



# Assessing the impact of World Bank preparation on project outcomes

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## ABSTRACT

This paper assesses the impact of World Bank project preparation on project outcomes via a two-step estimation procedure. Using a stochastic frontier model, I generate a measure of World Bank project preparation duration based only on variation in political economy factors that are exogenous to latent project quality. Panel analysis of project data finds that projects with longer preparation periods are significantly more likely to have satisfactory outcome ratings. This result is robust across a range of specifications but the effects are conditional on the degree of economic vulnerability. The impact of World Bank preparation is greater in countries experiencing debt problems that may have fewer alternatives. Examining the impact of aid agency inputs into project preparation and design offers an alternative approach to measure the contribution of these agencies to development.

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## 1. Introduction

Assessing the impact of development aid on economic development has proven difficult. The most direct measure of aid's impact, project-level evaluation, is subject to the critique that aid is fungible (Singer, 1965). The project officially funded by an aid donor (Project A) might not be the additional project made possible via aid. If the recipient government would have undertaken Project A without donor funding, aid is fully fungible and actually finances some other activity (Project B). Thus the outcome of Project A may be irrelevant to assessing the impact of aid, giving only an upper bound that can be wildly optimistic. More generally, project-level assessments may tell very little about the overall impact of aid on economic development.

Researchers can respond to this fungibility critique in one of two ways. First, one could shift—and many have—to assessing the impact of aid flows at the aggregate level (economy-wide or across entire sectors within an economy). The results of aggregate studies have been disappointing, however. Questions about the utility of cross-country regressions (particularly as the number of studies rivals the number of available data points) resurface periodically. Concerns about the endogeneity of aid in a growth regression dogged studies until Boone (1995) proposed geopolitical instruments as a solution. Yet this “solution” rests on a strong homogeneity assumption about the local average treatment effect, i.e., that the impact of aid is independent of donor motives (Deaton, 2010; Dreher et al., 2014; Kilby and Dreher, 2010). For these and a host of other reasons, studies report a wide range of results, leaving some scholars discouraged about the potential contribution of the aggregate approach (Doucouliagos and Paldam, 2009).

Alternatively, one could adopt the narrower goal of examining what aid agencies can do to make a given aid project or program more likely to succeed. Rather than identifying the full impact of that aid, the goal is simply to measure the incremental contribution of various inputs from the aid agency. This paper follows this second approach, measuring the impact of World Bank preparation on the outcome of World Bank-funded projects and programs. Given that an aid agency will fund a particular project, steps taken to improve the results of that investment are real and measurable (if very partial) contributions of aid to development. Results may also provide important insights into the functioning of the institutions involved in delivering aid.

As an empirical exercise, measuring the impact of World Bank preparation poses two challenges. First, the amount of preparation is likely to be endogenous with extra preparation effort exerted when problems appear, that is, when latent project quality is low. Second, the World Bank does not make preparation data available to the public. To address these challenges, this paper implements a two-step estimation procedure where the first step uses stochastic frontier analysis (SFA) to generate an estimate of preparation duration from available data and the second step uses this generated regressor to assess the impact of preparation in a project performance equation estimation. To avoid endogeneity in the performance equation, preparation duration values are based solely on variation in political economy factors that are arguably exogenous to the error term in the second equation.

The rest of this paper proceeds as follows. Section 2 reviews the previous literature on World Bank project preparation as well as relevant work on the determinants of World Bank project performance. Key among these papers is Dreher et al. (2013; henceforth DKVW) which also examines the impact on project outcomes of factors linked to project approval but without the explicit connection to preparation explored in this paper. Section 3 spells out the model behind the two-step

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estimation procedure. Section 4 provides details on the first step estimation, describing the SFA approach used in Kilby (2013b) and its application here to generate an exogenous measure of preparation duration. Section 5 presents estimation results from the second step, a project performance equation that includes preparation duration as an explanatory variable. Section 6 concludes.

## 2. Literature review

### 2.1. Impact of preparation

There have been a handful of studies that attempt to estimate the impact of project preparation on outcomes, all using World Bank data. The key challenge for these studies is the likely endogeneity of preparation. Donors have inside knowledge of project prospects (i.e., latent project quality) and so provide more inputs when project performance is in doubt.<sup>1</sup> For example, when staff prepare a project that is high risk because it is a novel approach, is complex, takes place in a difficult environment, or previously has been poorly managed, they are likely to spend additional time to improve project design. As Denizer et al. (2013; henceforth DKK) point out, “high risk” projects are more likely to receive intensive preparation but also are more likely not to be satisfactory on completion. To the extent that the researcher does not observe the underlying characteristics that signal risk, estimates of the impact of preparation on performance will suffer from omitted variable bias. This bias is likely to reduce the apparent impact of preparation and, if extra preparation is only partly successful in rectifying underlying shortcomings, the measured correlation or partial correlation may be negative.

Previous studies examining the impact of World Bank preparation have attempted to solve this endogeneity problem via an instrumental variables approach. Deininger et al. (1998) include the number of staff weeks of preparation in their analysis of the performance of World Bank-funded projects. A simple bivariate analysis finds higher average staff weeks of preparation in projects subsequently rated “unsatisfactory.” In an instrumental variables analysis, World Bank project-specific inputs (preparation plus supervision) do not have a significant impact on a country’s average performance although Deininger et al. note evidence that their instruments have not fully dealt with the endogeneity problem (footnote 3).

Looking just at World Bank-funded structural adjustment programs, Dollar and Svensson (2000) find that (instrumented) staff weeks of preparation do not influence program success rates. However, Dollar and Svensson demonstrate the exogeneity of their instruments (regional dummies, per capita income, and population) by showing that these variables are not significant in a performance equation that excludes preparation. That their instruments are uncorrelated with performance guarantees the later finding that instrumented preparation is insignificant and underscores the importance of theory-based exclusion restrictions.

Malesa and Silarszky (2005) also examine the impact of preparation and supervision on World Bank adjustment projects. Using instruments selected empirically rather than based on theory, a Blundell–Smith test fails to reject the exogeneity of both preparation and supervision. Nonetheless, the authors posit that the negative coefficient estimate they find for supervision “is probably the result of having more supervision resources assigned to risky operations” (Malesa and Silarszky, 2005, 138). This points to shortcomings in the instruments that undermine the test’s ability to detect the apparent endogeneity.

<sup>1</sup> Explaining the lack of positive correlation between staff weeks of preparation and supervision inputs on the one hand and implementation status in the Adjustment Lending Conditionality and Implementation Database on the other, the World Bank (1990, 19) notes that “some loans may receive more attention because Bank staff know beforehand that implementation will be difficult.”

DKK find a negative relationship between staff weeks of preparation and eventual project outcomes. The focus of their work, however, is to describe the data (to identify early warning signs of problem projects so that World Bank management can react in a timely fashion) rather than to uncover causal relations so that the endogeneity of preparation is not problematic for the rest of their analysis.

In sum, the small literature investigating the impact of project preparation on project performance is inconclusive. While it is intuitively appealing that poor or rushed preparation may lead to poor project selection or subsequent implementation problems (and, conversely, that good preparation pays real dividends), attempts to measure the impact of preparation are not wholly satisfactory because of limitations in the instrumental variables employed.<sup>2</sup>

### 2.2. Determinants of project performance

Several previous papers examine the determinants of project performance as measured by World Bank project outcome ratings. DKVW is closest to the approach in this paper. The authors explore the impact of political factors reflecting the importance of the borrowing country (and hence privileged access to World Bank resources) on project outcomes. The basic question is whether favoritism shown to politically important countries in aid allocation has unintended negative consequences for the subsequent impact of that aid. This paper builds on DKVW by exploring shortened preparation time as the route by which political importance translates into lower performance.

The dependent variable in DKVW is a binary outcome rating. Key explanatory variables include temporary membership on the United Nations Security Council (UNSC), membership on the World Bank Executive Board, and measures of financial vulnerability (short term to total debt ratio and debt service to GDP ratio). In an analysis that includes country fixed effects, the authors find a robust link between temporary UNSC membership at the time of board approval and project outcomes, but only when the borrowing country was financially vulnerable (and hence in most need of immediate access to funds). This link persists even if the specification also includes similar political variables from the time of project evaluation, demonstrating that findings do not simply reflect rating bias.

DKK also use World Bank outcome ratings, either as a binary variable or a 1 to 6 scale. Explanatory variables include rating process variables (such as the lag between the end of implementation and evaluation and a dummy for ratings based on audits), macroeconomic/policy variables (including the World Bank’s Country Policy and Institutional Assessment [CPIA] rating), basic project characteristics (project size, duration, preparation costs, and supervision costs), and early warning indicators. A key finding in DKK is that 20% of the overall variation in project performance is cross-country variation while a full 80% is within country variation, i.e., driven by project differences rather than country differences.

## 3. Two-step estimation method

The introduction identified two challenges in estimating the impact of World Bank preparation on project outcomes. First, latent project quality may influence preparation, resulting in reverse causality

<sup>2</sup> Kilby (1994) and Chauvet et al. (2015) use World Bank evaluations of the quality of preparation (“Quality at Entry”) to assess the impact of preparation on project outcomes. Likewise, Limodio (2011) uses measures of World Bank “performance.” However, as Kilby (1994) notes, these results are hard to interpret because of a halo effect, i.e., assessment of the project outcome may inform the evaluation of preparation (or other aspects of World Bank performance), inducing endogeneity. Focusing on project supervision, Kilby (2000) circumvents the feedback between performance and supervision by examining the link between supervision over a given year and the subsequent annual change in an intermediate measure of project performance. Because project performance is not assessed on an annual basis prior to implementation, this approach cannot be applied to preparation.

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