomes, Boone (1996) finds some evidence that aid has a positive impact on public consumption, and does not influence the level of investment. Another interesting point of his empirical investigation reveals that aid does not affect such development indicators as infant mortality, life expectancy, primary schooling etc. Boone

(1996) was also one of the first researchers to check whether aid has different effects under different political regimes. He uses index of political liberties published by Gastil (1989), as well as a dummy on liberal democracies created by Derbyshire and Derbyshire (1989). Boone (1996) generates an interaction term between these political-regime dummies and a foreign aid variable. His analysis shows that such interaction terms have an effect neither on investment, nor on development indicators. As a result, the author argues that both democratic and autocratic regimes use aid equally ineffectively [Boone, 1996, p.320]. He finds some evidence, however, that such development indicator as infant mortality is lower in the poorest countries with liberal democratic regimes and higher in the ones with autocratic governments.

The approach suggested by Boone (1996) inspired other researchers to investigate in more detail the impact of foreign aid on countries with different policy regimes. Authors were trying to test whether various measures of policy interact with an aid variable in growth regressions, as shown in Equation 7:

$$G\,i = \alpha + \beta\,A\,i + \mu\,P\,i + \eta\,A{*}P\,i + \varphi\,X'\,i + \varepsilon\,i \qquad (7)$$

where G represents growth of per capita income in country i; A stands for a measure for foreign aid inflows into this country; P denotes a policy environment indicator (e.g. a democratic or non-democratic regime); $A*P$ is an interaction term, which captures different influence of aid under different policy regimes; X' represents a vector of other variables that might affect economic growth besides for aid and policy (e.g. initial income of country i, its geographical location, population etc.); ε is an error term.

Burnside and Dollar (2000) published one of the most influential papers in the aid effectiveness literature. Contrary to Boone (1996), the authors made an emphasis on economic policies rather than political regimes in developing countries. As a result, they found some evidence that a degree of aid effectiveness depends on the policy environment in these countries. An empirical model used by Burnside and Dollar (2000) is similar to the one presented in Equation 7 [Burnside and Dollar, 2000, p.851]. Their study includes fifty-six developing countries and comprises a time period of 1970-1993. In comparison to many early-literature studies, Burnside and Dollar (2000) took advantage not only of cross-section, but also of panel data estimation. They follow a common practice in the literature on this topic and divide a time frame into several four-year sub-periods. This was done for various reasons; for example, to increase a sample size, eliminate business cycle factors etc. The authors create an own policy index P, which consists of the weighted measures for budget

surplus, inflation, and economic openness. As for the vector *X'* in Equation 7, in Burnside and Dollar (2000) analysis it includes such controls as initial GDP, ethnic fractionalization, institutional quality, regional dummies etc.

Burnside and Dollar (2000) also suggest their ways of dealing with endogeneity. For example, the authors argue that there could be a reverse causality problem in their baseline regressions. Moreover, it is not clear whether this problem would cause upward or downward bias on the results. For example, it might be the case that poorer countries with slower growth attract more donors and receive disproportionally more aid than their better-off neighbors. On the other hand, if donor organizations had some strategic or commercial motives, they would prefer to give more aid to developing countries that are experiencing economic boom [Burnside and Dollar, 2000, p.849]. In order to cope with an endogeneity issue, Burnside and Dollar (2000) suggest using an instrument, a factor that has an impact on economic growth only through foreign aid. In other words, they try to formulate an aid equation, as they call it, with the explanatory variables that affect aid, but have no influence on growth. The authors use, for example, a dummy for Egypt to capture US strategic preferences for aid, the logarithm of initial income, the logarithm of population, a policy index etc. in this aid equation [Burnside and Dollar, 2000, p.852].

Burnside and Dollar (2000) argue that after controlling for all the other relevant factors, aid by itself has no or a little impact on country's economic growth. This result is consistent with some of the early-literature studies discussed above (see, for example, Viovodas (1973), Mosley (1980), Mosley et al. (1987) etc). However, the interaction term on aid and policy appears to be positive and statistically significant in the regressions estimated by Burnside and Dollar (2000). This outcome leads authors to the conclusion that aid is more effective in countries with a good policy environment [Burnside and Dollar, 2000, p.856]. This idea became a cornerstone of international aid policy in the beginning of this century. It encouraged donor organizations, such as the World Bank, to allocate aid primary to the countries with "good institutions" and to promote structural adjustments by domestic governments in return for foreign aid.

The brave ideas of Burnside and Dollar (2000) pushed other researchers to test the validity of their results and to investigate this topic even further. For example, Collier and Dollar (2002) find some evidence in support of the Burnside and Dollar (2000) conclusions. At first, the authors analyze previous research on the interaction between aid and policy environment and provide some meaningful critique. For example, they doubt that the policy index constructed by Burnside and Dollar (2000) is an optimal measure for policy

environment. Collier and Dollar (2002) suggest to use the World Bank's Country Policy and Institutional Assessment (CPIA) index instead [Collier and Dollar, 2002, p.1477]. According to the authors, this measure includes twenty different components and captures a broad set of factors, such as macroeconomic issues, structural policies, public sector management etc. Besides, Collier and Dollar (2002) use a larger data sample comparing to Burnside and Dollar (2000).

As for the econometric specifications, Collier and Dollar (2002) apply a similar type of model as shown in Equation 7. The vector of additional controls *X'* includes initial income, a measure of institutional quality, regional dummies, and time period dummies. In some regressions it is also controlled for inflation, trade openness etc. As for the results, the interaction term on policy and aid enters as positive and statistically significant factor in all Collier and Dollar (2002) specifications, which is in line with Burnside and Dollar (2000) findings. At the same time, the aid variable by itself does not prove to be statistically different from zero [Collier and Dollar, 2002, p.1479].

Collier and Hoeffler (2004) are also among the researchers who find a positive effect of aid on economic growth in countries with good policy environment. The authors do not only reproduce, but also supplement Collier and Dollar (2002) study using slightly different control variables and incorporating post-conflict situation into analysis. The interaction term on policy and aid in Collier and Hoeffler (2004) regressions has a positive impact and is, therefore, consistent with the results obtained by Collier and Dollar (2002). As a second step, the authors introduce an interaction term of three factors, namely policy, aid, and a post-conflict dummy. This interaction term turns out to have a positive and statistically significant impact as well, which pushes authors to argue that aid is more effective in post-conflict countries with good policies [Collier and Hoeffler, 2004, p.1130]. Collier and Hoeffler (2004) explain that usually post-conflict nations have worse policies than countries without a conflict in their recent history. However, a higher absorptive capacity of post-war states compensates for their less favorable policy environment and leads to a higher aid effectiveness [Collier and Hoeffler, 2004, p.1131]. Thus, it might still be reasonable to direct aid flows into post-war countries despite their relatively worse policy environments.

Hasen and Tarp (2001) also test Burnside and Dollar (2000) findings. In contrast to Collier and Dollar (2002) and Collier and Hoeffler (2004), they conclude that aid is likely to increase growth rates regardless of policy and institutional conditions in developing countries. Hasen and Tarp (2001) modify the model used by Burnside and Dollar (2000) including aid squared as a control variable, in order to capture a non-linear relationship

between aid and growth. As for the further econometric specification of their study, Hasen and Tarp (2001) carry out not only cross-section, but also panel data estimation using data for fifty-six countries. They are among the first authors to take advantage of country fixed effects. Hasen and Tarp (2001) emphasize that this step helps to control for all the non-variant cross-country heterogeneity in their regressions and therefore reduces a possibility of an omitted variable bias [Hasen and Tarp, 2001, p.556].

As for the results of Hasen and Tarp (2001) analysis, an addition of aid squared as a control variable leads the policy-aid interaction term to lose its statistical significance [Hasen and Tarp, 2001, p.551]. A coefficient on aid turns out to be statistically significant and positive, while the one on aid squared appears to be significant and negative. Therefore, the authors argue that foreign aid increases economic growth of developing countries, even though a diminishing returns effect can be observed. At the same time, the policy environment and policy quality do not seem to play a role in determining growth, according to their study. Hasen and Tarp (2001) also look for a channel in which aid increases country's economic welfare. The authors find some evidence for a significant positive impact of foreign assistance on investments and conclude that aid affects economic growth exactly though this variable [Hasen and Tarp, 2001, p.566].

Ram (2004) finds another way to disprove Burnside and Dollar (2000) conclusions. When the author uses the same data and econometric specifications as Burnside and Dollar (2000), he successfully reproduces their results. The interaction term on policy and aid seems to have a positive statistically significant effect even when other variables for policy are used to substitute the Burnside and Dollar (2000) index. However, after Ram (2004) splits the aid variable into multilateral and bilateral aid and interacts each of them with policy, the effects disappear. The author argues that since such a slight modification in estimation makes the policy-aid interaction term to become statistically insignificant, the robustness of Burnside and Dollar (2000) results should be questioned [Ram, 2004, p.206].

Easterly et al. (2004) test Burnside and Dollar (2000) conclusions with further robustness checks. For example, Burnside and Dollar (2000) used data for the time period of 1970-1993. Easterly et al. (2004) prolong the original dataset through 1997 and add more countries to it, which results into the interaction term on policy and aid to lose its statistical significance. Such outcome occurs after adding more control variables to the initial regressions as well [Easterly et al. 2004, p.776]. According to the authors, it is too early to argue that aid effectiveness is conditional on a good policy environment of a recipient country.

Burnside and Dollar (2004) respond to the study by Easterly et al. (2004) trying to explain the unfavorable outcomes of the robustness checks described above. Burnside and Dollar (2004) argue that a coefficient on the interaction term of interest loses its statistical importance mainly because of adding extra countries to the sample. They show some evidence that prolonging their data through 1997 has little or no impact on the Burnside and Dollar (2002) results. The authors suggest that some of the additional countries in the dataset might have experienced quite unusual circumstances during the time period considered. For example, at the end of the last century, Jordan and Papua New Guinea suffered from a rather low growth rate, but at the same time could benefit from a rather good policy environment [Burnside and Dollar, 2004, p.783]. Burnside and Dollar (2004) argue that the conclusions drawn by Easterly et al. (2004) are too negative and suggest looking at the outcomes of theoretical models and the results of micro-level case studies. These are usually in line with Burnside and Dollar (2004) findings; to be exact they typically support the idea of aid effectiveness in good policy environments [Burnside and Dollar, 2004, p.784].

Dalgaard et al. (2004) approach the conditionality of aid effectiveness from a slightly different angle. They argue that the impact of foreign assistance on economic growth depends on the climate-related conditions of a developing country rather than on its policy environment. The authors take a fraction of country's land in tropics as a measure for climatic circumstances and use this variable, as well as its interaction term with aid in an empirical estimation similar to the one shown in Equation 7. As a result, the coefficient on the aid-tropics interaction term turns out to be statistically and economically significant with a negative sign. Moreover, a positive effect of aid-policy interaction term loses its statistical significance once the new aid-tropics interaction variable is controlled for in the regressions [Dalgaard et al., 2004, p.198].

Dalgaard et al. (2004) argue that foreign assistance is not conditional on good policy environment, however, is more effectively used in countries, which lie outside of tropical areas. According to the authors, there might be a few explanations for such outcomes. For example, it could be related to a well-established fact that developing countries in tropics have lower productivity, in terms of combining capital and labor to produce output. Besides, one might argue that tropical countries have developed a different set of structural characteristics and institutions, which hinder effective usage of aid by their governments [Dalgaard et al., 2004, p.192].

Roodman (2007) carries out a few robustness checks for some of the studies presented above. His tests include an addition of new control variables, alternative definitions of policy

and aid, an extension of a data sample with new countries or through longer time periods etc. [Roodman, 2007, p.260]. The author argues, however, that such restrictions as data availability hinder some of his robustness checks. For example, changing a set of controls in regressions automatically changes a set of countries included in these estimations, because the data on new control variables are usually not available for the whole sample. Roodman (2007) also explains some particular caveats of previous studies. For instance, Burnside and Dollar (2000) excluded five outliers out of their study and it is argued by Roodman (2007) that this step has a large impact on the significance of an interaction term on policy and aid [Roodman, 2007, p.267].

Roodman (2007) concludes that the most prominent research results on the interaction between aid and good policy environment are very fragile. Most of these studies are especially vulnerable to a sample expansion test. Once Roodman (2007) includes a different set of countries or outliers, as well as extends a time period of a certain study, the results usually change dramatically. For example, Dalgaard et al. (2004) findings on the link between aid effectiveness and a tropical location successfully stand the specification-modifying test performed by Roodman (2007). This test involves changing a set of controls, as well as a usage of alternative definitions of aid. However, after nine outliers are removed from Dalgaard et al. (2004) sample, their main results lose statistical significance [Roodman, 2007, p.269]. Burnside and Dollar (2000), Hasen and Tarp (2001), Collier and Dollar (2002), and Collier and Hoeffler (2004) studies turn out to be even less robust to Roodman (2007) tests [Roodman, 2007, p.277].

Wright (2008) also uses an interaction term technique to study whether a time horizon of authoritarian regime affects aid effectiveness. The author takes predicted probability of regime failure as a proxy for autocratic time horizon [Wright, 2008, p.980]. He finds some evidence that aid has a positive effect on growth if the authoritarian regime lasts longer. Wright (2008) suggests a few explanations for such outcomes. For example, he argues that in a shorter authoritarian regime, a dictator has fewer incentives to make public investments and is more concerned about an accumulation of his own wealth. According to the author, aid effectiveness in countries with dictatorship is conditional on a length of the regime.

Rajan and Subramanian (2008) investigate effects of aid on growth using cross-section, as well as panel data and provide the most recent influential attempt to deal with aid endogeneity. The authors criticize a usage of lagged endogenous variables as an instrument in IV estimations. They argue that lagged variables might still be endogenous, especially if there is a serial correlation within the dependent variable [Rajan and Subramanian, 2008, p.648].

Rajan and Subramanian (2008) suggest to instrument aid using donor-related rather than recipient-specific characteristics. Put differently, their instrument is based on the considerations that drive donor to give aid rather than on the characteristics of developing countries that attract aid. For example, the authors argue that donors are likely to give more aid to the developing countries, with which they share some historic connections (e.g. a colonial relationship), a common language etc. Rajan and Subramanian (2008) assume that these factors influence economic growth of developing countries only through aid and do not affect it on their own.

Rajan and Subramanian (2008) exploit to the fullest econometric specifications suggested by other authors. For example they use a few alternative instruments including a lagged-values instrument. Besides, they add a policy-aid and geography-aid interaction terms, as well as a squared aid term, in order to check for non-linearity in the relationship between aid and growth. For a policy variable they use the Sachs-Warner measure updated by Wacziarg and Welch (2007) and the World Bank's CPIA ratings. Rajan and Subramanian (2008) argue that after using panel data, controlling for country fixed effects and dealing with endogeneity issue to their best knowledge, they do not find evidence for a robust positive relationship between aid and growth. Their results also do not confirm that aid works better in either more favorable geographical locations or better policy environments [Rajan and Subramanian, 2008, p.659].

It can be seen from the studies discussed in this subsection that no agreement has been achieved by researchers concerning aid impact on growth and that discussion on this topic still continues. In recent years, authors were trying to use new approaches, as well as apply the latest econometric techniques, while still struggling to support or disprove a decades-long debate on aid effectiveness. For example, Minoiu and Reddy (2010) allow for segregation between development and non-development aid. They argue that non-development-aid in a form of general budgetary support could be easily misused by authoritarian or corrupt governments. However, aid spend on development of rural infrastructure, irrigation, immunization, education etc. has more chances to contribute to the economic growth of a recipient country [Minoiu and Reddy, 2010, p.29].

Minoiu and Reddy (2010) test their theories using a standard growth-aid model similar to the one applied by Rajan and Subramanian (2008) and a sample of developing countries over 1960-2000. The authors measure an impact of the constructive ODA separately from an effect of the "non-helpful" aid. Comparing to Rajan and Subramanian (2008), they also include deeper aid lags or, in other words, aid variables that lag at least one

decade. This way they assume that foreign assistance needs longer time to show its positive effects on economic growth of developing countries. Minoiu and Reddy (2010) findings support the view of positive unconditional impact of aid on economic growth. The authors argue, though, that only constructive aid has a positive effect and it needs at least ten years to show it [Minoiu and Reddy, 2010, p.36].

Nowak-Lehmann et al. (2012) are trying to account for the econometric shortcomings of previous studies on aid effectiveness using panel data and Generalized Method of Moments (GMM), as well as Dynamic Feasible Generalized Least-Squares (DFGLS) estimations. According to the authors, these techniques facilitate dealing with autocorrelation, an omitted variable bias, as well as a reverse causality problem [Nowak-Lehmann et al., 2012, p.290]. For example, a DFGLS estimation help to control for endogeneity by using a number of leads and lags of the variables in differences that absorb an effect of the correlation with an error term. According to the authors, this method has an advantage over the usage of a standard GMM, as well as instrumental variables. However, in order to apply DFGLS, the variables of interest must be linked to each other in a long run [Nowak-Lehmann et al., 2012, p.297].

Nowak-Lehmann et al. (2012) find some evidence that aid has no or even a negative impact on per capita income in recipient countries. These results hold even after dividing the sample into separate income and regional groups. The authors do observe, however, a positive impact of aid on investment along with a negative influence of aid on savings. Nowak-Lehmann et al. (2012) conclude that a decrease in savings overwhelms a positive impact of aid on investments and leads to a net non-positive influence of aid on economic growth in developing countries [Nowak-Lehmann et al., 2012, p.307].

Similar to the early literature on aid effectiveness, more recent studies on this topic also do not seem to agree upon the nature of a relationship between aid and economic growth. The question that was comparatively easily answered in theoretical models and individual case studies does not find a robust conformation in the empirical research. In the conclusion of this section, one can only see that aid effect on economic growth in general, as well as its conditionality on policy environment of developing countries, still remain controversial issues and can be solved only with the contribution of further research.

1.3 Evaluation of Donor Engagement on a Project Level

1.3.1 Factors that Determine Effectiveness of Individual Aid Projects

It was shown in the previous section that macro-level studies on aid effectiveness do not usually lead to homogeneous conclusions. The disputes concerning aid impact on growth, savings and investment, as well as the disagreements about aid effect in good policy vs. bad policy environments, do not disappear. For example, there are authors who argue that aid works better in developing countries with healthier institutions and policies (e.g. Burnside and Dollar (2000), Collier and Dollar (2002), Collier and Hoffler (2002) etc.). On the other hand, there are researchers, who are struggling to prove the opposite and argue that local policies do not affect aid effectiveness (e.g. Hasen and Tarp (2001), Ram (2004), Easterly et al. (2004) etc.). Such inconsistency in the empirical findings of aid-growth literature pushed quite a few authors to look for alternative approaches in investigating aid effectiveness.

Starting from the late 1990's one more method of studying an impact of aid gained popularity. It is based on a usage of project-level data and focuses on a determination of factors that influence outcomes of development projects. A baseline assumption of this approach is that successful projects, comparing to their failing counterparts, are more likely to positively influence nation's macro-level variables, such as economic growth. Following this hypothesis, it is important to understand exactly which factors lead to project success and thus contribute to the greater overall aid effectiveness in a country.

There is a separate literature flow of empirical studies, which usually use the World Bank data on its investment projects in developing countries. These data include information on general characteristics of a project, such as its costs, duration, sector, region of implementation etc., as well as an evaluation outcome, which is usually a positive or a negative project rating given by independent experts from the WB's evaluation department. After collecting data for a large number of projects, authors try to find out, which factors contribute to project success and whether or not good policy, for example, is one of such variables.

In this subsection, project-level studies on aid effectiveness are analyzed in more detail. For instance, Kaufmann and Wang (1995) are some of the first researchers to use the WB project-level data. They investigate a relationship between country's economic policy environment and a performance of WB investment projects in education and health sectors. For a statistical analysis, the authors use data on 259 development projects and build a model, which is similar to the function shown in Equation 8 [Kaufmann and Wang, 1995, p.754].

According to Equation 8, a success of an individual development project depends on its costs, duration, country's level of economic development, population, political stability etc. As a dependent variable in their regression analysis, Kaufmann and Wang (1995) use the Operations Evaluation Department (OED) project evaluation ratings. The main independent variables of interest in this research are currency overvaluation, fiscal balance, inflation, trade restrictiveness measure and GDP growth. According to the authors, a high inflation rate hinders planning of project expenditures and overall funding. An overvalued exchange rate can lead to an overly capital- and import-intensive project. Exchange rate and trade restrictions in a country prevent a flow of inputs or raise their costs. A fiscal deficit and other macroeconomic imbalances can negatively affect a supply of education and health services, which are needed for the implementation of social projects, for example.

$$Project\ Success = f\ (costs, duration, country's\ GDP, population, conflict,\ldots) \quad (8)$$

As a result of their empirical investigation, Kaufmann and Wang (1995) find some evidence in support of their hypothesis, namely a negative association between a share of unsuccessful projects and distortive economy-wide environment in a country [Kaufmann and Wang, 1995, p.763]. The authors emphasize a need for further research on this topic before any causal relationship can be claimed, though.

Isham and Kaufmann (1999) test almost the same hypothesis as Kaufmann and Wang (1995) for a broader range of projects. They do research on the factors that explain outcomes of 1,163 WB investment programs and 113 International Financial Cooperation (IFC) private projects. The baseline model in this study is similar to the Equation 8. In contrast to Kaufmann and Wang (1995), the authors use an Economic Rate of Return (ERR) rather than OED evaluation ratings as a measure for project outcomes [Isham and Kaufmann, 1999, p.154]. Isham and Kaufmann (1999) conclude that distortions in macroeconomic, trade, and pricing regimes have a negative influence on WB and IFC project performance. As a further specification in their regressions, the authors control for a change in country's black market premium between project start and its evaluation. This variable, which represents a policy improvement during project implementation, has a significant effect on ERR. Isham and Kaufmann (1999) argue that a development program, which witnesses a progress in country's policy regimes, is more likely to have a higher ERR [Isham and Kaufmann, 1999, p.162].

Deininger et al. (1998) also base their analysis on a model similar to the one presented in Equation 8. The authors are trying to estimate how prior economic analysis in the form of Economic and Sector Work (ESW) affects project outcomes. ESW includes all general

research activities that are not directly linked to the preparation or supervisions of particular loans or grants, for example, macro-economic and sector reports, public expenditure reviews, preparation of country assistance strategies etc. In their empirical analysis, Deininger et al. (1998) use ERRs as a proxy for project outcomes [Deininger et al., 1998, p.16]. Besides, they perform robustness checks with OED project evaluation ratings, a project sustainability indicator, as well as a measure for institutional development as dependent variables. Deininger et al. (1998) find some evidence that time allocated to ESW has a significant positive effect on project outcomes, holding all the other relevant factors constant [Deininger et al., 1998, p.24].

Kilby (2000) uses data on 1426 projects funded by the World Bank and completed between 1981 and 1991 to test an empirical model, which is based on Equation 8. Since these data are on a project level, the dependent variable is project performance (i.e. success or failure) and the main independent variable of interest is project supervision. The author prefers to use annual evaluation ratings rather than a final grade, in order to lessen an endogeneity problem, which arises out of a possible reverse causality between project performance and supervision time [Kilby, 2000, p238]. According to Kilby (2000) conclusions, increasing World Bank's supervision of projects significantly improves the probability of project success. Besides, the author argues that supervision on early stages is more effective because of diminishing returns to supervision.

Kilby (2000) also discusses the problems with using project ratings as a dependent variable. He argues that performance ratings by OED are rather reliable measure of project performance. According to the author, this department is autonomous and its staff has considerable experience in evaluation techniques and procedures. However, Kilby (2000) recognizes that ratings might be to some degree subjective if, for example, evaluators are reporting better outcomes, in order to justify greater supervision expenses. The author argues though that institutional features of OED described above appear to mitigate reporting bias [Kilby, 2000, p240]. Kilby (2000) suggests that even though there might be an upward or downward bias between independent evaluators, there should not be a bias as a function of some project characteristics (e.g. region, sector, etc.).

Dollar and Svensson (2000) analyze the determinants of project success using database on 220 WB adjustment programs. Besides for the typical investment projects that are designed to provide public goods (e.g. water provision, infrastructure etc.) to local population, the World Bank also sponsors adjustment programs that are focused on implementing particular reforms by local governments. Dollar and Svensson (2000)

concentrate their research on the latter type of projects [Dollar and Svensson, 2000, p.894]. They study whether external factors, such as economic and political conditions in a country are more important in the determination of project outcomes comparing to internal or donor-controlled variables, such as project duration, supervision, funding etc.

Dollar and Svensson (2000) use OED evaluation ratings as a dependent variable and argue that these grades can be undoubtedly taken as a proxy for reform success of failure. The authors conduct a statistical comparison of evaluation ratings and some observed economic indicators, such as an inflation rate and an extent of budget surplus. According to Dollar and Svensson (2000), those adjustment programs, which were evaluated as successful ones, were also accompanied by a significant decrease in country's inflation rate. A strong positive correlation between project success and budgetary surplus can be observed as well [Dollar and Svensson, 2000, p.899].

As for econometric specifications, Dollar and Svensson (2000) argue that such donor-controlled factors as supervision time, project costs etc. are endogenous. Endogeneity might come from a reverse causality issue, as noted by Kilby (2000); it might also be caused by an unobserved third factor, which simultaneously influences both evaluation rating and donor-controlled variables. For example, an economic shock could negatively influence the probability of project success, as well as drive donor to increase its supervision. Therefore, Dollar and Svensson (2000) prefer to look for instrumental variables and rely on two-stage estimation shown in Equations 9-10:

$$y^*_i = c_y + \boldsymbol{b'}_i \boldsymbol{\delta}_y + \boldsymbol{p'}_i \boldsymbol{\beta}_{yp} + \varepsilon_{yi} \quad (9)$$

$$\boldsymbol{b}_i = \boldsymbol{c}_b + \boldsymbol{\alpha'}_b \boldsymbol{z}_i + \boldsymbol{\beta'}_{bp} \boldsymbol{p}_i + \boldsymbol{\varepsilon}_{bi} \quad (10)$$

where y^* represents the probability of success of an adjustment program i; $\boldsymbol{b'}$ denotes a vector of internal factors, which can be controlled by a donor; $\boldsymbol{p'}$ is a vector of external political-economy variables; c is a scalar and ε is an error term. In Equation 10, $\boldsymbol{z}$ is a vector of exogenous variables, which are correlated with donor's behavior, but do not influence reform outcomes [Dollar and Svensson, 2000, p.900].

Dollar and Svensson (2000) agree that it is not easy to find a valid instrument ($\boldsymbol{z}$ vector in Equation 10). They use simple and partial correlation in the Probit regressions to determine variables that seem to have no relationship with project outcome. According to the authors, such factors are a loan size, prior analytical work, expected length of the reform program etc. [Dollar and Svensson, 2000, p.905]. After using these variables as an

instrument, Dollar and Svensson (2000) argue that internal donor-controlled factors appear to have no impact on the outcomes of adjustment programs, especially when they are treated as endogenous variables. On the other hand, the overall political and economic situation in a country seems to play an important role in the determination of project success.

Ivanova et al. (2001) try to define which factors influence outcomes of projects supported by International Monetary Fund (IMF). The authors use Dollar and Svensson (2000) methodology in their analysis with a few differences driven mainly by a data availability constraint. For example, the OED-type evaluation ratings are not available for IMF projects. Ivanova et al. (2001) construct their own measures of project success using the data on interruptions during program's implementation, a difference between committed and disbursed funding, information on macro and structural conditionality of a project etc. [Ivanova et al., 2001, p.18]. Following Dollar and Svensson (2000), Ivanova et al. (2001) assume that political economy factors, as well as donor-controlled variables have an impact on program outcomes. Besides, the authors suggest that the presence of influential lobbies in a country would lower the probability of project success. Ivanova et al. (2001) construct a variable, which captures the share of seats in a parliament held by parties that represent nationalistic, religious, rural and regional interest groups and use it as a proxy for special interests in parliaments (i.e. influential lobbies in a country) [Ivanova et al., 2001, p.19].

Similar to Dollar and Svensson (2000), Ivanova et al. (2001) also choose to rely on IV estimations and suggest quite a few instruments for donor-controlled factors. For example, one of them is a program's approval year, since, according to the authors, a number of conditions per program year has been increasing over time, but does not influence the final project outcomes. The average share of bilateral aid by G-7 to a country before program's start, country's population, GDP per capita etc. are also assumed to be correlated with Fund's effort, but have no impact on program performance [Ivanova et al., 2001, p.22].

An empirical model used by Ivanova et al. (2001) is similar to Equations 9 and 10. Their conclusions are also in line with the findings of Dollar and Svensson (2000). Namely, they argue that internal Fund-controlled variables do not have a significant impact on project performance, especially after endogeneity is dealt with. Besides, they suggest that such political economy indicators as ethnic fragmentation and political instability are the most relevant factors in explaining outcomes of IMF projects. Moreover, according to the authors, strength of special interests in parliaments is a variable that was overlooked by previous researchers and has a significant negative influence on program performance [Ivanova et al., 2001, p.30].

Hemmer and Lorenz (2003) investigate the causes of success and failure of German bilateral aid using data on 1003 projects implemented by Kreditanstalt für Wiederaufbau in the time period from 1988 to 1999. KFW is a donor organization based in Germany, which, similar to the World Bank, provides low-interest loans or grants to finance investment projects, as well as adjustment programs in developing countries. The authors argue that often only data for multinational donor organizations, such as the World Bank, is available and, therefore, the effectiveness of bilateral aid of smaller donors usually stays out of research discussions. Hemmer and Lorenz (2003) try to fill this gap and, using Dollar and Svensson (2000) methodology and techniques, attempt to determine the factors, which are important for the success of KFW projects [Hemmer and Lorenz, 2003, p.508].

A dependent variable in the Hemmer and Lorenz (2003) regressions is based on evaluation ratings of all finished projects. In contrast to Dollar and Svensson (2000), they use data on both adjustment programs and investment projects arguing that, in case of KFW, the difference between these two types of development assistance is not significant. As explanatory variables the authors include project supervision, the loan size, as well as such external factors as a measure for openness, political instability, political rights, ethno-linguistic fractionalization, inflation, budget surplus etc. [Hemmer and Lorenz, 2003, p.519].

The main findings obtained by Hemmer and Lorenz (2003) partly support research outcomes of Ivanova et al. (2001) and Dollar and Svensson (2000). To be exact, they argue that such macro-level factors as country's openness, inflation, and budgetary surplus are crucial in the determination of project performance. However, contrary to previous studies, project-level variables in Hemmer and Lorenz (2003) estimations also have a significant impact on project outcomes. For example, the probability of KFW project success decreases if a tender is restricted to Germany (i.e. in case of tied bilateral aid which must be used to procure goods and services from a donor country). Supervision time seems to have a negative influence; however, after endogeneity is accounted for and IV estimations are used, this effect disappears [Hemmer and Lorenz, 2003, p.526].

Guillaumont and Laajaj (2006) try to find microeconomic evidence on the influence of instability on aid effectiveness. Their sample consists of 2,894 WB-funded projects, which started in the time period between 1981 and 2002. In the baseline model of this study, an explained variable is the evaluation ratings provided by the Independent Evaluation Group

(IEG)[1]. The authors use a measure for the vulnerability of exports as a main control of interest. Guillaumont and Laajaj (2006) argue that the cycle of exports is likely to be effected mainly by exogenous shocks, such as harsh climate or price changes. This makes a vulnerability of exports an appropriate proxy for country's instability, according to the authors [Guillaumont and Laajaj, 2006, p.9].

After dealing with an aid endogeneity problem, Guillaumont and Laajaj (2006) conclude that economic instability has a negative impact on project performance. The overall ODA inflows into a country also turn out to have a significant negative effect on the evaluation results. The authors argue that this finding reflects countries' absorptive capacity limitations. An interaction term on instability and ODA appears to have a positive impact on project success. According to Guillaumont and Laajaj (2006), this points to the stabilizing effects of aid and its ability to lower the negative consequences of external shocks. They suggest therefore that more aid should be given to unstable and vulnerable countries [Guillaumont and Laajaj, 2006, p.20].

1.3.2 Project Effectiveness in Fragile, Conflict-Affected and Post-Conflict States

A few common to the literature approaches of studying aid effectiveness were analyzed in this thesis so far. It was shown that some authors are trying to measure an influence of aid directly on such macroeconomic factors as domestic savings, investments, or economic growth of a country. There are also quite a lot of researchers, who attempt to shed some light on the real effects of foreign assistance with the help of project-level data analyses. They usually try to determine which factors affect the outcomes of such projects and argue that the success of individual development programs is a pre-condition for an overall effectiveness of foreign aid in recipient countries.

Despite all the abundance and diversity of aid effectiveness literature, it is still quite difficult to find research works that examine aid impact in fragile, conflict-affected, or post-conflict states. In this subsection, the studies that are based on project-level data and focus on determining the impact of state fragility and conflict on project success are discussed. These few research works are most related to the own empirical analysis, which is presented in a second chapter of the thesis. However, before proceeding with the discussion of academic literature, it might be useful to mention the most widely-used definitions of state fragility, as

[1] IEG was created by the Board of the World Bank Group in 2006. It united OED with the evaluation units of the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA).

well as war-, and post-conflict situations, in order to highlight the research subject of this thesis.

It has been approximately a decade since *state fragility* became a new term to describe such challenges as authority failure, service malfunction, legitimacy failure etc. in developing countries. Even today there is no a uniform definition of fragile states and different international organizations develop their own explanations. For example, OECD defines a fragile state as following:

> It is a state with weak capacity to carry out the basic state functions of governing a population and its territory and that lacks the ability or political will to develop mutually constructive and reinforcing relations with society [OECD, 2011, p.1].

The Council of the European Union also makes a clarifying point describing the key features of fragile states as:

> (…) weak or failing structures and (…) situations where the social contract is broken due to the State's incapacity or unwillingness to deal with its basic functions, meet its obligations and responsibilities (…) [Council of the EU, 2007, p.2].

The World Bank classifies as fragile all low-income countries, which:

a) either score 3.2 and below on the CPIA;
b) or have a United Nations (UN) peace-keeping or/and a regional peace-building mission during the past three years [WB, 2012(a), p.1].

Following this definition, the WB list of fragile states in 2012, as well as their CPIA scores, is shown in a Summary-Table III.

Nowadays the majority of donors and international organizations agree that the main features which define state's fragility are not only a high level of corruption, inflation, inequality etc. These are rather symptoms of a deeper problem, which hinders country's economic development, namely the inability of its government to fulfil its basic function of providing public goods to society. Such government's failure, which results into state fragility, can arise from different grounds, for example, from an unfavourable climate situation or a vulnerable geographic location. It can also be caused by a chronic dependency of a country on only one export good (typically some raw materials) and a failure to develop other economic sectors. Another reason for state fragility could be a war or a post-conflict situation in a country.

Summary-Table III. Harmonized List of Fragile Situations in 2012 according to the World Bank [WB, 2012(b), p.1].

No.	*Country*	*WB CPIA score*	*No.*	*Country*	*WB CPIA score*
1	Afghanistan	2.625	18	Kosovo	3.433
2	Angola	2.758	19	Liberia	2.917
3	Bosnia and Herzegovina	3.708	20	Marshall islands	2.758
4	Burundi	3.083	21	Micronesia, FS	2.717
5	Central Afr. Rep.	2.750	22	Myanmar	-
6	Chad	2.375	23	Nepal	3.292
7	Comoros	2.542	24	Sierra Leone	3.258
8	Congo, Dem. Rep.	2.667	25	Solomon Islands	2.783
9	Congo, Rep.	2.892	26	Somalia	-
10	Côte d'Ivoire	2.700	27	Sudan	2.442
11	Eritrea	2.208	28	Timor-Leste	2.983
12	Georgia	4.442	29	Togo	2.892
13	Guinea	2.775	30	Yemen Rep.	3.167
14	Guinea-Bissau	2.700	31	Zimbabwe	1.975
15	Haiti	2.925		Territories:	
16	Iraq	-	32	West Bank and Gaza	-
17	Kiribati	3.025	33	Western Sahara	-

One more interesting concept that is correlated, but still different from fragility is a *conflict-affected status*. The World Bank, similar to most other donors, does not provide an exact definition of a conflict-affected state. However, it usually refers in its research activities to the classification created by Peace and Research Institute of Oslo (PRIO) and Uppsala Conflict Data Program (UCDP) [WB, 2012(a), p.1]. Under this methodology, events that result into 1,000 or more battle-related deaths per year are defined as wars and events that annually cause 25 to 999 combat deaths are classified as minor conflicts [UCDP/PRIO, 2008, p.7].

State fragility is also correlated with the concept of *a post-conflict state*. The World Bank defines a post-conflict country as the one that has suffered from a severe long-lasting or a short, but highly intensive conflict, as well as a newly sovereign state that has emerged through a violent break-up of another formerly sovereign country [WB, 2012(a), p.1]. International organizations often emphasize that post-conflict countries are often fragile at the

same time and are particularly in need of foreign assistance. They speculate that aid should be adjusted in conflict-affected, as well as post-conflict states according to the specific needs of these types of countries.

Not a lot of researchers are engaged directly in the analysis of the effectiveness of donor engagement in fragile, conflict-affected, or post-conflict states. For example, on the macro level, such authors as Burnside and Dollar (2000), Collier and Dollar (2002), Collier and Hoffler (2002), Hasen and Tarp (2001), Ram (2004), Easterly et al. (2004) etc. were trying to prove or oppose the idea that aid works better in the countries with better policy environments. As a proxy for policy quality they took different indicators, for example, CPIA ratings, the Sachs-Warner index, the Burnside and Dollar (2000) policy measure etc. It can be expected that fragile or conflict-affected states, which usually have more unfavorable policy environments, would also have lower scores in these policy-environment measures. Even though these macro-level studies are closely related to the main research question of this thesis, it is still preferred to concentrate on the project-level analyses on this topic, mainly because the latter flow of literature also suits better the econometric specifications of an own empirical attempt performed in this thesis. Therefore, project-level studies on donor engagement in countries with distorted institutional environments are analyzed in more detail in this subsection.

A research work by Isham et al. (1997) is a good starting point, since they are among the first authors to carry out a study using data on World Bank-funded projects in order to establish a link between project success and civil liberties. As a dependent variable in their empirical estimations Isham et al. (1997) take project's economic rate of return, which, according to the authors, is a reliable indicator of project outcomes and is calculated similarly for all countries. They also check the main results taking OED evaluation ratings as a dependent variable. In order to capture the effect of civil liberties on WB projects, Isham et al. (1997) use four different independent variables of interest. For example, one of them is the Freedom House index, which ranks countries according to their censorship freedom for media, freedom of assembly and demonstration, freedom of political organization, free businesses and cooperatives etc. [Isham et al., 1997, p.227].

In the conclusions of their study, the authors argue that an extent of civil liberties in a country has a statistically significant impact on the outcomes of development projects implemented in this state. Isham et al. (1997) suggest that more advanced civil liberties indicate a higher level of citizen involvement and their political participation, which in turn lead to better governance and more successful project performance in these countries

[Isham et al., 1997, p.234]. This study does not use information on the state fragility exactly, but it can be assumed, knowing the definition of fragility, that more fragile countries would also have less developed civil liberties. Therefore, the analysis performed by Isham et al. (1997) is closely related in its contents and methodology to an own empirical attempt, which is described in a second chapter of the thesis.

As it was discussed in the previous subsection, some researchers, such as Kaufmann and Wang (1995), Isham and Kaufmann (1999), and Guillaumont and Laajaj (2006) also tried to determine a link between country's policy environment or stability and project performance. In line with these studies, Dollar and Levin (2005) strive to learn whether a probability of project success is greater in countries with better policy settings. In contrast to other analyses, though, Dollar and Levin (2005) do not concentrate on the quality of economic policies only (as measured by fiscal deficit, inflation, exchange rate developments etc.), but focus rather on the effects of *political regimes and institutions* on project success. This makes their research particularly comparable to an own empirical investigation, in which the measures of fragility, war, and post-conflict also reflect not only economic distortions, but political and institutional instabilities in a country as well.

In addition, Dollar and Levin (2005) stand out among previous researchers in their econometric methodology. To be exact, they do not run regressions on a project-, but rather on a country level. The authors calculate a share of successful projects in each country between 1990 and 1999 and take this value as a dependent variable in their regressions. The dependent variable is constructed based on the project success ratings as evaluated by OED. According to the authors, a percentage of successful projects varies greatly among countries. For example, in China 90 percent of WB programs in 1990's were evaluated as successful ones, while in Nigeria this share totaled to 47 percent only [Dollar and Levin, 2005, p.5]. The main independent variables of interest in Dollar and Levin (2005) study are the International Country Risk Guide (ICRG) rule-of-law index, a Freedom House (2003) score, as well as an institutional quality index from the Governance Matters dataset.

Dollar and Levin (2005) use simple OLS along with IV estimations in their analysis. They argue that the outcomes of OLS regressions are not completely trustworthy because of endogeneity problems. This issue could be caused by reverse causality, for example. According to the authors, a so-called "halo effect" could lead independent evaluators to perceive and grade projects in countries with better institutions as more successful ones. Therefore, a better policy environment in a state might cause a greater share of successful programs in this country and not vice versa. In order to deal with endogeneity, Dollar and

Levin (2005) use a few instruments, such as a country's distance from the equator, a share of population speaking English, a proportion of population speaking another European language etc. [Dollar and Levin, 2005, p.9]. The authors conclude that the rule of low and democracy have a significant positive effect on a percentage of projects in a country that are rated as successful ones. Dollar and Levin (2005) summarize that the success of development projects depends more on the quality of institutions in a recipient country than on the donor-controlled factors [Dollar and Levin, 2005, p.12].

Chauvet et al. (2010) investigate how the status of a post-conflict state influences project performance. They suggest that post-conflict countries have a higher absorptive capacity, since their public goods, such as transportation, hospitals, or schools are in a very bad condition. A higher absorptive capacity or, in other words, a greater need for investment projects is assumed to contribute to their more successful implementation. For an empirical analysis of this hypothesis, Chauvet et al. (2010) use information on more than 2,000 WB projects. The previously-discussed IEG ratings are used in this study as a dependent variable. Data on the main independent variable of interest, which is war, is taken from PRIO. Chauvet et al. (2010) choose the high intensity criterion (i.e. at least 1,000 battle-related deaths per year) for their civil war variable [Chauvet et al., 2010, p.5]. Since the detailed data on each year of project implementation is not available, it is impossible to track individual programs through time. That is why, the authors, similar to others in this branch of literature, rely on cross-section data analysis only and cannot benefit from using panel data estimation.

Chauvet et al. (2010) conclude that projects in post-conflict countries, when supported by proper preparation and supervision, are more likely to be successful than programs in their more peaceful counterparts [Chauvet et al., 2010, p.10]. Moreover, the authors find some evidence that projects in transport and urban development are more successful in post-conflict countries comparing to programs in other sectors. This finding supports their hypothesis as for a higher absorptive capacity in post-conflict states. Chauvet et al. (2010) also argue that foreign assistance in the time immediately after a conflict is more relevant and needed than in the later years.

A vast range of literature on aid effectiveness was overviewed in this chapter. At first, a theoretical background, which is based on the Harrod-Domar growth model was discussed. Afterwards, some empirical tests of the two-gap theories were analyzed. As it was shown, a majority of early-literature empirical studies focused on the usage of macro-level data and investigated the effect of aid on domestic savings and investment (e.g. Rahman (1968),

Griffin (1970), Weisskopf (1972) etc.). Starting from the 1970's the focus shifted towards an analysis of the impact of aid on country's economic growth (e.g. Papanek (1973), Mosley (1980), Gupta and Islam (1983), Mosley et al. (1987) etc.). This trend in the aid effectiveness literature was enhanced by the examination of a non-linear relationship between aid and growth, especially of the presumably different ODA effects under different policy conditions (e.g. Burnside and Dollar (2000), Collier and Dollar (2002), Collier and Hoeffler (2004), Hasen and Tarp (2001), Easterly et al. (2004) etc.).

Besides, an alternative way of studying aid effectiveness, namely the project-level data research, was also discussed (e.g. Deininger et al. (1998), Kilby (2000), Dollar and Svensson (2000), Ivanova et al. (2001), Hemmer and Lorenz (2003) etc.). As a final point of the literature review, the most well-known and widely-used definitions of fragile, conflict-affected, and post-conflict states were presented. Even though the project-level empirical research on aid effectiveness in these countries is limited, it was attempted to review some studies (e.g. Isham et al. (1997), Dollar and Levin (2005), Chauvet et al. (2010)) that are most closely related in their research subject and econometric methodology to an own empirical investigation, which is presented in the following chapter.

II. Empirical Analysis

In this chapter, an own empirical analysis is presented in detail. Being performed using project-level data, this research is closely related to the studies conducted by Deininger et al. (1998), Kilby (2000), Dollar and Svensson (2000), Ivanova et al. (2001), Dollar and Levin (2005), Chauvet et al. (2010) etc. A main contribution to this literature lies in the usage of some unique data from another donor besides for the well-explored World Bank and a comparison of the research outcomes for two organizations. In addition, this empirical analysis supplements the existing literature on this topic by investigating a slightly different and rather specific research focus, namely the correlation between state fragility, a conflict, and a post-conflict situation with the outcomes of investment projects in developing countries.

The chapter is organized as following. Section 1 describes variables that were used in statistical analysis and reveals the data sources. Section 2 shows some descriptive statistics and discusses possible correlations, which gave motivation for further statistical analysis. In Section 3, the methodology and econometric specifications of regression estimations are described in more detail. In Section 4, the results obtained from regression analyses are presented. Besides, some valuable benefits and possible shortcomings of this study are summarized and the ideas for further research are suggested.

2.1 Data and Variables

2.1.1 Main Data Sources

This empirical investigation was carried out using data for two donor organizations, to be exact, the World Bank and Kreditanstalt für Wiederaufbau. The analysis comprises data on all finished and evaluated projects of these development banks in the time period from 1963 to 2010. Such time horizon restriction is based solely on the data availability constraint. Project-level information for the WB comes from the Independent Evaluation Group's official website and is freely available for research purposes [IEG, 2011, p.1]. Data for KFW was provided by the Financial Co-operation Evaluation (FZE) department of the KFW Development Bank. In total, 8,005 World Bank and 2,143 KFW projects are used in the construction of descriptive statistics in this study. However, the number of observations that

one can see in the regression results is actually smaller. This was caused mainly by the elimination of projects for which some data are not available from regression estimations.

A selection of donor organizations for this empirical research included the following criteria. First of all, it was examined which institutions have freely-available relevant data that are suitable for further statistical analysis. Secondly, evaluation methods of different donors were considered. For example, it was preferred to select organizations that carry out independent evaluation. In line with Banerjee and He (2008), who review in their study development projects of the WB, the Asian Development Bank, and some other international organizations, it was discovered that only a couple of donors perform independent evaluation [Banerjee and He, 2008, p.69]. The World Bank and KFW are some of them.

Even though investment projects of the WB and KFW Development Bank are rather similar in their motivation, organization, implementation, as well as evaluation techniques, it was decided not to combine the two datasets, but rather estimate and compare the research outcomes for two donors separately. One of the reasons for this step was a different scale of engagement of two organizations, which might result into potentially different standards of the evaluators. The World Bank is certainly a larger, more closely followed by the public donor institution. It relies on multilateral funding coming to a great extent from a few developed countries. On the other hand, the KFW, which works mainly on behalf of the German Federal Ministry for Economic Co-operation and Development (BMZ), can be described as a smaller bilateral donor organization. The WB sees itself as a leader in boosting economic development, while KFW has more focused tasks and smaller scale of engagement.

Besides for project-level data, some information on country-level variables was needed for the regression estimations. For example, the construction of a *War* dummy, which is one of the main independent variables of interest, was carries out using data on the episodes of armed conflict provided by the International Peace Research Institute of Oslo [PRIO, 2009, p.1]. Another important control variable, namely state *Fragility*, was generated using the State Fragility Index (SFI). SFI, which was developed by George Mason University and the Center for Systemic Peace, is freely available online and suitable for empirical research [INSCR, 2011, p1.]. Such further country-level variables as *GDP per capita, GDP growth, Life Expectancy, Population, Inflation,* as well as *Current Account Balance, Trade Share,* and *Investment Share* were built using data from the World Bank's World Development Indicators (WDI) databank [WB Development Indicators, 2011, p.1]. This is a data source that both the WB and KFW rely on while planning, implementing and evaluating their projects, which makes it most consistent with and suitable for this empirical analysis.

2.1.2 Project Success as a dependent Variable

A function depicted earlier in Equation 8 and repeated once again below lies in the core of a baseline estimation model of this study.

Project Success = f (costs, duration, country's GDP, population, conflict,…)

Following this equation, the main goal of this research is to determine which factors influence success of development projects in low-income countries and to check whether state fragility and conflict are some of them. For an empirical analysis of this type it is essential to agree on the definition of project success, which is used as a dependent variable. In this subsection, the construction and main features of a *Project Success* dummy are clarified.

Ideally one would define a project success through a measure, which not only compares planned costs with the actual expenses on a project, but also assesses a broader impact of a program on the overall region's development and on a macroeconomic situation in a country. However, it is difficult to find a variable that captures these aspects of projects' effects consistently across different sectors and different countries. In this study, the evaluation ratings of the Independent Evaluation Group for the WB projects and grades of the Financial Co-operation Evaluation department for the KFW development projects are taken as a proxy for project success. This approach is in line with such studies as Kaufmann and Wang (1995), Isham and Kaufmann (1999), Dollar and Svensson (2000), Ivanova et al (2001), Hemmer and Lorenz (2003), Levin and Dollar (2005) and others who in their empirical research also use project-level data from different donor organizations, in order to determine factors that contribute to project success or failure.

Originally, success of a project is evaluated on a scale from one to six for the KFW and from one to four for the WB. Evaluation results range from "highly satisfactory" to "highly unsatisfactory" for both organizations. An average project performance for KFW is rated with "satisfactory". As for the World Bank, an average project performance is between "satisfactory" and "moderately satisfactory". In order to ease an interpretation of the outcomes in regression analyses, a binary *Project Success* variable was generated, which takes a value of one if a project is considered to be successful and a value of zero otherwise. According to the definition used in previous literature and in this study, a successful project is the one with such ratings as "highly satisfactory", "satisfactory" or "moderately satisfactory";

a non-successful program might be rated with “highly unsatisfactory”, “failure”, “unsatisfactory”, or “moderately unsatisfactory.”

There are some advantages and disadvantages of using project evaluation ratings as a dependent variable in regression analyses. For example, one of the benefits of relying on the evaluation ratings is that they are done by independent evaluation departments, which implies that their employees were never engaged into the implementation of a given project on any of its stages. The evaluators also usually have a good experience in the assessment of project outcomes and are trained to apply the latest evaluation techniques. Besides, as emphasized by Kilby (2000), evaluation methods are rather consistent across sectors and countries. It might be, therefore, expected that the assessment ratings provide a comparable representation of project outcomes, at least for the projects evaluated by experts from one organization [Kilby, 2000, p.235].

An evaluation strategy of the World Bank, as well as KFW is also rather well-planned. It is based on the recommendations from the OECD Development Assistance Committee (DAC) [OECD/DAC Working Party on Aid Effectiveness, 2002, p.17]. According to these recommendations, a main goal of project evaluation is to assess an *overall development impact* of a certain project, relying on such factors as its efficacy, relevance, significance, efficiency, and sustainability. These principles are designed to estimate not only whether a project met its direct goals at reasonable costs, but rather if it reached its broader aim. Namely, they help to measure the contribution and significance of a project for a country/region as a whole, as well as the viability and sustainability of achieved results.

However, there are also some disadvantages of using evaluation ratings as a dependent variable in regression estimations. For example, as pointed out by Kaufmann and Wang (1995), the outcomes of an evaluation might be rather subjective [Kaufmann and Wang, 1995, p.755]. Even though evaluators follow a determined set of criteria while assessing a project, there still might be a bias caused by different standards and expectations of different experts. Secondly, it might be a case that the evaluation criteria do not capture a real impact of a project. For example, even though an evaluation is usually carried out a few years after the project completion, there still might be not enough time for the real project effects to show. Besides, it is quite difficult to measure and balance out an impact of a project in all the various aspects in which it could have influenced a region or a country.

Since no other data on project outcomes are available, I proceed with empirical analysis using evaluation ratings as a proxy for project success. It is assumed that even if an evaluation grade does not capture a project’s true impact on country’s development, it still

measures rather well the actual project performance comparing to its goals. As Hemmer and Lorenz (2003) argue, positive outcomes on a project level are a necessary precondition for the positive macroeconomic impact of foreign assistance [Hemmer and Lorenz 2003, p.512]. It is suggested that if a project met its direct goals, which is easier to measure, there are more chances that it will have a positive influence on the overall economic situation in a region. However, since my results rely on the data from only two donors, the external validity of the conclusions might be questioned. If the two organizations analyzed in this study follow some special motives or standards during project evaluation, then the outcomes of this analysis would be of a rather narrow interest and valid only for these particular donors and could not be generalized for other institutes.

2.1.3 State Fragility, Conflict, and Post-Conflict Status as the Main Independent Variables of Interest

As it is shown in Equation 8, the main research goal of this empirical study is to determine which factors influence outcomes of development projects and whether or not fragility, a war, and a post-conflict situation are some of them. After a dependent variable was defined in the previous subsection, it is also important to identify the main independent variables of interest (i.e. state fragility, conflict, and post-conflict situation) in regression analyses. As earlier mentioned, a *War* dummy was built using PRIO databank, which covers a time period from 1946 to 2011. PRIO classifies conflicts into wars and minor conflicts. According to PRIO, minor conflicts are the ones with between 25 to 999 battle-related deaths per year; while wars are armed conflicts with more than 1,000 annual combat deaths [USDP/PRIO Codebook, 2008, p.9].

In the econometric analysis carried out in this study, just wars and not minor conflicts[2] are considered. This distinction was made in an attempt to concentrate only on larger and more rare conflicts, which are assumed to have not only more significant outcomes in terms of victims, but also a more important socio-political background. It is assumed that a war is especially likely to occur in a country with more developed opposition forces, which are seeking some radical political reforms and deep institutional changes.

[2] As a robustness check, the main results of regression estimations were tested using minor conflict instead of war as identification for conflict-affected courtiers. This step led to the results which are in line with the main findings reported in this study.

A zero-one *War* variable was generated for indicating all projects with at least one year of war during their implementation and separating them from programs that were conducted in the time without a severe conflict in a country[3]. Following this definition, approximately twenty percent of all WB projects were distressed by a war. Roughly the same share of war-affected projects is observed in the KFW dataset. It is assumed that the remaining eighty percent of projects were carried out in a relatively peaceful time. According to the hypothesis that is tested in this empirical analysis, there is a negative correlation between a *War* dummy and the probability of project success. A conflict in a country could, for example, damage infrastructure, education and health care provision, as well as reflect some political instability in a country, which would consequently lead to comparatively worse project performance.

In order to fully explore the effect of a war on project success, another binary variable *Post-War* was generated. This dummy takes a value of one if a project was implemented in a country that had a war in the past fifteen years; and a value of zero otherwise. A reference group in this case consists of projects that were implemented in countries without a war in their recent history. Such a definition of a post-war situation follows the argumentation of Chauvet et al. (2010), who also do research on project performance in post-conflict states [Chauvet et al., 2010, p.4]. The authors find some evidence for the unusually-effective World Bank development projects in post-war countries [Chauvet et al., 2010, p.7]. However, according to their study, the necessary pre-conditions for more successful project outcomes in post-war countries are proper preparation and supervision. Since data on the latter two variables are not available in this study, I cannot investigate the impact described by Chauvet et al. (2010) to the full extent.

Collier and Hoeffler (2004) use macro-level data to analyze aid effectiveness in post-war countries. According to the authors, a few years after a conflict an absorptive capacity of a country increases significantly and leads to a more efficient aid usage [Collier and Hoeffler, 2004, p.1140]. In this empirical analysis, it is attempted to check Collier and Hoeffler (2004) results, which are usually found on a macro level, using some micro-level data on project success. Therefore, according to the second hypothesis tested in this study, better project outcomes are expected to appear in countries which had a war in up to fifteen years before

[3] An effect of war on project success was also estimated using a continuous variable, which showed how many years of war each project had. It was found that longer war periods during project implementation have a stronger negative effect on its success. The detailed results of using this continuous variable instead of a *War* dummy are, however, not reported in this study for brevity.

the project. A state that was distressed by a war in its recent history might have experienced some fundamental institutional, socio-political, or other changes, which in turn are expected to positively affect an overall development environment in this country and thus positively influence project outcomes. In some regressions with *Post-War*, it is also controlled for a *War* dummy, in order to eliminate the potentially negative effects of a current war on project implementation and capture only the impact of previous wars. In the WB, as well as KFW datasets there are approximately twenty percent of projects that were carried out in countries, which had a war in their recent history.

Besides *War* and *Post-War*, another independent variable of interest is *Fragility*. It was modeled in a few different ways with the help of State Fragility Index. SFI takes a value from 0 to 24 and provides data for 164 countries in the time period of 1995-2010. The main advantage of using this index is that it combines the assessments of different performance dimensions of a country, such as security, governance, as well as economic and social development. For example, some of the indicators that are included into SFI are a Polity score, a war indication, Human Development Index (HDI), GDP per capita etc. According to Marshall and Cole (2011), incorporating such a broad set of aspects into the definition of SFI, allows it to capture an overall capacity of a state to manage conflict, implement public policy, as well as its ability to deliver essential services and quality of life to its people [Marshall and Cole, 2011, p.36]. SFI aims at measuring whether a state will be able to effectively respond to crises and sustain development even in the times of economic problems or political hardship. According to the third hypothesis tested in this study, higher state fragility is negatively associated with project performance, since fragile countries are seen as the ones with less favorable policy environments and less co-operative governments.

The main disadvantage of using this index, as in the case with other similar fragility measurements, is its limited time horizon. Publicly available data are for the years 1995-2010 only. This implies a significant reduction in the number of observations in empirical estimations. In the absence of any better alternative, SFI is still used in regression analyses of this study. Since it was attempted to capture the effects of only the most fragile environment on project success, a binary variable was generated for a country's fragility indication. *Fragility* dummy equals to one if an average SFI for all project years[4] lies within the range

[4] SFI for the first project year only and SFI for the last project year only were taken in separate robustness checks instead of an average SFI. The results did not differ greatly from the ones reported in this study, namely because SFI is rather constant and does not show large variability across time.

between 12 and 24, and takes a value of zero if it is between 0 and 11. According to Marshall and Cole (2011) classification, countries with SFI of 12 and higher fall under a category of "serious", "high", or "extreme" fragility. The comparison group consists of the states with "moderate", "low", and "little or no" fragility [Marshall and Cole, 2011, p.5].

Figure 1 and Figure 2 (in Appendix) show a regional distribution of the WB and KFW projects in war-affected and fragile countries. Even though a war is one of the SFI components, slightly different sets of countries are captured by the two variables. For example, most of the projects in war-affected countries were implemented in Asia, since this region had a rather intense history of war during the time period examined in this study. In particular, a lot of projects, which were carried out in India, Indonesia, Thailand, Philippines etc., were affected by a severe conflict. On the other hand, projects that were completed in fragile states were usually carried out in Sub-Saharan Africa, mainly in such countries as Ghana, Malawi, Burkina Faso, Uganda, Ethiopia etc. The Sub-Saharan Africa is also a region with the greatest number of fragile states according to Marshall and Cole (2011) [Marshall and Cole, 2011, p.5, p.30].

2.1.4 Other Control Variables

As it is shown in Equation 8, an assumption of the baseline model is that not only conflict and state fragility, but also some project-specific characteristics along with country-level factors affect project success. Specifications applied by Dollar and Svensson (2000), Ivanova et al (2001), Hemmer and Lorenz (2003), Chauvet et al. (2010) and others reasonably suggest that such project attributes, as its duration or supervision, total costs, as well as country, sector and year in which it was carried out influence its outcomes. I follow this idea including such variables as *Project Costs* and *Project Duration*, as well as *Sector*, *Regional* and *Time-Period Dummies* into the regressions.

These project-level variables are very similar for both donor organizations. The only major discrepancy concerns *Project Costs*. Namely, this variable was measured in USD for the WB projects and in EUR for KFW. Since the two datasets are not combined, but rather estimated separately in this study, a currency conversion was not carried out. Besides, the *Project Costs* variable, which was used for the WB estimation, represents the costs that were planned to be paid. At the same time, *Project Costs* in the KFW data equals to the actual disbursements (i.e. costs that were actually paid). This difference was forced by the data availability issues. *Project Duration* is measured in months in both datasets. Some descriptive

statistics on project-level variables are given in Table 1. One can easily see that on average WB projects are larger. Median financial commitments of WB projects are thirty million USD, while median costs of KFW projects are around seven million EUR. As for the duration of projects, the ones conducted by the World Bank appear to be longer taking approximately six years. A median duration of KFW projects is about four years.

As for the nature of projects that are analyzed in this study, the ones implemented by the KFW are all investment projects. They aim at providing funding to governments in developing countries, which struggle to cover specific expenditures related to economic and social development projects. These investment projects cover a broad range of sectors; however, more than half of the ones realized by KFW have to deal with the development of infrastructure and transportation, water and energy provision, as well as agriculture and financial sectors.

The World Bank carries out two major types of projects, namely investment projects and development assistance projects. WB investment projects are in their essence similar to the KFW programs described above and concern mainly such sectors as agriculture, transportation, education, finance, as well as water and energy provision. In addition, approximately ten percent of the WB projects are development assistance programs. They usually provide a direct budget support to local governments and intend to encourage policy and institutional reforms, which will lead to a set of specific development results. Chauvet et al. (2010), Dollar and Svensson (2000) etc. suggest segregating between two sorts of the WB projects. Dollar and Svensson (2000) take into consideration only development assistance programs in their analysis, for example, and ignore WB investment projects [Dollar and Svensson, 2000, p.894]. I follow this advice and, in line with Chauvet et al. (2010), distinguish between two types of WB projects generating an *Investment Project Dummy*, which indicates whether a project is an investment or a development assistance program [Chauvet et al., 2010, p.6]. In contrary to Dollar and Svensson (2000), investment projects are not excluded from the WB dataset in this study[5].

Hemmer and Lorenz (2003) are among the authors who separate loans and grants in their specifications assuming that these two sorts of funding might have a different impact on project success [Hemmer and Lorenz, 2003, p.532]. Since the data on a type of financial support is available only for the WB dataset, a *Grant Dummy* is generated just for the WB

[5] As a robustness check, the main regression estimations were carried out for the case where only WB investment projects are taken into consideration and adjustment programs are left out. This step had almost no impact on the coefficients of independent variables of interest.

sample. This dummy points out whether a project is financed with a loan, which has a very low interest that has to be repaid, or a grant, which implies a funding that does not have to be repaid at all. It can be assumed that countries that receive a grant do not have to worry about the repayment of project costs and therefore are capable of making better investments (e.g. the ones with higher risks, but greater expected returns). If this assumption holds, some positive effects of a *Grant Dummy* on project success are anticipated. However, if countries, which receive grants, are initially poorer and less likely to have successful projects, then, driven by reverse causality, a *Grant Dummy* will have a negative effect on project success.

Consistent with Dollar and Svensson (2000), Ivanova et al (2001) and others, *Regional Dummies* were included into regression analyses of this study. Such five regions as Europe, Asia[6], Middle East & Northern Africa (MENA), Sub-Saharan Africa, and Latin America & the Caribbean were identified for both datasets. Categorization of the regions complies with the internal classifications of the WB and KFW and captures some important geographic and administrative differences between developing countries. A *Regional Dummy* for Sub-Saharan Africa was usually left out from the regression specifications as a reference group for both WB and KFW analyses. It can be seen from Table 2 that WB projects were carried out mostly in Africa and Asia, while fourty-three percent of KFW projects were implemented in Sub-Saharan Africa.

In this study, I also follow specifications of Isham et al. (1997) and Hemmer and Lorenz (2003), who underline the importance of taking into account *Sector Dummies*. In total, twelve sectors were identified for the WB sample. The dummies for a water provision sector and a multi-sector category were usually excluded from regression estimations and treated as a comparison group. For the KFW dataset, fifteen *Sector Dummies* were generated and a reference group typically consisted of an emergency assistance sector.

The methodology of Guillaumont and Laajaj (2006) was also taken into consideration and *Time-Period Dummies* were added to regression estimations of this research [Guillaumont and Laajaj, 2006, p.24]. All projects were divided into three-year time periods according to their starting date. After that, nine *Time-Period Dummies* were directly included into regressions and the dummies that represent a reference group were left out. It is worth to emphasize that *Regional*, *Sector* and *Time-Period Dummies* play a rather important role in cross-section regression analysis. These variables control at least to some extent for all the

[6] This region includes both, East and South Asia

specific characteristics of various regions, sectors and time periods helping to lessen the risk of an omitted variable bias.

As shown in Equation 8, not only project characteristics, but also some general economic and political conditions in a country are expected to influence project success. For example, if a country initially has a greater level of economic development, it is assumed to have better infrastructure, more educated local workers etc. These factors are anticipated to positively affect the probability of project success. Following Dollar and Svensson (2000), Ivanova et al (2001), Hemmer and Lorenz (2003), Chauvet et al. (2010) and others it is controlled in my regressions for country's initial level of economic development and size. This is done with the help of such further controls as *GDP per capita, GDP growth*, and *Population*, which measure economic situation and size of a country in the year of a project's start. Following Dollar and Levine (2005) *ODA* variable is included into regressions that aggregate project-level data for individual countries [Dollar and Levine, 2005, p.20]. This control stands for the net ODA inflows into a country (relative to GDP) and is to some extent a substitute measure for project costs when estimations are carried out on a country- rather than project level.

Isham et al. (1997), Isham and Kaufmann (1999), Deininger et al. (1998), Ivanova et al (2001), Hemmer and Lorenz (2003) also emphasize the importance of accounting for the economic-policy environment in a country while explaining project success. In line with these authors, I include *Inflation*, *Current Account Balance*, *Trade Share*, and *Investment Share* variables into regression estimations. It is assumed that countries with smaller inflation and greater current account surplus can benefit from more favorable fiscal and monetary policies and thus a more adventurous economic position. Isham and Kaufmann (1999) and Deininger et al. (1998) also argue that country's external trade and investment policy, for which *Trade Share* and *Investment Share* are taken as proxies, can significantly influence project success [e.g. Deininger et al., 1998, p.14]. For example, a greater trade and investment openness of a state is anticipated to lead to a higher effectiveness of aid usage and therefore more successful outcomes of the development projects.

All country-level variables are used at their *averages during project implementation*. For example, if project duration includes five years, then an average GDP growth rate for these five years will be computed and controlled for in the regression analysis. It is assumed that this average value captures an impact of GDP growth on project outcomes to a greater extent than, for instance, the values for the first year only or the last year of a project implementation. It is worth mentioning that inclusion and exclusion of country-level factors

did not have a large impact on the main independent variables of interest. In order to demonstrate this, regression results with and without controlling for country characteristics are reported.

Table 3 presents average characteristics of the countries in which two donor organizations are engaged. They describe a typical economic environment in which projects of these donors are implemented. For instance, in the WB dataset, a median GDP per capita value is 861.9 USD, while in the KFW sample it is 499.7 USD. It can also be seen from the table that, on average, current account balances of recipient countries are in deficit, their inflation is higher than 35 percent, primary school enrollment is only around 75 percent, and life expectancy does not even reach 60 years. In general, characteristics of the countries, in which the two donors are working, are rather similar.

2.2 Descriptive Statistics

As mentioned in the introduction, a main goal of the empirical part of the thesis is to analyze which factors influence success or failure of development projects. Table 4 shows that for the WB, as well as for KFW, a little more than a quarter of all projects are considered to be non-successful by their evaluators. A share of successful projects in this study is similar to the percentages found in datasets of other researchers. For example, Kaufmann and Wang (1995), who conduct analysis for the WB programs in education and health sectors, report 80 percent of the projects in their data to be successful and 20 percent non-successful [Kaufmann and Wang, 1995, p.755]. Before proceeding to regression estimations, it might be useful to look at some descriptive statistics, in order to get a general idea of which factors might be important in explaining project success.

Table 5(a) presents major differences between successful and non-successful projects in the WB sample; Table 5(b) does the same for the KFW projects. One can see from these tables not only the differences in means of various project- and country-level factors, but also observe whether these differences are statistically significant, which indicates if they are systematic or not. According to the descriptive statistics shown in Table 5, successful projects are on average more expensive and their implementation takes less time. A larger population of a country is positively associated with successful project performance; however, the difference is statistically significant only for the WB data. More successful projects are usually carried out in the countries with a higher average GDP per capita and GDP growth. Some other variables that describe a level of country's economic and social development,

such as life expectancy, mortality rate, and school enrollment are also superior in a sample of successful projects. A higher inflation rate, along with greater investments and trade share are associated with more successful projects. However, the differences in the means of these macroeconomic factors do not always seem to be systematic.

Concerning the independent variables of interest, it was attempted to determine if a difference in the average State Fragility Indices in the samples of successful and non-successful projects is systematic. As previously described, this index varies from zero to 24; with zero indicating the less fragile and 24 the most fragile nations. It can be seen from Table 5 that a mean State Fragility Index is lower in countries where more successful projects are implemented; this difference holds and is statistically significant for the WB, as well as KFW data.

Another independent variable of interest is an indication of a war. It is shown in Table 6.1(a) that in a sample of the WB successful projects only 19 percent of them were implemented in countries with a severe armed conflict. At the same time, 22 percent of the non-successful programs were carried out in states that were distressed by a war. Table 6.1(a) presents similar statistics for the KFW data. In case of this donor, a sample of non-successful projects contains a larger share of programs in war-affected states as well. These differences appear to be statistically significant for both organizations.

Table 6.2 shows some descriptive statistics about projects implemented in post-conflict states. For example, according to Table 6.2(a), around 15 percent of the World Bank's successful projects were carried out in countries, which had a war in the past fifteen years. However, a share of such post-war projects in a sample of the WB non-successful projects is only 10 percent. A similar tendency is observed for the KFW data, which is analyzed in Table 6.2(b). For this donor organization, successful projects are also associated with a higher proportion of programs in the post-war countries. The difference is systematic for the WB, as well as for the KFW.

Such discrepancy in the characteristics of successful and non-successful projects gives motivation to continue the research and try to determine a more exact relation between project outcomes and various variables described above. Even though the limitations of available data and offered econometric tools will not allow a determination of any robust causal relations, it still might be a good idea to implement regression analysis and prove or revoke the possible correlations discussed above. The following section describes in detail all steps of the further statistical analysis.

2.3 Regression Analyses

A broader goal of this empirical analysis is to determine factors that influence outcomes of development projects implemented by two donor organizations, namely the World Bank and KFW Development Bank. The main focus, as mentioned before, lies in the estimation of the relation between conflict or state fragility and project performance. After some correlations between project success and other variables were discussed in the previous section, a regression analysis is presented in this part.

2.3.1 Model of Estimation

In this study, two types of regression analysis were carried out, namely cross-section data and panel data estimations. A baseline regression model used for the *cross-section data estimations* is shown in Equation 11.

$$Pr\,(Project\ Success\ i,j=1) = \alpha + \beta\ Fragility\ i,j + \mu\ Project\_Characteristics'\ i + \eta\ Country\_Characteristics'\ i,j + \omega\ S'\ i + \varphi\ R'\ i + \lambda\ T'\ i + \varepsilon\ i,j \quad (11)$$

where:

- *Project Success* is a binary dependent variable, which equals to one if project *i* in country *j* was evaluated as a successful one and takes a value of zero otherwise.
- *Fragility* is the main independent variable of interest; it is binary (i.e. equals one if a country of project's implementation is fragile and zero otherwise). In other regressions, a *War* or a *Post-War* dummies were used instead of *Fragility* as the main independent variables of interest;
- *Project_Characteristics'* denotes a vector of project features (e.g. *Project Duration, Project Costs, Grant Dummy* etc.);
- *Country_Characteristics'* represents a vector of country's attributes (e.g. *GDP per capita, Population, Inflation, Current Account Balance* etc.);
- *S', R'*, and *T'* are vectors for *Sector, Regional*, and *Time-Period* dummies accordingly;
- ε is an error term.

In the cross-section data estimation, each project is a unit of observation. Equation 11, similar to the function presented in Equation 8, assumes that success of a project *i* in a country *j* can be predicted by such factors as country's fragility, some project characteristics, and factors that describe overall economic conditions in a country.

Regression analysis using *panel data* was performed on a country level. In this case, each country is a unit of observation. In order to build a panel, project-level data were aggregated for each country for each year. At first, an average evaluation grade for all projects that were performed in a particular year was calculated for every country. An example is shown in an illustrative table below. If Namibia had three projects in 1999 and their individual evaluation ratings were "highly successful", "successful", and "moderately successful", then Namibia's average project performance in 1999 is "successful".

Country	***Project Number***	***1999***
Namibia	001	highly successful
Namibia	002	successful
Namibia	003	moderately successful

Further on, it is assumed that project-level data stay constant during project implementation; and if, for example, a particular project was evaluated as a successful one, it had been successful in all the years of its duration. This assumption allows using project-level data for calculating country's averages in each year of project duration. An example is presented in an explanatory table below. If project 002 in Namibia lasted from 1999 to 2002 and was evaluated as a successful one, the grade "successful" is used as one more data point calculating an average project performance for Namibia in the year 1999, as well as 2000, 2001, and 2002. As a result, an average project performance in Namibia in 1999 is "successful", in 2000 it is also "successful", in 2001 it is between "successful" and "moderately successful", in 2002 it is "successful".

Country	***Project Number***	***1999***	***2000***	***2001***	***2002***
Namibia	001	highly successful	highly successful		
Namibia	002	successful	successful	successful	successful
Namibia	003	moderately successful	moderately successful	moderately successful	

However, in line with Dollar and Levine (2005), I aggregate data only for the years, in which there were at least three projects implemented. So in an example discussed above,

average project performances for Namibia in 2001 and 2002 would not be taken into consideration, since there are less than three projects in this country in 2001 and 2002. It is assumed that using information on only one or two projects does not result into a reliable value of an average project performance [Dollar and Levine, 2005, p.5]. Panel data used in this study comprises a time period of 1963-2010. Since not all countries have projects in every year considered, an unbalanced panel is used.

In panel data estimations, a regression model shown in Equation 12 was used. According to this model, an average project performance in country *j* in year *t* is explained as following:

$$Pr\,(Project\ Success\ i,j=1) = \alpha + \beta\ Fragility\ j,t + \mu\ ODA\ j,t + \eta\ Country\_Characteristics'\ j,t + \omega\ X\ j,t + \varepsilon\ j,t \quad (12)$$

where:

- *Project Success* is a binary dependent variable, which takes a value of one if projects in country *j* in year *t* are on average successful and a value of zero otherwise.
- *Fragility*, a *War* or a *Post-War* dummies are the main independent variables of interest and represent respectively state fragility or a conflict situation in country *j* in year *t.*
- *ODA* denotes the net ODA inflows into a country relative to GDP, which following Dollar and Levine (2005) is expected to substitute a measure for project costs in the country-level regressions.
- Other independent variables under the vector *Country_Characteristics'* in Equation 12 represent the same controls as those explained through Equation 11.
- In addition, the country fixed effects *X* are included into panel data estimations.
- ε is an error term.

2.3.2 Econometric Specifications

In case of *cross-section data analysis,* Logistic regression model was applied, since the dependent variable is binary. Therefore, in the baseline regressions of this study, it is attempted to determine which factors (and to what extent) contribute to the likelihood of a development project's success. One of the main advantages of using this type of model in regression analysis comparing to Ordinary Least Squares is that Logistic model keeps the probability that one is trying to predict in an appropriate range between zero and one. One of the disadvantages of using this type of model is that the results are harder to interpret and one

has to compute marginal effects in order to see final outcomes. Robust standard errors were used in the cross-section data estimations, in order to deal at least to some extent with a heteroskedasticity problem.

Logistic regression model turned out to be one of the most appropriate estimation techniques for *panel data analysis* as well, since a dependent variable in this case is also binary. The Hausman test was carried out, in order to see whether the fixed effects or random effects model is more suitable. In both, the WB and KFW panel data samples, the test showed that the Null Hypothesis of this test, which assumes that the unique errors are not correlated with regressors, can be rejected and, as following, the fixed effects are more appropriate [Greene, 2008, Ch.9]. Another statistical hypothesis test showed that year-dummy coefficients are most likely to be equal to zero, indicating that there is no need for adding time fixed effects. As a robustness check, regressions with time fixed effects were also estimated; however, this did not change the outcomes of interest and the results of these estimations are not reported for brevity.

It is important to note a few advantages of using a panel comparing to cross-section data. First of all, a panel adds a time dimension to the estimation. In other words, it is not only comparing the variables across countries and how they influence project outcomes at one point in time; a panel also gives an opportunity to compare how a change in country's characteristics over time contributes to the change of average project performance in this country over the years. Moreover, using a panel gives an opportunity to add *country fixed effects* and therefore control for all country-specific characteristics that do not change over time (e.g. culture, location, historical background etc.). However, one of the disadvantages of including country fixed effects is an inability to control separately for some specific variables that are different across countries but constant in time. For example, *Regional* dummies were not included into panel-data estimation exactly because of this reason. An addition of the *time fixed effects* would have controlled for all the factors that are specific to one year, but common to all countries at the same time (e.g. a global economic downturn, international political instability etc). However, as explained above, an inclusion of time fixed effects was not suitable for an empirical analysis of this study.

In the WB and KFW panel samples, it is possible to see how often the dependent binary variable switches from zero to one and vice versa. For example, Table 7(a) shows that around 91 percent of countries with the "successful" average project performance in a given year will keep this position in the next year. Only around ten percent of countries are going to switch this status to the non-successful project performance. This type of analysis for KFW

can be seen in Table 7(b). It leads to very similar conclusions, since around 93 percent of countries in this sample keep their status of "successful" longer than one year. It can be concluded that the dependent variable does not switch very frequently between categories.

Only a *War* and *Post-War* dummies were used as independent variables of interest in panel data estimations. They have a long enough time span and do not remain constant over time providing enough zero-one "switches" for a panel data estimation to be meaningful. As for the *Fragility* variable, it was not used in panel data regressions. Controlling for this variable reduces samples significantly, because the data on SFI are available starting from 1995 only. Besides, state fragility appears to be rather constant over time and numerous statistical tests showed that controlling for this variable in panel data estimations, especially with the usage of country fixed effects, is not reasonable.

2.4 Results and Discussion

In this part, the outcomes of regression analyses, which were obtained using estimation models and variables described in the previous sections, are discussed in detail. It is also attempted to compare results received in this study with the findings of other authors, who work in the relevant areas of research. In the beginning, the results obtained from cross-section data estimation are discussed. As a second step, the panel-data assessment outcomes are analyzed. At the end of this section, possible benefits and shortcomings of this empirical attempt are formulated.

2.4.1 Regression Outcomes from Cross-Section Data Estimation

Outcomes of cross-section data estimations are presented in Table 8, Table 9, and Table 10. In all these tables, *Project Success* is a dependent variable. In the regressions of Table 8, a *War* dummy is the main independent variable of interest. In the results presented in Table 9, the main explanatory variable is *Post-War*. As for the Table 10, the main independent variable of interest here is *Fragility*. Besides for the same dependent variable, all the tables have either identical or very similar control variables. This is meant to increase the comparability of regression results. Controls in Table 10 are slightly different, because *Fragility* appears to be highly correlated with some of the independent variables used in previous estimations, since some of these factors, e.g. GDP per capita, are already included into the calculation of State Fragility Index and, as following, into a *Fragility* variable.

One of the possible caveats of my estimations can be mentioned already on this stage. Namely, one should not forget about an *endogeneity problem* that arises, for example, from including *Project Duration* as a control variable into this type of regressions. Since donor organizations are allowed to adjust duration of a project based on the assessment of its annual success, a reverse causality might be an issue for this variable. In other words, it is not clear whether projects are less successful because their implementation takes longer time, or whether their duration is longer precisely because they are seen as failing and donors decide to spend more time on them. Dollar and Svensson (2000), Ivanova et al. (2001), Hemmer and Lorenz (2003) and others deal with endogeneity using an instrumental variable for project duration. It is a rather difficult task to find a factor that fulfills requirements of a valid instrument, to be exact that is correlated with the project-level characteristics, but not with its performance. Dollar and Svensson (2000), for example, estimate which country-level factors do not affect project success and use these variables as instruments for endogenous variables. The authors argue that initial per capita GDP, population, and regional dummies can be used as instruments [Dollar and Svensson, 2000, p.902].

In this study, the example of Dollar and Svensson (2000) is not followed. Even though some factors might appear to have no significant impact on project outcomes in my estimations, this effect can change under other specifications or additional robustness checks (i.e. these variables could still be correlated with the project success). A poor instrument can, in turn, lead to biased regression results. Since literature on a project-level data analysis does not provide any better alternatives for an instrumental variable, I continue simply without using one. However, in the regression outcomes of this study, the results with and without "possibly-endogenous" project-level characteristics are reported. Consequently, one can see that leaving variables that might suffer from a reverse causality problem out of the estimations does not have a significant influence on the control variables of interest. Regression results without country-level variables are also reported for all models. This shows that the key findings are not driven by a hidden correlation between main independent variables of interest and countries' attributes.

In Table 8, the first three columns refer to the World Bank dataset, and the last three to the KFW sample. The main findings presented in this table support the initial hypothesis. Namely, holding other factors constant, a *War* in a country during project implementation has a significant negative effect on the probability of this project to be successful. For example, other relevant factors being constant, WB projects in war-affected countries are on average

approx. four percent less likely to be successful than projects in peaceful states. As for the KFW projects, an effect of war on them is also significant and negative accounting for around seven percent of a decrease in the likelihood of project success. These results are in line with the conclusions of some other researchers. For example, Guillaumont and Laajaj (2006) also try to determine the factors that influence performance of the World Bank projects. The authors find some evidence that a war in a country during development project's implementation significantly reduces the probability of its success [Guillaumont and Laajaj, 2006, p. 25].

Table 9 shows results of regression analyses with a *Post-War* dummy as the main independent variable of interest. It can be seen from the table, that for both WB and KFW datasets, this variable has a statistically significant positive effect. Holding other factors constant, a war in a country in the past fifteen years increases the probability of WB project success on average by around five percent comparing to the projects that were implemented in countries with no war in their recent history. The effect for KFW is very similar; *Post-War* accounts for an approx. six percent increase in the likelihood of a KFW project's success. The impact of a *Post-War* variable stays significant even after a *War* dummy is controlled for.

These results are consistent with the findings of some authors, who investigated economic growth of post-war countries on a macro level. For example, Collier and Hoeffler (2004) argue that countries that are recovering from a war have a higher absorptive emphasize and therefore are more likely to benefit from development aid. The authors conclude that financial resources and policy advice are of a greater relevance in post-conflict states and therefore aid demonstrates higher effectiveness in these countries [Collier and Hoeffler, 2004, p.1136]. My empirical findings are also consistent with Chauvet et al. (2010), who investigate micro-level data from the World Bank. They argue that a post-conflict status of a country, when supported by proper preparation and supervision, increases probability of project success [Chauvet et al., 2010, p.7].

In the regression outcomes reported in Table 10, *Fragility* is the main independent control of interest. It can be seen that in both, WB and KFW data samples, projects in highly fragile countries are less probable to be successful. On average, holding other factors constant, a status of high fragility, as defined with the help of SFI, decreases the likelihood of project success by around nine percent for the WB and by approx. seven percent for the KFW programs. In columns WB(1) and KFW(1), it is shown that a negative effect from a higher *Fragility* stays even when other controls are excluded from the estimation.

Even though research of earlier authors did not deal with the topic of fragility in particular, findings obtained in this study are still in line with the results of previous literature. For example, Ivanova et al. (2001) find some evidence that political instability and ethnic fractionalization, which are closely associated with a high-fragility status of a country, have a significant negative effect on the probability of IMF project success [Ivanova et al., 2001, p. 38]. Isham et al. (1997) investigate an influence of improving civil liberties on WB project success. They argue that greater socio-political freedom, rights, equality etc. create a more favorable environment for development projects and lead to a higher economic rate of return on them [Isham et al., 1997, p.227]. More developed civil liberties described by Isham et al. (1997) are comparable to lower state fragility, which makes findings of these authors consistent with the results received in this empirical analysis.

As for the other control variables included in Tables 8-10, project characteristics seem to be rather significant in the determination of project success. For example, *Project Costs* appear to have some significant positive effect on its success for some KFW regressions, but are not statistically significant for the WB sample. An increasing *Project Duration* appears to have a statistically important negative impact on project success for both donors; and yet a magnitude of this effect is not large. A *Grant Dummy* seems to contribute to WB projects success. This suggests that grants of this donor have more chances to succeed than the loans. At the same time, *Investment Project Dummy*, which distinguishes between WB investment projects and development assistance programs, does not seem to play a role in the determination of project performance.

Dollar and Svensson (2000), Ivanova et al. (2001), Hemmer and Lorenz (2003) and others who include project-level factors, which are under donor's control, into their regressions argue for the statistically significant impact of these variables on project performance (especially before they deal with the endogeneity of these factors). Besides, similar to my conclusions, other authors also tend to discover a positive impact of higher *Project Costs* and a negative influence of a longer *Project Duration* or supervision, which is closely related to the duration [see e.g., Hemmer and Lorenz, 2003, p.526]. Chauvet et al. (2010) segregate between International Development Association (IDA) funding, which is mostly grants, and the International Bank for Reconstruction and Development (IBRD) aid, which typically consists of loans. In line with my findings, the results of these researchers also show some evidence that projects financed with grants are more likely to be successful. Moreover, an *Investment Project Dummy* in Chauvet et al. (2010) estimations does not appear

to have a significant impact on project success, which is also consistent with regression outcomes of this study [Chauvet et al., 2010, p.6].

Tables 8-10 also present the effects of country-level characteristics on project outcomes. In general, a statistical significance of macroeconomic and socio-political controls is much smaller in KFW sample comparing to the WB dataset. For example, a faster *GDP Growth* and a larger *Investment Share* have a statistically significant positive influence on successful outcomes of WB projects; however, the magnitudes of these effects are rather small. At the same time, these and other macro-level variables usually appear to be not statistically significant for the KFW sample.

These findings are consistent with the results obtained by other researchers. For example, Kaufman and Wang (1995) and Kilby (2000) also find some evidence that *GDP Growth* has a positive association with successful outcomes of WB projects, even after controlling for many other relevant factors [see e.g., Kilby, 2000, p.246]. A significant positive effect of an *Investment Share* variable is in line with the initial hypothesis, namely it supports the idea that greater country's openness and cooperation with the rest of the world positively effects project performance in this states. Deininger et al. (1998) who also take advantage of the WB project-level data find a significant positive impact of growing investments as well [Deininger et al., 1998, p.33].

In the regression results shown in Tables 8-10, similar to Kilby (2000), Ivanova et al. (2001), Guillaumont and Laajaj (2006), Chauvet et al. (2010) etc., the other country-level characteristics, such as *Population*, *Inflation*, *GDP per capita*, and *Trade Share*, do not turn out to have a statistically significant influence on project success [see e.g., Chauvet et al., 2010, p.10]. In the regression analysis of Hemmer and Lorenz (2003), who investigate which factors affect success of the KFW investment projects, macroeconomic variables, such as budget balance, inflation, and trade openness appear to be only marginally significant or to lose their statistical significance at all once the project characteristics are included into estimations [Hemmer and Lorenz, 2003, p.540]. These outcomes are consistent with the little significance of country-level factors in the KFW results of this study.

Sector, *Regional*, and *Time-Period Dummies* were always controlled for in all cross-section data estimations[7]. It can be seen that in case of the World Bank data, projects that were started in all other regions of the world are more likely to be successful comparing to

[7] Even though some *Sector* and *Time-Period Dummies* turned out to be statistically significant, detailed results on these variables are not reported with an intention to save space.

the ones that were implemented in Sub-Saharan Africa (which was treated as a reference group in all regressions). The magnitude of this effect is also rather large. For example, column WB(3) in Table 8 shows that if a World Bank project was carried out in Asia, it is on average approximately 13 percent more likely to be successful comparing to a project started in Sub-Saharan Africa, holding other variables constant. This outcome is in line with results obtained by Dollar and Levine (2005), who also find some evidence for a lower probability of project success in Sub-Saharan Africa [Dollar and Levine, 2005, p.8].

As for the *Regional* dummies in KFW dataset, a rather different tendency can be followed here. To be exact, projects implemented in Middle East & Northern Africa seem on average less likely to be successful comparing to all other regions in the world. These results are consistent with the outcomes obtained by Hemmer and Lorenz (2003). The authors also find that, holding other relevant factors constant, KFW projects started in MENA region are on average less likely to succeed comparing to the ones implemented elsewhere [Hemmer and Lorenz, 2003, p.527].

2.4.2 Regression Results from Panel Data Estimation

Table 11 and Table 12 show the results of panel data estimations, which were carried out on the country level. *Project Success* is a dependent variable in these regressions. As explained before, it measures whether a majority of development projects in a country were successful or not in a given year. Main independent variables of interest are *War* and *Post-War* dummies. In order to provide a better comparison between all panel-data estimations, the same independent variables were controlled for. Besides, country fixed effects were included into all panel data regressions.

The key findings of Table 11 support the original hypothesis, as well as the results of cross-section data regression analyses. For example, it can be seen from column WB(2) of Table 11 that if a country's status switches from "in peace" to "in war", then its probability of having successful WB projects declines by on average around seven percent, holding other factors constant. According to column KFW(2), a country is approximately fourteen percent less likely to have successful KFW projects if a war starts. A war seems to be an important factor for the outcomes of development projects regardless if other controls are included into estimations.

Table 12 presents further key results of regression estimations, namely the impact of a *Post-War* variable. It seems that if a country's status switches to post-war, or in other words,

if a nation had a war in the last fifteen years, then this country is more likely to have successful projects than its counterparts. In case of both donors, the economic, as well as statistical significance of the post-war status is rather high. As it can be seen from columns WB(3) and KFW(3), even after controlling for a *War* dummy, which reflects whether a country is in war in a particular year, does not significantly change the main outcomes of interest. These results are consistent with the findings of the cross-section regression analyses performed in this study, as well as with the conclusions made by other authors. For example, as discussed previously, Collier and Hoeffler (2004), Chauvet et al. (2010) etc. also argue in favor of greater absorptive capacity and therefore aid effectiveness in post-war countries.

The contribution of other controls to the explanation of country' project success is generally in line with the initial predictions. For example, *GDP Growth* and *Investment Share* seem to be, similar to the cross-section estimation outcomes, positively associated with project success. Kaufman and Wang (1995), Deininger et al. (1998), and Kilby (2000) who control for these variables in their project-level regressions also argue in favor of their relevance in explaining project performance [see e.g., Deininger et al., 1998, p.33]. Increasing *ODA* inflows into a country seems to have a positive influence on the project performance of both donors. Dollar and Levine (2005), who include this factor in their country-level regressions, find no effect of total aid inflows on project success. Such a discrepancy in theirs and my results might be because of the different definitions of ODA used. In this study, ODA represents total net official development assistance. At the same time, Dollar and Levine (2005) control just for aid flows of a country [Dollar and Levine, 2005, p.21].

Rising *Inflation* in a country seems to have a negative effect on the probability of success of the WB, as well as KFW projects. An increase of another macroeconomic variable *Current Account Balance* seems to contribute positively to the performance of KFW projects only. These outcomes are consistent with macro-level findings by Hansen and Tarp (2001), Wright (2008), Raghuran and Sabramanian (2008) and others, who conclude that high inflation and negative current account or budget balance have a significant negative impact on the state's economic growth [see e.g., Raghuran and Sabramanian, 2008, p.659]. It can be suggested that these variables create an overall unfavorable economic situation in a country, which does not only slow down its growth, but also decreases aid effectiveness through hindering project planning, as well as its implementation. Kaufman and Wang (1995), who investigate WB project-level data, find some evidence that such factors as fiscal deficit and inflation negatively affect development project performance as well [Kaufman and Wang,

1995, p.759]. The authors suggest that, for example, unexpected jumps and falls in a highly-variable inflation rate can lead to inconsistencies in the panning of project financing and therefore result into costs and time overruns [Kaufman and Wang, 1995, p.754].

A negative effect of a *Trade Share* variable in the WB sample does not correspond to the initial guesses. However, Kaufman and Wang (1995), who include a measure for trade restrictiveness in their project-level estimations, find a positive association of this variable with a share of unsatisfactory projects in a country as well. The trade restrictiveness index in Kaufman and Wang (1995) analysis is comparable to a *Trade Share* measure in this study. The authors argue that the reason for such outcomes might be the fact that when trade restrictions fall and trade of a developing country starts to grow, at first the demand for unskilled labor is stimulated. Only later, when export-oriented industries upgrade, a demand for high-skilled labor will grow, giving local workers an incentive for education. According to the authors, a more educated domestic labor is one of the key determinants of project success, at least in social sectors [Kaufman and Wang, 1995, p.758]. If development projects benefit from trade increase through its stimulation of education and a supply of high-skilled labor, then this hypothesis could be applied to this study as well. However, the negative influence of *Trade Share* on project success might also be an outcome of a correlation of this factor with other controls or some further statistical issues.

2.4.3 Discussion

After a detailed description of the methodology of an empirical analysis and a presentation of the regression outcomes, it might be useful to summarize the main shortcomings, as well as major advantages of this study. Some *caveats of my estimation methods* were already mentioned previously. For example, an endogeneity problem was emphasized several times, since it is one of the most important issues that this analysis faces. Endogeneity could be caused by a reverse causality problem, as well as by an omitted variable bias. Reverse causality, as mentioned before, might arise when donor-controlled factors, such as project duration and costs are included into estimations. If these variables are driven by evaluation ratings rather than influence them, then the regressions in which they are included do not provide consistent results. One possible solution to deal with reverse causality in this case would be a usage of an instrumental variable for endogenous factors. However, in the absence of a valid instrument, this study does not take an advantage of the IV estimation technique.

In addition, an omitted variable bias could also cause endogeneity and bias results of the regressions. Even though it was attempted to control for all relevant factors that might have an impact on project performance, there still might be some observed and especially unobserved variables that were not included into regressions mainly because of the data availability constraint. For example, cross-section data analysis probably does not capture to the fullest extent all constant country-level differences, such as nation's culture, historical background, or percentage of land located in tropics. In panel data estimation, it was possible to include country fixed effects into regressions to deal at least partly with this issue. However, in case of panel, as well as cross-section data analyses, there might still be time-varying factors, which drive at the same time project outcomes and its characteristics. For example, some temporary "special interests" of a donor in a particular country or a region could lead to both, the biased project evaluation results and unusual engagement efforts (e.g. an increased funding and supervision of programs in this region).

Further shortcomings have to do with a general approach chosen for this empirical analysis. Taking evaluation ratings as a proxy for project performance is a rather risky step. Even though evaluation methods have their advantages, for example, they are independent, well-planned etc., assessment grades might still miss a true impact of development projects or suffer from subjectivity. Besides, if the evaluators of two donors analyzed in this study follow some special rules or principles, then the estimation outcomes obtained through this study cannot be generalized for other donor organizations (i.e. an external validity problem). It were helpful to perform some additional robustness checks and see whether improving evaluation grades in a country are associated with better macroeconomic characteristics of this state, such as growing GDP per capita, literacy rate, health conditions etc. However, this type of analysis is out of the scope of this study.

An additional concern that undermines the results of this empirical attempt is the fact that cross-section data analysis is performed on a project level, while panel data estimations are carried out on a country level. It would be preferred to implement panel data research using a project as a unit of observation as well. Then one might see if, for example, an increasing fragility of a country has a significant impact on project performance during the time of its implementation. In order to do so, one needs information on each project for every year of its completion. However, data available for this research does not allow tracking individual programs through time and forces to carry out the panel data analysis on a country level.

Further caveats have to do with an explanation of some effects, which were discovered through this study. In few cases, controls seem to have an unexpected impact on a dependent variable. For example, in panel data estimation, a negative influence of increasing *Trade Share* on the probability of WB project success is difficult to explain. As mentioned before, it is possible that such counter-intuitive outcomes are caused by econometric issues. For example, a high correlation between this variable and some other controls or a relatively small sample size could lead to inconsistent regression results. Besides, because of data unavailability, an inclusion of some controls into estimations automatically reduces a sample leaving out countries, for which data are not offered.

Apart from the obvious drawbacks summarized above, this study also has a few *advantages, which might be worth mentioning*. First of all, this empirical analysis is based on statistical comparison of data for two donor organizations. A well-known practice in the literature on this topic usually implies investigation of the World Bank project-level data only. Ignoring other donors, which typically work on a smaller scale comparing to the WB, is an important flaw of project-level research and this study helps to correct it at least to some extent. Besides, this empirical attempt contributes to the previous studies asking a slightly different research question. Namely, it investigates in more detail the effect of state fragility and war on project success. At the same time, earlier studies focused on the impact of some other project- and country-level characteristics (e.g. project supervision, country's economic stability, degree of democracy etc.) on project performance.

Even though this analysis suffers from quite a few statistical caveats, it was always attempted to report regression results with and without control variables that might lead to biased outcomes. For example, estimation results after the elimination of possibly-endogenous project costs and duration are presented for all models. Besides, it was endeavored to control for the same independent variables in all analogous regressions, in order to improve their comparability. In addition, even though detailed results of the robustness checks are not reported for brevity, it was discovered that a slightly different definitions of a conflict or state fragility (e.g. defining conflict through an event with up to 999 battle-related deaths per year instead of more than 1,000), as well as a different time frame under analysis or inclusion/exclusion of some other controls (e.g. addition of time fixed effects in panel data estimation) does not significantly affect the main outcomes of interest.

It was also attempted to compare the results of this study with related findings of other authors. One can see that the regression outcomes obtained though this analysis usually

do not oppose the well-known conclusions and arguments of previous researchers. In contrary, they either support or nearly replicate the well-established hypotheses and findings in a relevant flow of literature. Summarizing all the strengths and weaknesses of this research, it can be concluded that no robust casual relationships can be claimed with this study, mainly because of the restrictions of available data and limitations of offered econometric tools. However, results of this statistical analysis point to some correlations and associations between project performance and various project- and country-level factors.

Further research is needed in order to establish, for instance, how well evaluation ratings represent a true impact of a project. One could, for example, test the results obtained in this study taking some other measures, such as project's economic rate of return, as a dependent variable. Besides, it could also be a good idea to check robustness of this empirical analysis through application of some alternative definitions of fragility, war, and a post-conflict situation. For example, more research needs to be done on investigating in which years after a war the country's absorptive capacity reaches its maximum. One might argue that immediately after a conflict, a state is still in turmoil. However, a few years later its absorptive capacity rises significantly and starts declining again at some point afterwards. In this study, different stages of a post-conflict situation were not examined in such detail.

It could also be interesting to test whether at all and to what extent state fragility or a war affect a choice of countries were donors implement their projects. For example, international organizations might prefer to wait until the end of a war in a particular country before sending their staff members and starting a development project in this state. On the other hand, it could be the case that donors are "attracted" by more fragile or post-conflict countries and are trying to help them more intensively than other low-income nations. Empirical analysis of these hypotheses could contribute to the research carried out in this study.

Additional analysis needs to be done, in order to find the ways of dealing with endogeneity in project-level regressions. One could use more advanced econometric techniques and look for some reliable instruments. For example, a trustworthy instrumental variable in the cross-section data estimations on a project level would have to be correlated with donor-controlled project costs and duration, but be not related to project outcomes at the same time. Such a factor is rather difficult to find. In addition, testing the results obtained in this study with the data for other donor organizations could also enrich the knowledge about an impact of state fragility and conflict on project success.

Conclusions

This thesis provided a broad review of aid effectiveness literature and contributed to it with an own statistical analysis. For example, it was shown that the positive conclusions about aid impact on economic growth of developing countries got reflected in theoretical ideas of the Harrod-Domar model and the two-gap theories. However, little support for this point of view was found in the early-literature empirical studies on aid effectiveness, such as those by Rahman (1968), Griffin (1970), Weisskopf (1972) etc. An idea that aid impact is conditional on policy environment of recipient countries provoked another intensively-discussed debate. Burnside and Dollar (2000), Collier and Dollar (2002), Collier and Hoffler (2002) etc. were arguing in favor of this view, while Hasen and Tarp (2001), Ram (2004), Easterly et al. (2004) etc. tried to disprove it.

Since a macro-level empirical investigation of aid effectiveness was providing more questions than answers, an alternative approach of studying donor engagement using project-level data gained popularity. For instance, Deininger et al. (1998), Kilby (2000), Dollar and Svensson (2000), Ivanova et al. (2001), Hemmer and Lorenz (2003) etc. conducted research on the factors that are correlated with the performance of projects financed by the World Bank and some other donors. In line with these studies, an empirical analysis, which was carried out in this thesis, was also performed using project-level data. It attempted to determine the relation between outcomes of projects sponsored by the WB and KFW and such factors as state fragility and a war.

According to the key findings of my empirical estimations, development projects in war-affected countries are on average less successful than the ones, which are implemented in nations that are in peace. This correlation could be seen in descriptive statistics and stood through somewhat more elaborated regression analysis. The initial hypothesis of this study suggests that a war might hinder successful results of a project in different ways. For example, it could have a direct negative effect on infrastructure, education, health care provision, safety etc. in a country. Besides, it might point to political instability and more fundamental institutional problems that a nation is going through.

Further main results of this study support an idea of a positive association between country's post-conflict status and project success. These results were found in regression analysis using project-level cross-section data, as well as taking advantage of country-level panel data estimations. The findings are in line with the original hypothesis, according to which post-war nations might experience some institutional and political changes that create

more favorable policy environments, which are positively associated with higher probability of project success. Besides, post-conflict countries are assumed to have a higher absorptive capacity, since they were exhausted by a war and are looking for rebuilding their infrastructure, public facilities etc. with donors' help. It is suggested that foreign financial assistance and policy advice in these states is of a greater relevance and might, therefore, be used more effectively.

Besides the effects of war, an influence of state fragility was also analyzed in the empirical part of this study. It was found that higher fragility is correlated with a lower probability of project success, which is also in line with the original hypothesis. With a measure used as an indication of high fragility, the countries that were in war, extremely poor, or with unstable socio-political and macroeconomic conditions are captured. In other words, this variable characterizes the most vulnerable and fragile countries, which usually have governments that cannot successfully carry out their main function of providing public goods to their people. It can be assumed that such unfavorable policy environments and economic conditions could create difficulties in planning and hinder the implementation of development projects. Besides, governments of fragile countries are more likely to be corrupt and less likely to co-operate with international donors, which would also be expected to lead to less successful project outcomes in these states.

In conclusion, it can be summarized that nowadays the question of aid effectiveness remains open. A debate that started last century is still going on today, since empirical research on the macro-, as well as micro-level could not provide a robust conformation of the positive or negative influence of donor engagement on the development of recipient countries. Further research supported by the elaborated data for a greater number of donor organizations and the application of more econometrically-advanced techniques and methods could in the future shed some light on the controversial topic of aid effectiveness.

An empirical attempt performed in this study contributed to the literature on aid effectiveness by discovering some evidence for negative correlations between success of the WB and KFW projects and such factors as a war or state fragility. At the same time, a positive association between project performance and a post-conflict status of a country was found. However, it is important to emphasize that because of the data availability restriction and the limitation of offered econometric tools no robust causal relations can be argued with this empirical analysis. More research needs to be done on this topic, in order to further challenge the correlations established in this study and to verify or disprove suggested hypotheses.

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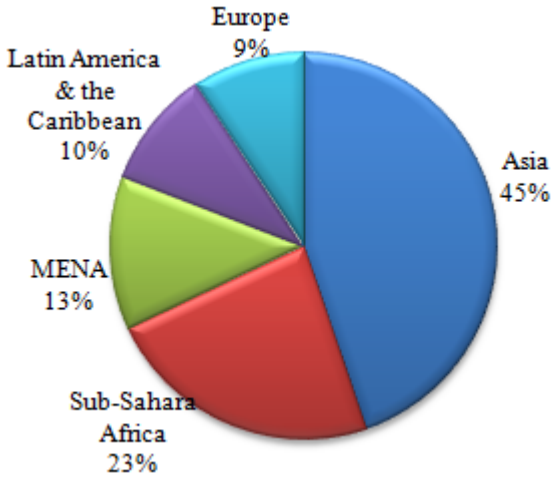
Appendix

Figure 1. Projects in war-affected countries. Regional comparison, 1963 – 2010.

a) WB Projects



b) KFW Projects

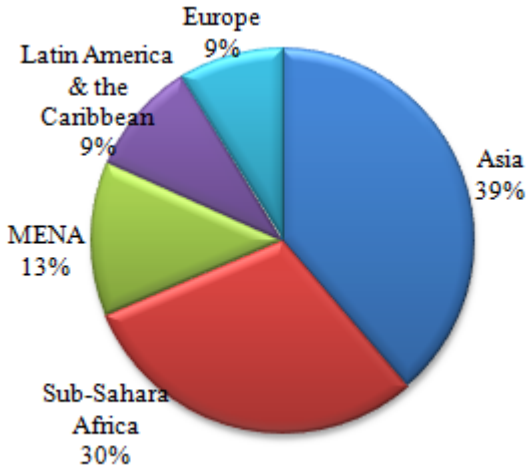
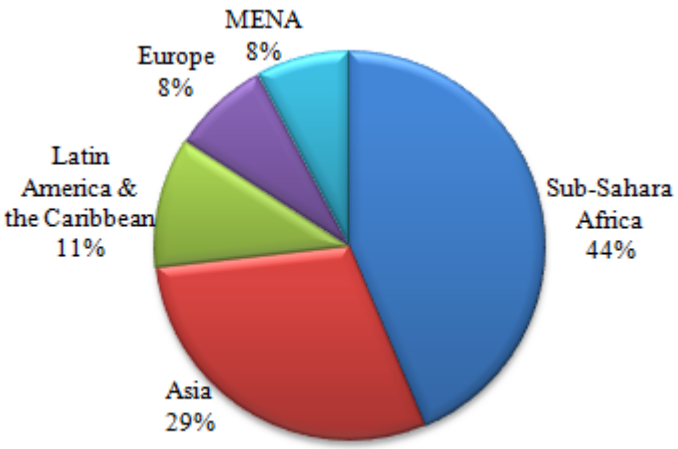
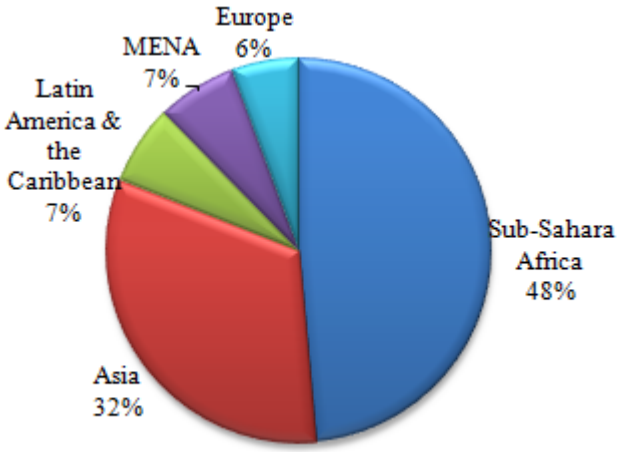


Figure 2. Projects in fragile states. Regional comparison, 1963 – 2010.

a) WB Projects



b) KFW Projects



Tabel 1. Project costs and duration (all regions, 1963 – 2010), median values.

	WB	**KFW**
Costs of a Project, financed by the bank (WB: USD; KFW: EUR)	30,000,000	7,158,087
Project Duration (months)	74	50

Table 2. Share of WB and KFW projects in different regions, 1963 – 2010.

	WB		**KFW**	
Region	Number of projects	***Percent***	Number of projects	***Percent***
North Africa and Middle East	744	9.3	223	10.4
Europe and Central Asia	1,056	13.2	189	8.8
Latin America	1,655	20.7	239	11.2
Asia and Oceania	2,229	27.9	568	26.5
Africa	2,321	28.9	924	43.1
Total	8,005	100.0	2,143	100.0

Table 3. Average characteristics of the countries, in which projects are carried out (all regions, 1963 – 2010).

	WB	**KFW**
	Median Values:	
Population, total	23,667,000	15,661,593
GDP per capita (constant 2000 US$)	861.9	499.7
	Mean Values:	
Current account balance (% of GDP)	-4.38	-5.2
Inflation, consumer prices (annual %)	39.8	35.1
Net ODA received per capita (current US$)	26.8	36.2
School enrollment, primary (% net)	78.8	73.0
Life expectancy at birth, total (years)	59.8	57.9
Mortality rate, under-5 (per 1,000 live births)	106.6	120.6
Investment Share of Real GDP per capita (RGDPL) (% in 2005 Constant Prices)	18.1	15.8
Trade (% of GDP)	56.2	57.7
State fragility index, for the projects of 1995 – 2010 only	12.03	13.81

Table 4. Success quota of WB and KFW projects (all regions, 1963 – 2010), percent.

	WB	**KFW**
Non-Successful Projects	26.63	25.19
Successful Projects	73.37	74.81

Table 5. Average characteristics of successful vs. non-successful projects (all regions, 1963 – 2010). Level of Significance: *** p<0.01, ** p<0.05, * p<0.1

a) WB Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Costs of a project (for WB: US$ for KFW: EUR)	6.82e+07	6.14e+07	-6,751,261**	(2,796,855)
Duration of a project (months)	72.3	78.6	6.239***	(0.717)
Population, total	1.29e+08	7.84e+07	-5.10e+07***	(6,987,510)
GDP growth (annual %)	4.9	3.8	-1.152***	(0.170)
GDP per capita (constant 2000 US$)	1,594.7	1,308.0	-286.739***	(50.467)
School enrollment, primary (% net)	80. 1	75.3	-4.795***	(0.857)
Life expectancy at birth, total (years)	60.6	57.5	-3.108***	(0.247)
Mortality rate, under-5 (per 1,000 live births)	101.6	120.4	18.789***	(1.819)
Current account balance (% of GDP)	-4.3	-4.5	-.168	(0.210)
Inflation, consumer prices (%)	42.2	33.2	-9.062*	(4.831)
Investment share over GDP (% in 2005 constant prices)	18.8	16.1	-2.626***	(0.266)
Trade (% of GDP)	56.4	55.5	-0.867	(0.842)
Polity Index, [-10;10]	-0.1	-1.3	-1.213***	(0.181)
State fragility index, [0;24] (reduced sample of 1995 – 2010)	11.0	12.6	1.562***	(0.224)

b) KFW Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Costs of a project (for WB: US$ for KFW: EUR)	1.46e+07	1.23e+07	-2303356**	(1,161,908)
Duration of a project (months)	110.7	140.1	29.402***	(2.656)
Population, total	1.05e+08	9.66e+07	-8,525,371	(1.36e+07)
GDP growth (annual %)	4.7	4.1	-0.617**	(0.272)
GDP per capita (constant 2000 US$)	1,134. 3	799. 7	-334.570***	(98.463)
School enrollment, primary (% net)	74.6	67.6	-6.992***	(1.872)
Life expectancy at birth, total (years)	58. 6	56. 1	-2.531***	(0.487)
Mortality rate, under-5 (per 1,000 live births)	115.7	134.9	19.241***	(3.540)
Current account balance (% of GDP)	-4.9	-5.8	-0.903**	(0.399)
Inflation, consumer prices (%)	38.3	22.0	-16.389	(11.176)
Investment share over GDP (% in 2005 constant prices)	16.1	15.3	-0.713	(0.476)
Trade (% of GDP)	58.3	56.3	-2.015	(1.551)
Polity Index, [-10;10]	-0.3	-2.5	-2.222***	(0.351)
State fragility index, [0;24] (reduced sample of 1995 – 2010)	12.3	13.2	0.965*	(0.508)

Table 6.1. Share of programs in war-affected countries in the sample of successful and non-successful projects (all regions, 1963 – 2010).

a) WB Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Share of *war-affected* projects (percent; 1=100%)	0.19	0.22	0.033***	(0.010)

b) KFW Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Share of *war-affected* projects (percent; 1=100%)	0.19	0.26	0.066***	(0.023)

Table 6.2. Share of projects in post-war countries in the sample of successful and non-successful projects, percent (all regions, 1963 – 2010).

a) WB Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Share of projects in *post-war* countries (percent; 1=100%)	0.15	0.10	-0.049***	(0.008)

b) KFW Projects

	Successful	**Non-Successful**	***Difference***	***Standard Error***
Share of projects in *post-war* countries (percent; 1=100%)	0.18	0.14	-0.038**	(0.019)

Table1 7. Transition between country's successful and non-successful evaluation grades for the panel data.

a) World Bank panel data sample.

erfolgreich_panel	erfolgreich_panel 0	1	Total
0	2,074 91.81	185 8.19	2,259 100.00
1	253 9.14	2,514 90.86	2,767 100.00
Total	2,327 46.30	2,699 53.70	5,026 100.00

b) KFW panel data sample.

erfolgreich_panel	erfolgreich_panel 0	1	Total
0	1,430 93.65	97 6.35	1,527 100.00
1	76 6.18	1,154 93.82	1,230 100.00
Total	1,506 54.62	1,251 45.38	2,757 100.00

Table 8. War and project success, cross-section data estimations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Dependent Variable: Project Success (binary); Marginal Effects.						
	WB(1)	**WB(2)**	**WB(3)**	**KFW(1)**	**KFW(2)**	**KFW(3)**
War	-0.0339*** (0.0124)	-0.0564*** (0.0149)	-0.0424*** (0.0151)	-0.0768*** (0.0274)	-0.0557* (0.0304)	-0.0758** (0.0320)
Project Costs, log	0.00612 (0.00445)		-0.00306 (0.00724)	0.0269** (0.0119)		0.0298** (0.0140)
Project Duration	-0.00158*** (0.000167)		-0.00152*** (0.000223)	-0.00122*** (0.000321)		-0.00132*** (0.000378)
Gant Dummy			0.104** (0.0489)			
Investment Project Dummy			-0.0199 (0.0247)			
GDP per capita, log		0.00459 (0.00900)	0.000901 (0.00914)		0.0148 (0.0195)	0.0179 (0.0217)
GDP Growth		0.00281** (0.00131)	0.00320** (0.00130)		0.00155 (0.00266)	0.00176 (0.00290)
Population, log		0.00344 (0.00578)	0.00533 (0.00646)		-0.00455 (0.0150)	-0.00764 (0.0164)
Inflation, log		-0.00220 (0.00586)	-0.00243 (0.00586)		-0.0225 (0.0141)	0.00477 (0.0149)
Trade Share		-0.000306 (0.000283)	-0.000369 (0.000281)		0.000186 (0.000729)	0.000421 (0.000773)
Investment Share		0.00173* (0.000882)	0.00172* (0.000883)		-0.000680 (0.00200)	-0.00144 (0.00216)
Asia	0.167*** (0.0132)	0.133*** (0.0222)	0.129*** (0.0220)	0.0303 (0.0311)	0.0641 (0.0534)	0.0791 (0.0572)
Europe	0.150*** (0.0168)	0.127*** (0.0266)	0.130*** (0.0265)	0.0995* (0.0528)	0.0937 (0.0708)	0.0625 (0.0802)
Latin America & the Caribbean	0.0940*** (0.0137)	0.0608** (0.0245)	0.0673*** (0.0244)	0.0500 (0.0419)	0.0640 (0.0568)	0.0947 (0.0660)
MENA	0.0949*** (0.0178)	0.0538** (0.0254)	0.0581** (0.0253)	-0.0687* (0.0367)	-0.104** (0.0459)	-0.119** (0.0494)
Sector Dummies:	Yes	Yes	Yes	Yes	Yes	Yes
Time-Period Dummies:	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7973	5785	5770	1398	1247	1033

Table 9. Post-war status and project success, cross-section data estimations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Dependent Variable: Project Success (binary); Marginal Effects.								
	WB(1)	**WB(2)**	**WB(3)**	**WB(4)**	**KFW(1)**	**KFW(2)**	**KFW(3)**	**KFW(3)**
Post-War	0.0457*** (0.0117)	0.0590*** (0.0138)	0.0397*** (0.0134)	0.0524*** (0.0137)	0.0871** (0.0337)	0.0459* (0.0272)	0.0771** (0.0349)	0.0521* (0.0303)
War		-0.0684*** (0.0142)		-0.0534*** (0.0144)		-0.0910*** (0.296)		-0.104*** (0.0309)
Project Costs, log	0.00443 (0.00490)		0.00207 (0.00670)	0.00352 (0.00669)	0.0270** (0.0119)		0.0304** (0.0128)	0.0312** (0.0127)
Project Duration	-0.00170*** (0.000179)		-0.00158*** (0.000197)	-0.00149*** (0.000198)	-0.00143*** (0.000307)		-0.00157*** (0.000324)	-0.00154*** (0.000323)
Gant Dummy	0.0276 (0.0338)		0.102** (0.0467)	0.105** (0.0465)				
Investment Project Dummy	0.0108 (0.0201)		-0.0112 (0.0223)	-0.0101 (0.0222)				
GDP per capita, log		0.00347 (0.00823)	0.000623 (0.00837)	-0.00117 (0.00836)		0.00693 (0.0181)	0.0188 (0.0204)	0.0182 (0.0199)
GDP Growth		0.00297*** (0.00111)	0.00359*** (0.00111)	0.00334*** (0.00111)		0.00380* (0.00222)	0.00242 (0.00237)	0.00259 (0.00236)
Population, log		0.00386 (0.00508)	0.00330 (0.00573)	0.00369 (0.00574)		-0.00412 (0.0130)	-0.00429 (0.0144)	-0.00143 (0.0142)
Trade Share		-0.000179 (0.000254)	-0.000143 (0.000253)	-0.000246 (0.000253)		0.000431 (0.000634)	0.000517 (0.000675)	0.000260 (0.000672)
Investment Share		0.00202*** (0.000752)	0.00208*** (0.000756)	0.00199*** (0.000754)		-0.000715 (0.00174)	-0.000450 (0.00188)	-0.000832 (0.00187)
Asia	0.152*** (0.0135)	0.128*** (0.0194)	0.121*** (0.0192)	0.127*** (0.0193)	-0.00978 (0.0311)	0.0482 (0.0463)	-0.00797 (0.0488)	0.000534 (0.0496)
Europe	0.149*** (0.0169)	0.134*** (0.0242)	0.124*** (0.0240)	0.134*** (0.0241)	0.0825 (0.0515)	0.0784 (0.0651)	0.0172 (0.0725)	0.0392 (0.0731)
Latin America & the Caribbean	0.102*** (0.0139)	0.0739*** (0.0223)	0.0762*** (0.0222)	0.0779*** (0.0222)	0.0513 (0.0413)	0.0970* (0.0512)	0.0934 (0.0590)	0.100* (0.0589)
MENA	0.0809*** (0.0180)	0.0509** (0.0234)	0.0504** (0.0233)	0.0558** (0.0233)	-0.103*** (0.0380)	-0.114** (0.0444)	-0.159*** (0.0466)	-0.150*** (0.0476)
Sector Dummies:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Period Dummies:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7973	6848	6833	6833	1398	1497	1259	1259

Table 10. Fragility and project success, cross-section data estimations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Dependent Variable: Project Success (binary); Marginal Effects.				
	WB(1)	**WB(2)**	**KFW(1)**	**KFW(2)**
Fragile	-0.0932*** (0.0186)	-0.0932*** (0.0225)	-0.0585* (0.0337)	-0.0728* (0.0430)
Project Costs, log		0.00365 (0.00961)		0.0165 (0.0217)
Project Duration		-0.000580* (0.000349)		-0.00129** (0.000580)
Gant Dummy		0.0205 (0.0490)		
Investment Project Dummy		-0.0365 (0.0327)		
GDP Growth		0.00321 (0.00197)		0.00339 (0.00424)
Population, log		0.00880 (0.00873)		0.00423 (0.0133)
Trade Share		-0.000174 (0.000352)		
Current Account Balance				0.00456** (0.00201)
Investment Share		0.000762 (0.00118)		-0.00595** (0.00240)
Sector Dummies:	Yes	Yes	Yes	Yes
Region Dummies:	Yes	Yes	Yes	Yes
Time-Period Dummies:	Yes	Yes	Yes	Yes
Observations	2863	2481	614	532

Table 11. War and project success, panel data estimation. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Dependent Variable: Project Success (binary); Marginal Effects.				
	WB(1)	**WB(2)**	**KFW(1)**	**KFW(2)**
War	-0.151*** (0.0318)	-0.0738*** (0.0237)	-0.178** (0.0431)	-0.141** (0.0615)
ODA		0.00440** (0.00178)		0.00635*** (0.00174)
GDP growth		0.00429** (0.00180)		0.00349 (0.00368)
Inflation, log		-0.0392*** (0.0121)		-0.0683*** (0.0183)
Current Account Balance		-0.000355 (0.00122)		0.00568** (0.00283)
Investment Share		0.00876*** (0.00422)		0.00311 (0.00372)
Trade Share		-0.00379*** (0.0113)		0.000446 (0.000102)
Country Fixed Effects:	Yes	Yes	Yes	Yes
Observations	4693	1863	2146	1312
Number of Countries	140	79	71	57

Table 12. Post-war and project success, panel data estimation. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Dependent Variable: Project Success (binary); Marginal Effects.						
	WB(1)	**WB(2)**	**WB(3)**	**KFW(1)**	**KFW(2)**	**KFW(3)**
Post-War	0.0859*** (0.0299)	0.200*** (0.0637)	0.329*** (0.0709)	0.248*** (0.0341)	0.155** (0.0449)	0.164** (0.0450)
War			-0.113*** (0.0376)			0.0771 (0.0704)
ODA		0.00306** (0.00138)	0.00527** (0.00209)		0.00594*** (0.00162)	0.00596*** (0.00160)
GDP Growth		0.00375** (0.00161)	0.00595** (0.00233)		0.00290 (0.00351)	0.00311 (0.00348)
Inflation		-0.0330*** (0.00868)	-0.0541*** (0.0148)		-0.0652*** (0.0180)	-0.0657*** (0.0180)
Current Account Balance		-8.08e-05 (0.000922)	-0.000142 (0.00159)		0.00522* (0.00271)	0.00493* (0.0269)
Investment Share		0.00623*** (0.00186)	0.0107** (0.00252)		0.00161 (0.00354)	0.00122 (0.00351)
Trade Share		-0.00281*** (0.000480)	-0.00489*** (0.000396)		0.000498 (0.000955)	0.000527 (0.000938)
Country Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4693	1863	1863	2146	1312	1312
Number of Countries	140	79	79	71	57	57