

The Role of Technical Cooperation and Tools to Improve Monitoring

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Office of Strategic
Planning and Development
Effectiveness Department

Office of Outreach and
Partnerships

TECHNICAL NOTE N°
IDB-TN-02460

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Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Lotti, Giulia

The role of technical cooperation and tools to improve monitoring / Giulia Lotti, David Margolis.

p. cm. — (IDB Technical Note; 2460)

1. Technical assistance-Latin America. 2. Technical assistance-Caribbean Area. 3. International organizations-Latin America. 4. International organizations-Caribbean Area. 5. Economic development projects-Management-Latin America. 6. Economic development projects-Management-Caribbean Area. I. Margolis, David. II. Inter-American Development Bank. Office of Strategic Planning and Development Effectiveness. III. Inter-American Development Bank. Office of Outreach and Partnerships. IV. Title. V. Series.

IDB-TN-2460

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The Role of Technical Cooperation and Tools to Improve Monitoring

Giulia Lotti David Margolis[†]

April 2022

Abstract

This study assesses whether the deployment of Technical Cooperation operations (TCs) of the Inter-American Development Bank is related to business development and which alert indicators predict problems in TC execution. The study finds that TC approvals are associated with increases in the IDB lending portfolio in country/sectors. The associations last up to 3 years from the time of the approval. In addition, to improve monitoring of TCs in execution, attention must be given to alert indicators, such as the indicator activated when more than six months have passed since disbursement eligibility and no disbursements have taken place. The alert indicators considered also have predictive power on the unsatisfactory delivery of planned outputs.

JEL Codes: F53, H43, O22, O54

Keywords: international organizations, technical assistance, monitoring, Latin America.

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Main Takeaways

- The approval of a Technical Cooperation operation (TC) in a country/sector is positively and significantly correlated to approving at least one investment loan or policy-based loan in the same country/sector in the same year, in the year after, and in some specifications up to three years later.
- The approval of a TC in a country/sector is also associated with the probability to disburse investment loans or policy-based loans (PBLs).
- The activation of the alert indicator “over six months since eligibility and zero disbursements” for TCs seems to predict a higher number of current extensions, a higher probability of exceeding the number of extensions allowed, and higher cancellations as a share of the original approved amount.
- For TCs with an expected disbursement period greater than two years, not having a team leader in the first two years since eligibility and not having disbursements over a period of 12 months in the first two years since eligibility, are also predictors of more extensions.
- Disbursing in the first six months since eligibility reduces the risk of being classified as problematic in the first year by 22 percentage points. Overall, the activation of any of the four alert indicators considered in the analysis within two years since eligibility (“over six months since eligibility and zero disbursements”, “no active team leader”, “no disbursements in 12 months”, “no disbursements in six months”) is associated with a higher likelihood for the TC to be classified as problem or alert in the second year, and for the most part in the first year as well.
- Finally, larger TCs have a higher likelihood to have an extension, and shorter TCs are more likely to have a partial cancellation or to have the alert “disbursement deadline expired” activated. However, TCs with longer execution periods have higher probabilities of being classified as problematic in the first evaluation year.
- The findings from the study could support the selection of alert indicators, including the importance placed on specific ones.

I. Introduction

The Agreement Establishing the Inter-American Development Bank (the “Charter”¹) includes among the Bank’s functions “to provide technical assistance for the preparation, financing, and implementation of development plans and projects, including the study of priorities and the formulation of specific project proposals.” Hence, since its establishment, the Bank has directed its own capital as well as donor resources to technical assistance.

Financing for the IDB’s Technical Cooperation (TC) Program comes from two main sources: (i) income from the Bank’s Ordinary Capital allocated annually by the Board of Executive Directors to finance TCs, and (ii) donor contributions channeled through one of four vehicles: Single-donor Trust Funds, Multidonor Trust Funds, Financial Intermediary Funds, and Project Specific Grants. Despite donor preferences shifting increasingly towards reimbursable instruments, non-reimbursable TC approvals have remained steady over the past five years, with an average of 518 TCs for \$228M approved annually.²

The objective of this study is to identify: i) whether –and under which contexts – the deployment of TCs is related to business development and ii) the indicators that can predict problems in the execution of TCs.

By analyzing the link between the entire population of TCs and the entire population of investment and policy-based loans approved by the IDB between 1961-2020, the study finds that the approval of a TC in a country/sector is positively and significantly correlated to approving at least one investment loan or policy-based loan in the same country/sector in the same year, in the year after, and in some specifications up to three years later. This association translates also into a positive correlation between the approval of a TC in a country/sector and the probability to disburse investment loans or PBLs. In sum, there seems to be a positive association between the deployment of TCs and the generation of additional business between the IDB and its clients.

Given the potential of TCs to generate dialogue with a client and open the door to new business opportunities, it is fundamental that they are executed well and deliver planned outputs in a timely fashion. As is the case with other projects, TC progress needs to be monitored to avoid inefficiencies, such as delays and resources remaining idle. An alert system can support execution monitoring. To this end, the analysis assesses the usefulness of different alert indicators as warnings for execution issues. The study finds that TCs that do not disburse for over six months since eligibility are more likely to (i) have a higher number of extensions, (ii) exceed the number of extensions allowed, and (iii) cancel a higher percentage of the original approved amount. Moreover, for TCs with an expected disbursement period longer than two years, not having a team leader in the first two years since eligibility (triggered if no active IDB employee is listed as the team leader in Bank systems, for example because a team leader leaves the bank and a replacement is not assigned) and not having disbursements for one year in the first two years since eligibility, are also predictors of more extensions. Furthermore, the activation of any of the four alert indicators considered in the analysis (“over six months since eligibility and zero disbursements”, “no active team leader in the first two years since eligibility”, “no disbursements in one year within two years since eligibility”, “no disbursements in six months within two years since eligibility”) is associated with a higher likelihood for the TC to be classified as problem or alert in the second year as measured by the Technical Cooperation Delivery Indicator, and half of them are also correlated with greater chances of unsatisfactory classification in the first year. Finally, larger TCs in terms of approved amounts have a higher likelihood to have an extension, and shorter TCs in terms of planned disbursement period a higher likelihood to have a partial

¹ [Agreement Establishing the Inter-American Development Bank](#).

² Document PP-1135. [“Technical Cooperation Resource Allocation Process.”](#) IDB. March 2021.

cancellation or to have the alert “disbursement deadline expired” activated. However, longer TCs have higher probabilities of being classified as problematic in the first evaluation year.

The findings from the study could support the selection of alert indicators, including the importance placed on specific ones.

The remainder of the paper is structured as follows. Section II summarizes the data analyzed, describes the empirical strategy, and presents the results related to the relationship between TC and business development. Section III follows the same structure but focuses on TC execution. Section IV concludes.

II. Business Development

A. Data

The first part of the study analyzes all existing TCs,³ investment loans⁴ (INV) and policy-based loans (PBLs) between 1961-2020.

The Operational Guidelines for Non-reimbursable Technical Cooperation Products (GN-2629-1) describes the purpose of TCs at the IDB according to the following taxonomy:

- Operational support (OPS): to support the preparation, execution or evaluation of the current operational program - loan, guarantee or grant - contributing to its technical quality and efficiency in execution;
- Client support (CLS): to support clients in their technical assistance requests, building capacity, and helping to maintain and consolidate the Bank’s technical advisory capacity and policy dialogue with the countries; these are not linked to an existing financial product;
- Research and dissemination (RED): to support the generation of knowledge products and dissemination activities to position the Bank as a thought leader and to support an in-depth understanding of borrowing member countries’ challenges, whether at the sectorial or general policy level.

TCs can be regional (when they benefit more than one country in Latin America and the Caribbean) or national (when they benefit one country only). Information on which countries benefit from a regional TC is available, which allows for the incorporation of both national and regional TCs in a country-level analysis.⁵

OPS, CLS, and RED TCs are all considered and pooled together.⁶

Information is available for the 26 countries that benefit from IDB lending in 17 sectors.⁷ Once the data is aggregated at the country/sector level, there are 442 country/sectors observed from 1961 to 2020.⁸

³ Administrative TCs are excluded.

⁴ Only current modalities are kept, hence we drop investment loans under the following modalities: GPR, INO, PDL, PSL. We also exclude reimbursable technical cooperation operations (TCR).

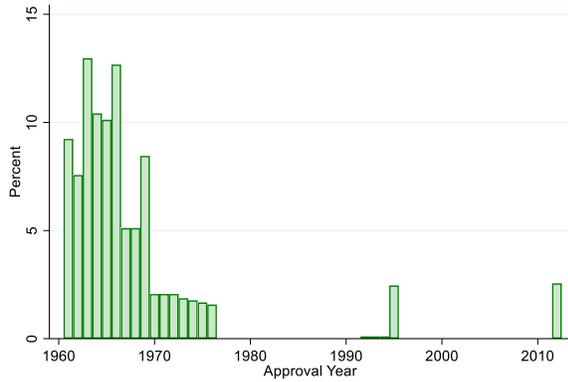
⁵ Specifically, the amounts approved by each regional TC are divided in equal amounts to each beneficiary country. For example, if a regional TC was approved for \$50,000 with five participating countries, \$10,000 would be assigned to each country participant.

⁶ A separate analysis by taxonomy could not be conducted since the taxonomy exists since 2007 only and there is not enough power to detect results.

⁷ In a robustness check we redefine sectors in a more detailed way. In that case we have 26 countries * 29 subsectors = 754 country/sectors. Please see Appendix A for which sectors and subsectors have been considered in the analysis.

⁸ As can be seen in Figure 1, most country/sectors experienced a TC for the first time in the ‘60s and ‘70s.

Figure 1. Years of approval of first TCs in country/sectors



Notes. Distribution of years of approval of first existing IDB TCs in country/sectors.

B. Empirical Strategy

To assess whether a country's interest in lending to a specific sector rises when a TC is approved, the following fixed-effects model is estimated:

$$y_{cs,t} = \alpha_0 + \sum_{k=-3}^3 \beta_k TC_{cs,t+k} + \beta_4 y_{cs,t-1} + \gamma_{cs} + \delta_t + \vartheta_{ct} + \varepsilon_{cs,t} \quad (1)$$

where $y_{cs,t}$ is the amount of investment loans and PBLs approved (or disbursed) in country c , sector s , in year t . $TC_{cs,t}$ is the amount of TCs in country c , sector s , in year t . 3 leads and 3 lags are added to the equation to evaluate what happens to investment loans and PBLs 3 years before and after a TC in approved in a country/sector. To explore whether the correlation between TCs and INV/PBLs lasts longer in time, 7 lags of $TC_{cs,t}$ will also be included in equation (1). γ_{cs} are country/sector fixed effects, δ_t are time fixed effects, ϑ_{ct} are country/year fixed effects and $\varepsilon_{cs,t}$ are standard errors clustered at the country/sector level.

In a second exercise, $y_{cs,t}$ is a dummy equal to 1 if there is at least one investment loan approved in country/sector cs at time t , and $TC_{cs,t}$ is a dummy equal to 1 if there is at least one TC approved in country/sector cs at time t . This linear probability model can inform us on whether approving a TC in a country/sector is associated with approving an INV/PBL in the same country/sector, irrespective of the amounts.

The analysis then estimates the following equation:

$$y_{cs,t} = \alpha_0 + \sum_{k=-3}^3 \beta_k First\ TC_{cs,t+k} + \beta_4 y_{cs,t-1} + \gamma_{cs} + \delta_t + \vartheta_{ct} + \varepsilon_{cs,t} \quad (2)$$

where $y_{cs,t}$ is a dummy equal to 1 if there is at least one investment loan approved in country/sector cs at time t , and $TC_{cs,t}$ is a dummy equal to 1 since the first TC was approved in country/sector cs at time t .

Finally, the study aggregates the data at the country/department level rather than at the country/sector level to investigate what happens from this different angle and see whether coordination at the department level also exists.⁹ The following equation is estimated:

⁹ The IDB Vice-Presidency of Sectors and Knowledge designs and executes the Bank's financial and non-financial products and is divided into five sectoral departments: Institutions for Development (IFD), Climate Change and Sustainable Development (CSD), Infrastructure and Energy (INE), Integration and Trade (INT), and Social (SCL). (["Regulation OR-VPS-2020-03"](#), IDB, March 2020).

$$y_{cd,t} = \alpha_0 + \sum_{k=-7}^3 \beta_k TC_{cd,t+k} + \beta_4 y_{cd,t-1} + \gamma_{cd} + \delta_t + \vartheta_{ct} + \varepsilon_{cd,t} \quad (3)$$

where $y_{cd,t}$ is the amount of investment loans and PBLs approved (or disbursed) in country c , department d , in year t . $TC_{cd,t}$ is the amount of TCs in country c , department d , in year t . 3 leads and 3 lags are added to the equation to evaluate what happens to investment loans and PBLs 3 years before and after a TC is approved in a country/department. γ_{cd} are country/department fixed effects; δ_t are time fixed effects, ϑ_{ct} are country/year fixed effects and $\varepsilon_{cd,t}$ are standard errors clustered at the country/department level.

C. Results

Table 1 reports the results from estimating equation (1). As can be seen in column (1), an additional dollar approved in TCs in a country/sector at time t , is associated with a contemporaneous increase of US\$2.7 approved in investment loans (INV) and policy-based loans (PBL) in the country/sector. The increase in TCs approved is also associated with increased INV/PBL approved 2 and 3 years after. The finding holds controlling for country/sector FE, year FE, and country/year FE. However, the specification in column (1) also exhibits some anticipations effects 3 years prior, indicating that an increase in TC approvals was anticipated by an increase in INV/PBL approved amounts in the same country/sector 3 years prior. When the time window of analysis is reduced to 1990 onwards, we no longer observe anticipation effects, but the correlation between TC approvals and INV/PBL approvals holds at time t and at time $t+3$. It could be that TCs were used to a lesser extent to support lending prior to 1990, but since that time the role of TCs at the IDB as evolved.

Given that the dependent variable and our main variable of interest are characterized by skewed distributions with large shares of zeros, tests are conducted to check that the results are not driven by outliers. First, the analysis identifies and excludes countries or sectors in which there are fewer INV, PBL or TCs. This leaves us with a sample of either 16 countries¹⁰ or 10 sectors¹¹ only. As can be seen in columns (3) and (4), results are in line when the sample is restricted to specific countries or sectors observed since 1990.

Columns (5)-(8) report the results from estimating equation (1) when the dependent variable is disbursements of INV and PBL in country/sectors at time t . Column (5) shows that increases in TC approvals at time t are associated with significant increases of INV and PBL disbursements at time $t+1$ and $t+3$. However, they are also anticipated by increases in disbursements in $t-1$. Moreover, when considering only disbursements since 1990 (columns 6-8), there is no longer a significant correlation between TCs and INV or PBLs. Therefore, while the association between TC approvals and INV/PBL approvals seems robust, the association with INV/PBL disbursements up to the 3rd lag is less clear.

Table 2 explores the dynamics of INV/PBL in the 7 year-period after an increase in approved TCs. As can be seen in columns (1)-(3), the association between TC approved amounts and INV/PBL amounts last up to 3 years only, whereas for disbursements (columns 5-6), the association appears significant and positive in subsequent lags.

¹⁰ Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded.

¹¹ Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded.

Table 1. Dynamics of INV/PBL approvals around TC approvals in country/sector

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--------------------------|------------------------|------------------------|-------------------------------|-----------------------------|----------------------|----------------------|-------------------------------|-----------------------------|
| | Full Sample | Since 1990 | Specific countries since 1990 | Specific sectors since 1990 | Full Sample | Since 1990 | Specific countries since 1990 | Specific sectors since 1990 |
| | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) |
| INV/PBL (\$) $t-1$ | 0.1196*** (0.012) | 0.0413*** (0.008) | 0.0384*** (0.008) | 0.0333** (0.015) | | | | |
| INV/PBL Disb. (\$) $t-1$ | | | | | 0.4004*** (0.044) | 0.3154*** (0.048) | 0.3123*** (0.050) | 0.2970*** (0.064) |
| TCs (\$) t | 2.6978*** (0.745) | 2.0535*** (0.559) | 2.8113*** (0.908) | 1.5535*** (0.535) | 0.6303 (0.370) | 0.2198 (0.337) | 0.3854 (0.556) | -0.1428 (0.334) |
| TCs (\$) $t-1$ | 1.7357 (1.176) | 1.1192 (1.139) | 1.4935 (1.809) | 1.0294 (1.167) | 1.1502* (0.652) | 0.7890 (0.606) | 1.2438 (0.957) | 0.5539 (0.592) |
| TCs (\$) $t-2$ | 1.3511** (0.647) | 0.5427 (0.590) | 0.9222 (0.849) | 0.6244 (0.680) | 0.6703 (0.528) | 0.3464 (0.474) | 0.4554 (0.781) | 0.1690 (0.501) |
| TCs (\$) $t-3$ | 2.5289** (0.914) | 1.8518* (0.986) | 2.7428** (1.249) | 1.8373 (1.100) | 0.8203* (0.462) | 0.5337 (0.468) | 0.8228 (0.731) | 0.3421 (0.439) |
| TCs (\$) $t+1$ | 0.7263 (0.490) | -0.0341 (0.410) | -0.3008 (0.602) | -0.5429 (0.477) | 0.4456* (0.233) | 0.0039 (0.231) | -0.1502 (0.301) | -0.4253 (0.286) |
| TCs (\$) $t+2$ | 0.4233 (0.431) | -0.4506 (0.481) | -0.7049 (0.693) | -0.9787 (0.651) | 0.4190 (0.288) | -0.0436 (0.286) | -0.1290 (0.437) | -0.2953 (0.267) |
| TCs (\$) $t+3$ | 0.9700* (0.503) | 0.1494 (0.495) | -0.0049 (0.790) | -0.1657 (0.610) | 0.3164 (0.367) | -0.1654 (0.400) | -0.4910 (0.520) | -0.6415 (0.642) |
| Country-sector FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending | 9.689e+06 | 1.560e+07 | 2.290e+07 | 2.340e+07 | 5.976e+06 | 1.150e+07 | 1.720e+07 | 1.750e+07 |
| Average TCs | 177605 | 292336 | 331003 | 431508 | 177605 | 292336 | 331003 | 431508 |
| Observations | 23,868 | 12,376 | 7,616 | 7,280 | 23,868 | 12,376 | 7,616 | 7,280 |
| R-squared | 0.225 | 0.270 | 0.267 | 0.308 | 0.395 | 0.420 | 0.411 | 0.460 |

Notes. The table reports the estimated coefficients from equation (1), where the dependent variable is the amount of INV and PBLs approved (columns 1-4) or INV and PBLs disbursed in country c , sector s , in year t (columns 5-8). TCs (\$) t is the amount of TCs in country c , sector s , in year t . When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded; when the sample is reduced to specific sectors, Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded. Data: 1961-2020.

Table 2. Dynamics of INV/PBL approvals around TC approvals in country/sector, up to 7 lags

| | (1) Full Sample | (2) Since 1990 & specific sectors and countries | (3) Since 1990 & specific sectors and countries | (4) Full Sample | (5) Since 1990 & specific sectors and countries | (6) Since 1990 & specific sectors and countries |
|--------------------------|------------------------|--|--|----------------------|--|--|
| | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) |
| INV/PBL (\$) $t-1$ | 0.1105*** (0.011) | 0.0176 (0.019) | 0.0272 (0.016) | | | |
| INV/PBL Disb. (\$) $t-1$ | | | | 0.3875*** (0.044) | 0.2353*** (0.076) | 0.2874*** (0.069) |
| TCs (\$) t | 2.6165*** (0.711) | 1.8825** (0.861) | 2.0195* (0.988) | 0.5654 (0.345) | 0.0119 (0.597) | 0.0095 (0.520) |
| TCs (\$) $t-1$ | 1.5807 (1.145) | 0.8325 (1.998) | 1.1998 (1.831) | 1.0154 (0.629) | 0.3118 (0.861) | 0.8987 (0.985) |
| TCs (\$) $t-2$ | 1.1916* (0.673) | 1.0855 (0.851) | 1.0974 (0.980) | 0.4855 (0.495) | 0.3733 (0.697) | 0.1710 (0.848) |
| TCs (\$) $t-3$ | 2.3557** (0.945) | 2.1876 (1.556) | 2.7409* (1.426) | 0.6487 (0.436) | 0.2894 (0.926) | 0.5855 (0.676) |
| TCs (\$) $t-4$ | 1.9916 (1.339) | 2.5519 (1.652) | 2.9561 (1.947) | 1.0503*** (0.292) | 0.7849 (0.570) | 0.9364** (0.402) |
| TCs (\$) $t-5$ | 0.8252 (0.533) | -0.7839 (0.958) | 0.0962 (1.005) | 2.0214** (0.903) | 1.7213* (0.873) | 3.1094** (1.450) |
| TCs (\$) $t-6$ | 0.9499 (0.617) | -0.2817 (0.819) | -0.6965 (1.500) | 0.4090 (0.599) | 0.5062 (0.643) | 0.1172 (1.300) |
| TCs (\$) $t-7$ | 1.7920 (1.093) | -0.2365 (1.653) | 1.3176 (1.571) | 2.6003** (0.969) | 1.6426 (1.392) | 3.6851** (1.323) |
| TCs (\$) $t+1$ | 0.6426 (0.446) | | -0.9671 (0.588) | 0.3628* (0.211) | | -0.6537** (0.295) |
| TCs (\$) $t+2$ | 0.2200 (0.462) | | -1.7646 (1.026) | 0.2895 (0.302) | | -0.4320 (0.402) |
| TCs (\$) $t+3$ | 0.9422* (0.489) | | -0.2666 (0.917) | 0.2954 (0.355) | | -0.9665 (0.762) |
| Country-sector FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending | 1.040e+07 | 3.640e+07 | 3.430e+07 | 6.454e+06 | 2.800e+07 | 2.600e+07 |
| Average TCs | 191785 | 521192 | 495199 | 191785 | 521192 | 495199 |
| Observations | 22,100 | 4,960 | 4,480 | 22,100 | 4,960 | 4,480 |
| R-squared | 0.230 | 0.294 | 0.305 | 0.401 | 0.406 | 0.452 |

Notes. The table reports the estimated coefficients from equation (1), where the dependent variable is the amount of INV and PBLs approved (columns 1-3) or INV and PBLs disbursed in country c , sector s , in year t (columns 4-6). TCs (\$) t is the amount of TCs in country c , sector s , in year t , and up to 7 of its lags are added. When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded; when the sample is reduced to specific sectors, Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded. Data: 1961-2020.

Table 3 disentangles the effects of regional and national TCs. Increases in the approved amounts of regional TCs are significantly associated with increases in approved amounts of INV and PBLs in a country/sector at time t and $t+3$, whereas increases in approved amounts of national TCs are associated with increases in INV and PBLs approved amounts in time $t+2$. Even if column (1) exhibits some positive anticipation effects, once the time window observed starts in 1990, they are no longer present. If anything, columns (2) and (3) show negative anticipation effects, indicating that TC approved amounts increase in country/sectors where INV and PBL approved amounts were actually decreasing. Regional TCs show no association with increases in disbursements (columns 5-8), whereas national TCs do, but not across all specifications. In sum, both regional and national TC approvals are related to the programming of other instruments (approvals), while a correlation with the execution (disbursements) holds only for the national TCs.

The estimates presented so far show a positive and significant association between approved amounts of TCs and approved amounts of INV and PBLs. Table 4 reports the results from estimating the linear probability model instead. As can be seen from column (1), the decision to approve a TC is positively and significantly associated with the probability to approve an investment loan or PBL in country/sector cs at time t , $t+1$ and $t+3$. While column (1) exhibits some anticipation effects, this is no longer true when the focus shifts to lending since 1990 (column 2), which still shows a significant and positive association between approving at least one TC and approving at least one INV or PBL in the same year, 1 year after and 3 years after. In columns (3) and (4) the sample is reduced to limit the possibility of outliers driving the results, but a positive and significant association between the approval of a TC and the approval of an investment loan or PBL in the same country/sector is still there. Columns (5)-(8) show what happens with disbursements. A TC approval is associated with a higher likelihood to disburse INV and PBLs, not at time t , but with a delay: at time $t+1$ and at time $t+3$. This finding can be reconciled with the existing lag between approvals of INV and PBLs and the time when their disbursements start.

Table 5 shows if the likelihood to approve an INV or PBL in a country/sector increases not only after a TC is approved (like in Table 4), but after the first TC in a country/sector has been approved. Most TCs in country/sectors were approved for the first time before the 1980s (Figure 1), hence column (2) is included for completeness but relies on very few new TCs. Column (1) instead clearly shows that the probability that an INV or a PBL is approved at time t increases 2 or 3 years after a TC is approved for the first time in a country/sector.

Results from estimating equation (3) are presented in Table 6. There is also an association between TC approvals and INV/PBL approvals at the country/department level, but contrary to the exercise at the country/sector level, anticipation effects are found in every specification, indicating that TC approved amounts always increase in country/departments where there were already increases in INV or PBLs approved amounts. This is consistent with the idea that decisions might be made at the department level, so the department could take advantage of spillovers that happen at the sector level within the department and increase approvals of TCs in a new sector but in a country where the department already has approved INV or PBLs.

As a final robustness check, sectors are defined at a more disaggregated level. Table 7 shows that an increase in TCs approved in a country/subsector is associated with larger INV/PBL approvals at time t and $t+3$ in columns (1)-(3), even though before 1990 there were some anticipation effects. Column (4) reinforces the findings, showing that once a TC is approved for the first time in a country/subsector, INV/PBLs are approved in the same year, and in the following years up to the 3rd lag.

We now consider whether effects are heterogenous in countries with access to additional TC resources.¹² Table 8, columns (1)-(4) report the coefficients from estimating equation (1) for country/years that do not have access to additional resources, whereas columns (5)-(8) for country/years with access to additional resources. The association between TC approvals and INV/PBL approvals in year t or subsequent periods is clear in both groups. What is different is the association between TCs approved and INV/PBLs disbursements, which is not significant in the sample of country/years which have access to additional resources.

¹² These countries were: Bolivia, Guatemala, Guyana, Honduras, Nicaragua, and Paraguay in 2011 to 2015; Bolivia, Guyana, Honduras, and Nicaragua in 2016-2019; Guyana, Honduras, and Nicaragua in 2020; Guyana, Haiti, Honduras, and Nicaragua in 2021.

Table 3. Dynamics of INV/PBL approvals and disbursements around Regional and National TC approvals in country/sector

| | (1) Full Sample INV/PBL | (2) Since 1990 INV/PBL | (3) Specific INV/PBL | (4) Specific sectors INV/PBL | (5) Full Sample INV/PBL | (6) Since 1990 INV/PBL | (7) Specific INV/PBL | (8) Specific sectors INV/PBL |
|--------------------------|-------------------------------|------------------------------|----------------------------|------------------------------------|-------------------------------|------------------------------|----------------------------|------------------------------------|
| INV/PBL (\$) $t-1$ | 0.1204*** (0.012) | 0.0423*** (0.008) | 0.0401*** (0.008) | 0.0336** (0.015) | | | | |
| INV/PBL Disb. (\$) $t-1$ | | | | | 0.4003*** (0.044) | 0.3154*** (0.048) | 0.3121*** (0.051) | 0.2965*** (0.064) |
| Regional TCs (\$) t | 4.1598** (1.751) | 3.2558* (1.675) | 5.2173* (2.769) | 3.4869* (1.949) | 0.9656 (0.645) | 0.4243 (0.616) | 0.7333 (1.077) | 0.3533 (0.656) |
| Regional TCs (\$) $t-1$ | 2.8865 (2.356) | 2.2569 (2.153) | 3.9358 (3.687) | 2.7732 (2.419) | 2.2996 (1.504) | 1.8405 (1.407) | 3.1531 (2.403) | 2.1439 (1.576) |
| Regional TCs (\$) $t-2$ | -0.1661 (0.783) | -0.7790 (0.843) | -1.3557 (1.451) | -0.2686 (0.843) | 0.7731 (0.893) | -0.2686 (0.812) | 0.8308 (1.412) | 0.6208 (0.929) |
| Regional TCs (\$) $t-3$ | 5.1911* (2.617) | 4.4256* (2.541) | 7.4135* (4.184) | 4.8226* (2.717) | 0.6215 (0.659) | 0.2726 (0.595) | 0.3833 (1.010) | 0.3815 (0.630) |
| National TCs (\$) t | 1.8828 (1.143) | 1.3395 (1.019) | 1.6964 (1.703) | 0.4196 (1.227) | 0.4341 (0.405) | 0.0835 (0.370) | 0.1745 (0.579) | -0.4442 (0.454) |
| National TCs (\$) $t-1$ | 1.1007 (0.728) | 0.4555 (0.758) | 0.1307 (0.996) | 0.0046 (0.690) | 0.4480 (0.651) | 0.0875 (0.638) | 0.1576 (1.001) | -0.4690 (0.598) |
| National TCs (\$) $t-2$ | 2.3756*** (0.797) | 1.5229** (0.662) | 2.3662** (0.920) | 1.3159* (0.749) | 0.6339* (0.366) | 0.2824 (0.306) | 0.2556 (0.435) | -0.0913 (0.376) |
| National TCs (\$) $t-3$ | 0.8623 (0.775) | 0.1482 (0.923) | -0.0844 (1.519) | -0.0897 (1.154) | 0.9752** (0.420) | 0.7459 (0.457) | 1.1172* (0.634) | 0.3745 (0.411) |
| Regional TCs (\$) $t+1$ | 1.4665* (0.822) | 0.4787 (0.752) | 0.5618 (1.327) | 0.4858 (0.800) | 0.2806* (0.160) | -0.2488 (0.185) | -0.3586 (0.318) | -0.3928* (0.216) |
| Regional TCs (\$) $t+2$ | 0.0841 (0.263) | -0.9543* (0.471) | -1.6000* (0.768) | -0.8927 (0.539) | 0.3233 (0.214) | -0.2222 (0.198) | -0.4370 (0.315) | -0.2744 (0.209) |
| Regional TCs (\$) $t+3$ | 0.6841 (0.549) | -0.2025 (0.579) | -0.3024 (1.007) | -0.1142 (0.638) | 0.4163 (0.349) | -0.1312 (0.313) | -0.2756 (0.536) | -0.3195 (0.387) |
| National TCs (\$) $t+1$ | 0.2732 (0.588) | -0.3696 (0.488) | -0.7518 (0.504) | -1.1694* (0.653) | 0.5706 (0.419) | 0.1967 (0.416) | -0.0106 (0.514) | -0.3888 (0.452) |
| National TCs (\$) $t+2$ | 0.6190 (0.740) | -0.1155 (0.834) | -0.2523 (1.159) | -1.0154 (1.028) | 0.5077 (0.377) | 0.1100 (0.415) | 0.1261 (0.595) | -0.2630 (0.356) |
| National TCs (\$) $t+3$ | 1.3917* (0.740) | 0.6827 (0.672) | 0.8891 (1.060) | 0.1480 (0.807) | 0.2488 (0.437) | -0.2081 (0.502) | -0.6129 (0.554) | -0.8387 (0.794) |
| Country-sector FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending | 9.689e+06 | 1.560e+07 | 2.290e+07 | 2.340e+07 | 5.976e+06 | 1.150e+07 | 1.720e+07 | 1.750e+07 |
| Average TC Reg | 74466 | 123935 | 105131 | 172601 | 74466 | 123935 | 105131 | 172601 |
| Average TC Non-Reg | 103139 | 168401 | 157160 | 258907 | 103139 | 168401 | 157160 | 258907 |
| Observations | 23,868 | 12,376 | 7,616 | 7,280 | 23,868 | 12,376 | 7,616 | 7,280 |
| R-squared | 0.227 | 0.271 | 0.271 | 0.310 | 0.395 | 0.420 | 0.412 | 0.461 |

Notes. The table reports the estimated coefficients from equation (1), where the dependent variable is the amount of INV and PBLs approved (columns 1-4) or INV and PBLs disbursed in country c , sector s , in year t (columns 5-8). Regional TCs (\$) t is the amount of regional TC approvals destined to country c , sector s , in year t . National TCs (\$) t is the amount of country-specific TC approvals destined to country c , sector s , in year t . Standard errors are clustered at the country/sector level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded; when the sample is reduced to specific sectors, Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded. Data: 1961-2020.

Table 4. Dynamics of INV/PBL approvals around TC approval in country/sector, Linear Probability Model

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|-------------------------|-------------------------|-------------------------------|-----------------------------|--------------------------|--------------------------|-------------------------------|-----------------------------|
| | Full Sample | Since 1990 | Specific countries since 1990 | Specific sectors since 1990 | Full Sample | Since 1990 | Specific countries since 1990 | Specific sectors since 1990 |
| | INV/PBL approvals (y/n) | INV/PBL approvals (y/n) | INV/PBL approvals (y/n) | INV/PBL approvals (y/n) | INV/PBL Disbursing (y/n) | INV/PBL Disbursing (y/n) | INV/PBL Disbursing (y/n) | INV/PBL Disbursing (y/n) |
| INV/PBL approvals (y/n) _{t-1} | 0.0695*** (0.014) | 0.0058 (0.011) | 0.0072 (0.013) | 0.0043 (0.014) | | | | |
| INV/PBL Disbursing (y/n) _{t-1} | | | | | 0.7549*** (0.008) | 0.6702*** (0.010) | 0.6859*** (0.011) | 0.6307*** (0.012) |
| TCs approved (y/n) _t | 0.0256*** (0.005) | 0.0246*** (0.007) | 0.0335*** (0.010) | 0.0290*** (0.010) | 0.0022 (0.003) | 0.0056 (0.008) | 0.0042 (0.008) | 0.0262* (0.013) |
| TCs approved (y/n) _{t-1} | 0.0172*** (0.005) | 0.0262*** (0.005) | 0.0250*** (0.007) | 0.0249 (0.015) | 0.0080** (0.003) | 0.0213*** (0.007) | 0.0202** (0.009) | 0.0290*** (0.010) |
| TCs approved (y/n) _{t-2} | 0.0036 (0.005) | 0.0050 (0.009) | 0.0199 (0.012) | 0.0259 (0.015) | 0.0013 (0.003) | 0.0044 (0.007) | 0.0127 (0.008) | -0.0019 (0.013) |
| TCs approved (y/n) _{t-3} | 0.0090* (0.005) | 0.0120** (0.006) | 0.0131 (0.008) | 0.0316*** (0.009) | 0.0099*** (0.003) | 0.0240*** (0.006) | 0.0294*** (0.007) | 0.0178** (0.008) |
| TCs approved (y/n) _{t+1} | 0.0137** (0.006) | 0.0057 (0.008) | 0.0077 (0.012) | 0.0244 (0.015) | 0.0064** (0.003) | 0.0078 (0.007) | 0.0080 (0.010) | 0.0330*** (0.011) |
| TCs approved (y/n) _{t+2} | 0.0135*** (0.005) | -0.0123 (0.011) | -0.0222 (0.016) | 0.0049 (0.022) | -0.0036 (0.003) | -0.0169** (0.008) | -0.0169 (0.011) | -0.0161 (0.014) |
| TCs approved (y/n) _{t+3} | 0.0061 (0.004) | -0.0026 (0.009) | -0.0015 (0.013) | 0.0041 (0.019) | 0.0006 (0.002) | -0.0059 (0.005) | -0.0069 (0.006) | 0.0058 (0.014) |
| Observations | 23,868 | 12,376 | 7,616 | 7,280 | 23,868 | 12,376 | 7,616 | 7,280 |
| R-squared | 0.197 | 0.246 | 0.243 | 0.263 | 0.797 | 0.756 | 0.764 | 0.763 |
| Country-sector FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending (y/n) | 0.111 | 0.135 | 0.179 | 0.195 | 0.186 | 0.359 | 0.438 | 0.487 |
| Average TCs (y/n) | 0.641 | 0.771 | 0.779 | 0.888 | 0.641 | 0.771 | 0.779 | 0.888 |

Notes. The table reports the estimated coefficients from equation (1), where the dependent variable is a dummy equal to 1 if at least one INV or PBLs is approved (columns 1-4) or if at least one INV or PBLs is disbursed in country c , sector s , in year t (columns 5-8). TCs (\$) t is a dummy equal to 1 if at least one technical cooperation is approved in country c , sector s , in year t . Standard errors are clustered at the country/sector level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded; when the sample is reduced to specific sectors, Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded. Data: 1961-2020.

Table 5. Dynamics of INV/PBL approvals around First TC approval in country/sector

| | (1) Full Sample | (2) Since 1990 |
|---------------------|------------------------------|------------------------------|
| | INV/PBL approved (y/n) | INV/PBL approved (y/n) |
| First TC t | 0.0022 (0.012) | 0.0225 (0.029) |
| First TC $t-1$ | 0.0109 (0.008) | -0.0076 (0.005) |
| First TC $t-2$ | 0.0228* (0.011) | 0.0309 (0.027) |
| First TC $t-3$ | 0.0202** (0.008) | 0.0489 (0.034) |
| First TC $t+1$ | 0.0109 (0.011) | -0.0148*** (0.005) |
| First TC $t+2$ | 0.0023 (0.013) | 0.0189 (0.029) |
| First TC $t+3$ | 0.0225 (0.019) | 0.0467 (0.035) |
| Country-sector FE | Yes | Yes |
| Year FE | Yes | Yes |
| Country-year FE | Yes | Yes |
| Average IDB Lending | 0.0124 | 0.0120 |
| Average TCs | 0.00821 | 0.00420 |
| Observations | 23,868 | 12,376 |
| R-squared | 0.074 | 0.091 |

Notes. The table reports the estimated coefficients from equation (2), where the dependent variable is a dummy equal to 1 if INV or PBLs are approved in the country/sector cs at time t . First TC t is a dummy equal to 1 since the first TC is approved in a country/sector cs at time t . Standard errors are clustered at the country/sector level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Data: 1961-2020.

Table 6. Dynamics of INV/PBL approvals around TC approval in country/department

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------|---------------------------------------|---|---|-----------------------------------|---|---|
| | Full Sample INV/PBL Approvals (\$) | Since 1990s in selected countries INV/PBL Approvals (\$) | Since 1990s in selected countries INV/PBL Approvals (\$) | Full Sample INV/PBL Disb. (\$) | Since 1990s in selected countries INV/PBL Disb. (\$) | Since 1990s in selected countries INV/PBL Disb. (\$) |
| INV/PBL (\$) $t-1$ | 0.2540*** (0.035) | 0.1138** (0.043) | 0.1467*** (0.042) | | | |
| INV/PBL Disb. (\$) $t-1$ | | | | 0.5344*** (0.072) | 0.3222*** (0.068) | 0.3888*** (0.080) |
| TCs (\$) t | -0.2518 (1.004) | -0.8006 (1.166) | -1.1155 (0.986) | 1.0067 (0.841) | 1.2792 (1.248) | 1.1316 (1.212) |
| TCs (\$) $t-1$ | 2.4853** (1.135) | 3.4105* (1.685) | 3.9325** (1.758) | 0.7989 (0.633) | 1.0892 (1.215) | 1.5856 (1.042) |
| TCs (\$) $t-2$ | 2.6445 (1.798) | 5.1187*** (1.523) | 4.4972* (2.487) | 1.6797** (0.707) | 3.9947** (1.522) | 2.8479** (1.033) |
| TCs (\$) $t-3$ | 1.1536 (1.511) | 1.1266 (1.445) | 1.5207 (2.443) | 1.5539* (0.876) | 2.8062** (1.247) | 3.6260*** (1.107) |
| TCs (\$) $t-4$ | 0.6572 (1.255) | 1.4133 (1.942) | 1.6680 (2.172) | -0.0886 (0.431) | 0.5917 (0.898) | 0.2965 (0.671) |
| TCs (\$) $t-5$ | 1.7813 (1.278) | 2.7094 (1.735) | 1.7836 (2.613) | 0.2420 (0.522) | -0.4822 (1.019) | 0.3342 (0.847) |
| TCs (\$) $t-6$ | 1.5797 (1.087) | 2.8933** (1.301) | 3.4171* (1.925) | 1.4373 (1.013) | 3.1194** (1.079) | 3.1456 (1.872) |
| TCs (\$) $t-7$ | 2.9479 (2.150) | 0.0577 (3.352) | 6.0117 (3.923) | 1.6338 (1.117) | 1.2131 (0.748) | 4.0116 (2.305) |
| TCs (\$) $t+1$ | 2.4154*** (0.826) | | 3.5719*** (1.052) | 0.7769 (0.683) | | 1.4152 (1.016) |
| TCs (\$) $t+2$ | -0.3678 (1.851) | | -0.9069 (2.151) | 1.7571*** (0.627) | | 1.7942** (0.695) |
| TCs (\$) $t+3$ | 2.7387 (2.385) | | 4.5908 (3.206) | -0.8437 (0.728) | | -1.1146 (0.838) |
| Country-dpt FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending | 3.540e+07 | 8.340e+07 | 7.810e+07 | 2.200e+07 | 6.410e+07 | 5.850e+07 |
| Average TCs | 577259 | 1.053e+06 | 981673 | 577259 | 1.053e+06 | 981673 |
| Observations | 6,500 | 2,480 | 2,240 | 6,500 | 2,480 | 2,240 |
| R-squared | 0.530 | 0.535 | 0.558 | 0.657 | 0.628 | 0.669 |

Notes. The table reports the estimated coefficients from equation (3), where the dependent variable is the amount of INV and PBLs approved (columns 1-3) or INV and PBLs disbursed in country c , department d , in year t (columns 4-6). TCs (\$) t is the amount of TCs in country c , department d , in year t , and up to 7 of its lags are added. When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded. Standard errors are clustered at the country/department level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Data: 1961-2020.

Table 7. Dynamics of INV/PBL approvals around TC approval in country/subsector

| | (1) | (2) | (3) | | (4) | (5) |
|------------------------------|------------------------|------------------------|--|---------------------|------------------------|------------------------|
| | Full Sample | Since 1990 | Since 1990 in specific countries and sectors | | Full Sample | Since 1990 |
| | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | | INV/PBL approved (y/n) | INV/PBL approved (y/n) |
| INV/PBL Approvals (\$) $t-1$ | 0.0884*** (0.017) | 0.0311* (0.016) | 0.0229 (0.030) | | | |
| TCs (\$) t | 2.3818*** (0.560) | 2.2601*** (0.568) | 2.7413*** (0.686) | First TC t | 0.0149* (0.009) | 0.0252 (0.015) |
| TCs (\$) $t-1$ | 1.6888 (1.153) | 1.6537 (1.208) | 2.1679 (1.984) | First TC $t-1$ | 0.0159** (0.006) | 0.0160 (0.011) |
| TCs (\$) $t-2$ | 1.1456 (0.728) | 0.9793 (0.750) | 1.5389 (1.306) | First TC $t-2$ | 0.0291*** (0.009) | 0.0464** (0.018) |
| TCs (\$) $t-3$ | 2.3215*** (0.802) | 2.2919** (0.840) | 3.5048*** (0.920) | First TC $t-3$ | 0.0148** (0.007) | -0.0001 (0.014) |
| TCs (\$) $t+1$ | 0.7341 (0.512) | 0.5289 (0.552) | 0.1822 (0.790) | First TC $t+1$ | 0.0050 (0.006) | -0.0099 (0.007) |
| TCs (\$) $t+2$ | 0.4894* (0.250) | 0.3128 (0.258) | 0.3109 (0.424) | First TC $t+2$ | 0.0017 (0.006) | 0.0007 (0.011) |
| TCs (\$) $t+3$ | 0.7671** (0.327) | 0.6242 (0.384) | 0.5973 (0.585) | First TC $t+3$ | 0.0053 (0.009) | 0.0019 (0.011) |
| Country-sector FE | Yes | Yes | Yes | Country-sector FE | Yes | Yes |
| Year FE | Yes | Yes | Yes | Year FE | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Country-year FE | Yes | Yes |
| Average IDB Lending | 5.679e+06 | 9.136e+06 | 1.770e+07 | Average IDB Lending | 0.0119 | 0.0139 |
| Average TCs | 104113 | 171369 | 268396 | Average TCs | 0.0105 | 0.00947 |
| Observations | 40,716 | 21,112 | 8,064 | Observations | 40,716 | 21,112 |
| R-squared | 0.160 | 0.194 | 0.209 | R-squared | 0.047 | 0.062 |

Notes. Columns 1-3 report the estimated coefficients from equation (1), where the dependent variable is the amount of INV and PBLs approved in country c , subsector s , in year t . TCs (\$) t is the amount of TCs in country c , subsector s , in year t . Subsectors are defined in Appendix A. Columns 4-5 report the estimated coefficients from equation (2), where the dependent variable is a dummy equal to 1 if INV or PBLs are approved in the country/subsector cs at time t . Standard errors are clustered at the country/subsector level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. First TC $_t$ is a dummy equal to 1 since the first TC is approved in a country/subsector cs at time t . When the sample is reduced to specific countries, Barbados, Bahamas, Bolivia, Costa Rica, Guyana, Haiti, Jamaica, Suriname, Trinidad & Tobago and Venezuela are excluded; when the sample is reduced to specific sectors, Industry (IN), Private Firms (PS), Trade & Integration (TD), Regional Integration (RI), Health (SA), Innovation & Technology (ST), Sustainable Tourism (TU) are excluded. Data: 1961-2020.

Table 8. Dynamics of INV/PBL approvals around TC approval in country/sector by possibility of having additional resources

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--------------------------|--|------------------------|----------------------|----------------------|---|------------------------|--------------------|--------------------|
| | Country/years without additional resources | | | | Country/years with additional resources | | | |
| | All | Since 1990 | All | Since 1990 | All | Since 1990 | All | Since 1990 |
| | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) | INV/PBL Approvals (\$) | INV/PBL Approvals (\$) | INV/PBL Disb. (\$) | INV/PBL Disb. (\$) |
| INV/PBL (\$) $t-1$ | 0.1182*** (0.012) | 0.0393*** (0.008) | | | 0.0089 (0.100) | 0.0089 (0.100) | | |
| INV/PBL Disb. (\$) $t-1$ | | | 0.4025*** (0.044) | 0.3172*** (0.048) | | | -0.0942 (0.125) | -0.0942 (0.125) |
| TCs (\$) t | 2.6147*** (0.746) | 1.9760*** (0.549) | 0.6055 (0.371) | 0.1954 (0.336) | 7.9379** (2.697) | 7.9379** (2.697) | 2.4608 (1.477) | 2.4608 (1.477) |
| TCs (\$) $t-1$ | 1.6962 (1.207) | 1.0814 (1.166) | 1.1409 (0.671) | 0.7825 (0.622) | 5.1477* (2.023) | 5.1477* (2.023) | 1.0709 (0.948) | 1.0709 (0.948) |
| TCs (\$) $t-2$ | 1.3355* (0.657) | 0.5295 (0.596) | 0.6444 (0.535) | 0.3253 (0.481) | 2.4936 (2.198) | 2.4936 (2.198) | 0.6396 (1.186) | 0.6396 (1.186) |
| TCs (\$) $t-3$ | 2.6617*** (0.916) | 2.0072* (0.980) | 0.8503* (0.475) | 0.5714 (0.478) | -2.9550 (2.074) | -2.9550 (2.074) | -0.1894 (1.181) | -0.1894 (1.181) |
| TCs (\$) $t+1$ | 0.7000 (0.499) | -0.0531 (0.419) | 0.4046* (0.223) | -0.0331 (0.221) | 2.0449 (1.144) | 2.0449 (1.144) | 1.2405 (1.585) | 1.2405 (1.585) |
| TCs (\$) $t+2$ | 0.4590 (0.449) | -0.4170 (0.494) | 0.4019 (0.289) | -0.0594 (0.289) | -0.7425 (2.423) | -0.7425 (2.423) | 0.2195 (1.791) | 0.2195 (1.791) |
| TCs (\$) $t+3$ | 0.9262* (0.502) | 0.1041 (0.496) | 0.3199 (0.372) | -0.1564 (0.407) | 0.8439 (2.987) | 0.8439 (2.987) | -4.5298 (4.890) | -4.5298 (4.890) |
| Country-sector FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-year FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Average IDB Lending | 9.626e+06 | 1.580e+07 | 5.860e+06 | 1.160e+07 | 1.190e+07 | 1.190e+07 | 1.020e+07 | 1.020e+07 |
| Average TCs | 170584 | 284755 | 170584 | 284755 | 429986 | 429986 | 429986 | 429986 |
| Observations | 23,222 | 11,730 | 23,222 | 11,730 | 646 | 646 | 646 | 646 |
| R-squared | 0.225 | 0.270 | 0.397 | 0.422 | 0.450 | 0.450 | 0.455 | 0.455 |

Notes. The table reports the estimated coefficients from equation (1), where the dependent variable is the amount of INV and PBLs approved (columns 1, 2, 5, 6) or INV and PBLs disbursed in country c , sector s , in year t (columns 3, 4, 7, 8). TCs (\$) t is the amount of TCs in country c , sector s , in year t . Columns 1-4 report the results in the subsample of country/years that do not have additional access to TC resources. Columns 5-8 report the results in the subsample of country/years that do have additional access to TC resources, which are Bolivia, Guatemala, Guyana, Honduras, Nicaragua, and Paraguay in 2011 to 2015; Bolivia, Guyana, Honduras, and Nicaragua in 2016-2019; Guyana, Honduras, and Nicaragua in 2020. Standard errors are clustered at the country/sector level, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Data: 1961-2020.

III. Alert Indicators

A. Data

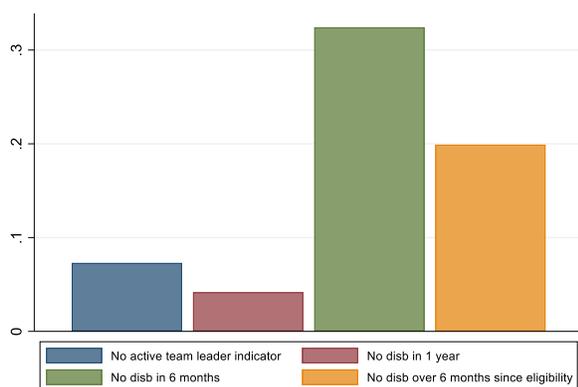
The second part of the analysis focuses on TC indicators, which are only available since 2013. Hence, the focus here will be on the universe of 2,165 SG TCs approved since 2013, 62 of which were cancelled.¹³ Most of the indicators are based on milestones established in Regulation OA-421.¹⁴

The analysis identifies the following as alert indicators (to be considered each indicator must be activated within two years from the eligibility date):

- No active team leader in the triggered if an active IDB employee is not listed in Bank systems as the team leader for a TC, and most commonly triggered when a team leader leaves the Bank and a replacement is not assigned;
- No disbursement in one year, triggered if: (i) the TC has disbursed at some point in the past; and, (ii) 12 months or more have passed since its last disbursement;
- No disbursement in 6 months, triggered if: (i) the TC has disbursed at some point in the past; and, (ii) six months or more, but less than 12 months have passed since its last disbursement;
- Over six months since eligibility and zero disbursements, triggered if six months have passed since disbursement eligibility was declared but the TC has yet to disburse.

As shown in Figure 2, 32% of TCs were in alert due to “no disbursements in 6 months” over the two-year period since eligibility, meaning that the TCs had disbursed at some point in the past, but between 6 months and 12 months passed since the last disbursement. 20% of TCs had no disbursements at all after 6 months since eligibility.

Figure 2. Percentage of TCs with active alert indicators by alert indicator



Notes. The figure shows the shares of TCs in the sample with the following alert indicators activated: (i) no active team leader in the first 2 years since eligibility; (ii) no disbursement in one year in the first 2 years since eligibility; (iii) no disbursement in 6 months in the first 2 years since eligibility; (iv) over six months since eligibility and zero disbursements. The sample includes TCs approved since 2013.

¹³ The TCs that experienced full cancellation are excluded from the analysis since alert indicators are not assigned to them. Of the 2,165 TCs approved since 2013, 761 (35%) are regional. 50% of TCs are expected to take less than 2 years between the first eligibility date and the original disbursement expiration date (Figure B1).

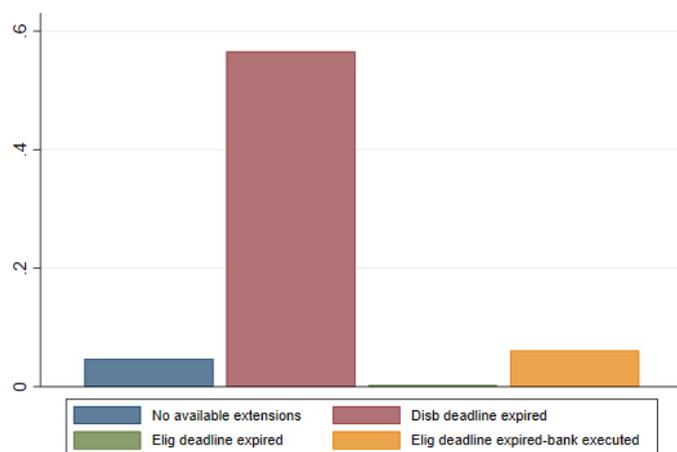
¹⁴ In OA-421, the Table of Authority for the Administration of Non-reimbursable TC, the President of the Bank delegates authority to carry out certain functions related to the execution of TC operations. Additionally, OA-421 includes controls limiting the number and length of individual project extensions during execution to ensure that development objectives are fulfilled in a timely manner.

The analysis identifies the following as outcome indicators:

- Number of extensions;
- Partial cancellation (% of original amount);
- Available extensions not enough to extend deadline up to date/Number of extensions allowed has been exceeded;
- Disbursement deadline expired/Final disbursement deadline expired;
- Eligibility deadline expired;
- Eligibility deadline expired (Bank-executed).¹⁵

As shown in Figure 3, 57% of TCs pass the final deadline for disbursement,¹⁶ a finding consistent with the fact that 63% of the TCs in the sample have had at least one extension (Figure 4, panel A).¹⁷ Only 35% of TCs do not experience any cancellations, but 26% of TCs experience a partial cancellation below 1% of the approved amount (Figure 4, panel B). Figure 4, panel C plots the distribution of TCs by number of extensions and percentage of approved amounts cancelled. Figure 4, panel D shows the Pearson correlations between the probability to extend, the probability to cancel more than 20% of the approved amount, more than 10% or any amount. Both panels show the absence of correlations between extensions and large cancellations, suggesting that a TC will either extend or cancel large amounts. Indeed, only 5% of TCs have both an extension and cancel more than 20% of the approved amount.

Figure 3. Percentage of TCs with active alarms by type of alarm



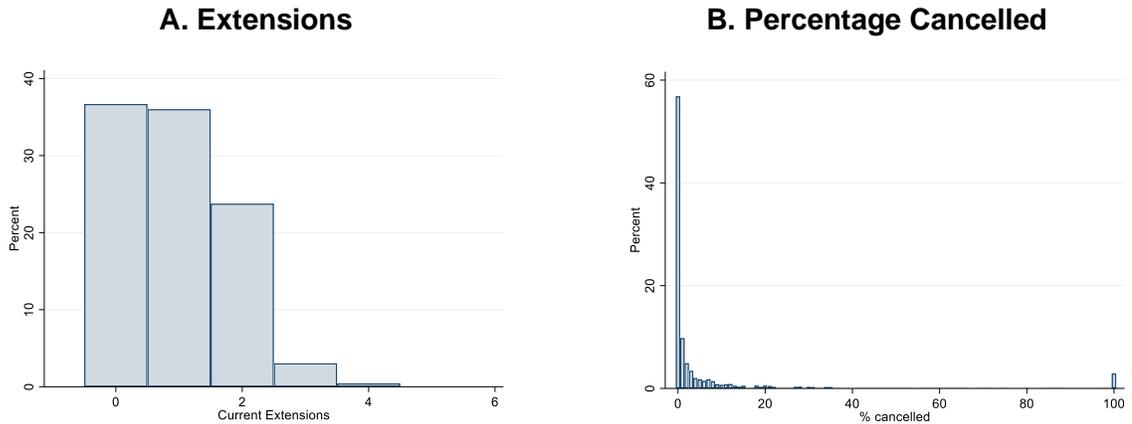
Notes. The figure shows the shares of TCs in the sample with the following outcome indicators activated: (i) no available extensions; (ii) disbursement deadline expired; (iii) eligibility deadline expired; (iv) eligibility deadline expired for Bank-executed TCs. The sample includes TCs approved since 2013.

¹⁵ For a more detailed explanation of each variable see Appendix A.

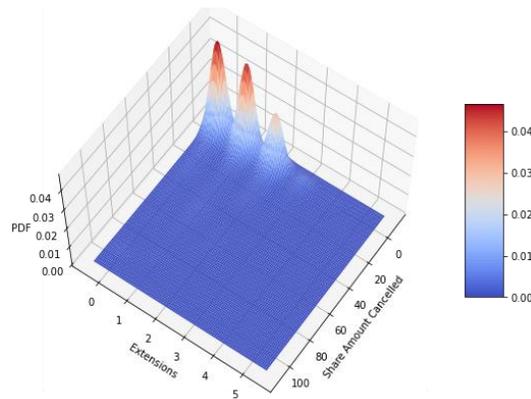
¹⁶ Until the September 2020 update to OA-421, it was common practice to allow a TC to pass the disbursement expiration deadline prior to requesting an extension. The update mandated that all extension requests be carried out prior to the deadline.

¹⁷ The study excludes the 4 TCs with more than five extensions, considered as outliers.

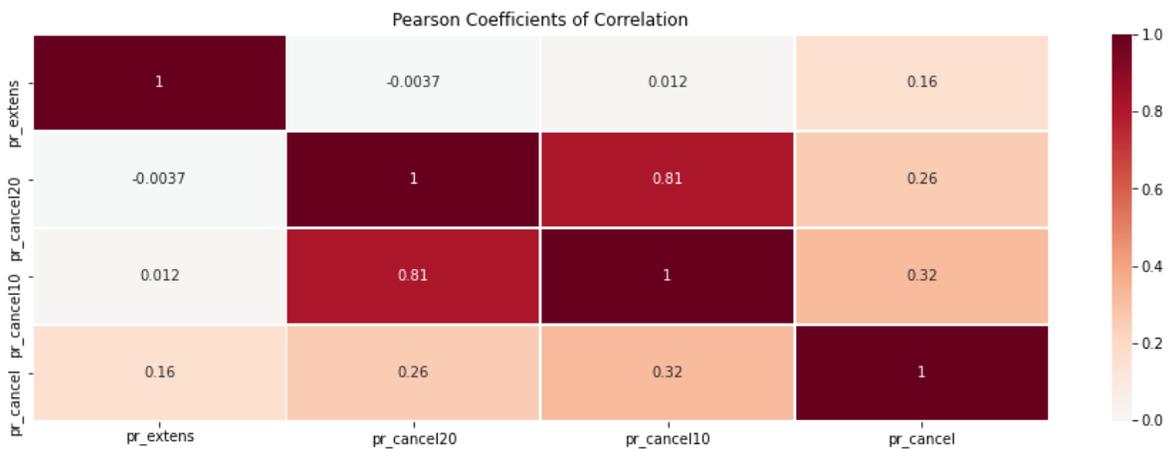
Figure 4. TC distribution by number of extensions and cancelled amount



C. Density Function of Extensions and Percentage Cancelled



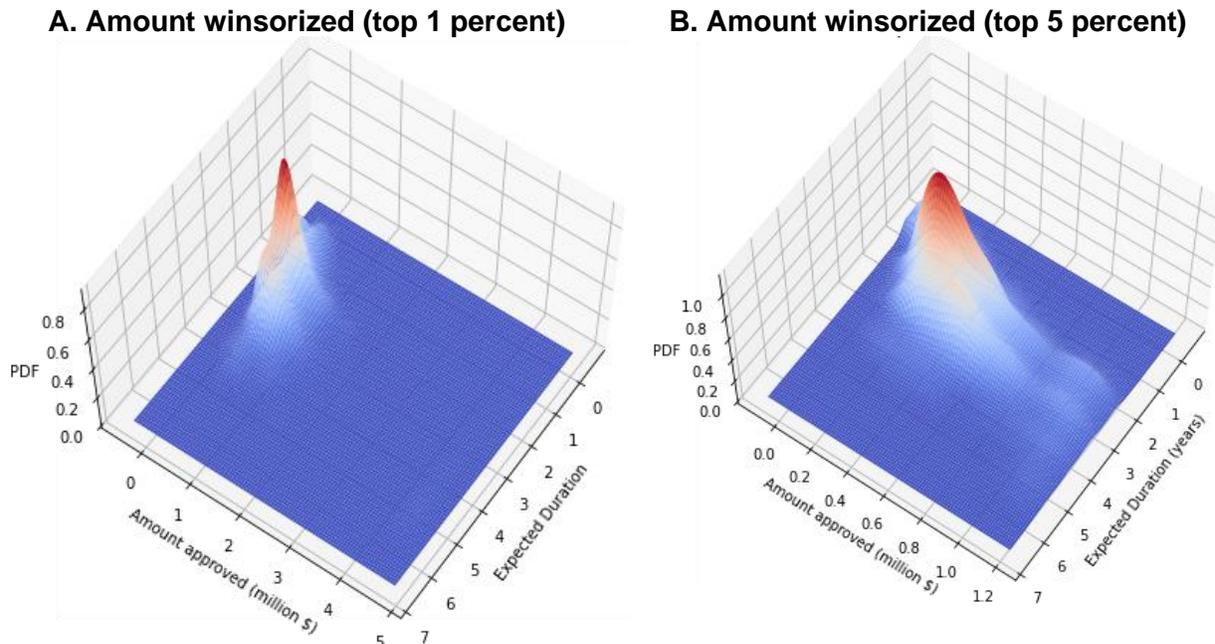
D. Pearson Coefficients of Correlations between Probability to Extend, Probability to Cancel more than 20%, more than 10% or any amount



Notes. TCs approved since 2013.

The TC amount approved is measured in million USD and the top 1% percent is winsorized. Figure 5, panel A depicts the density function of TCs by their original approved amount and their expected duration (measured as years between approval and the expected final disbursement date): 75 percent of TCs have an expected duration up to 3 years, while 95 percent of TCs have an approved amount below US\$1 million. Figure 5, panel B depicts the density function restricting the focus to those TCs with an approved amount below US\$1 million.

Figure 5. Density function of TCs by approval amount and expected duration



Notes. Kernel density estimations using Gaussian kernels of probability density functions of TCs by amount approved and duration. In Panel A, TC amount is winsorized so that the top 1 percent values are set equal to the 99th percentile. In Panel B, TC amount is winsorized so that the top 5 percent values are set equal to the 95th percentile. TCs approved since 2013.

The final part of the analysis considers the Technical Cooperation Delivery Indicator (TCDI). The IDB utilizes the TCDI to monitor progress in the delivery of planned outputs. The TCDI is calculated using a completion ratio at the output level considering the actual units delivered by the end of a reporting period over the original plan for physical units as of the end of a reporting period. If actual units are equal to planned units, the TCDI will be 1.

The TCDI is subject to a traffic light performance classification as follows:

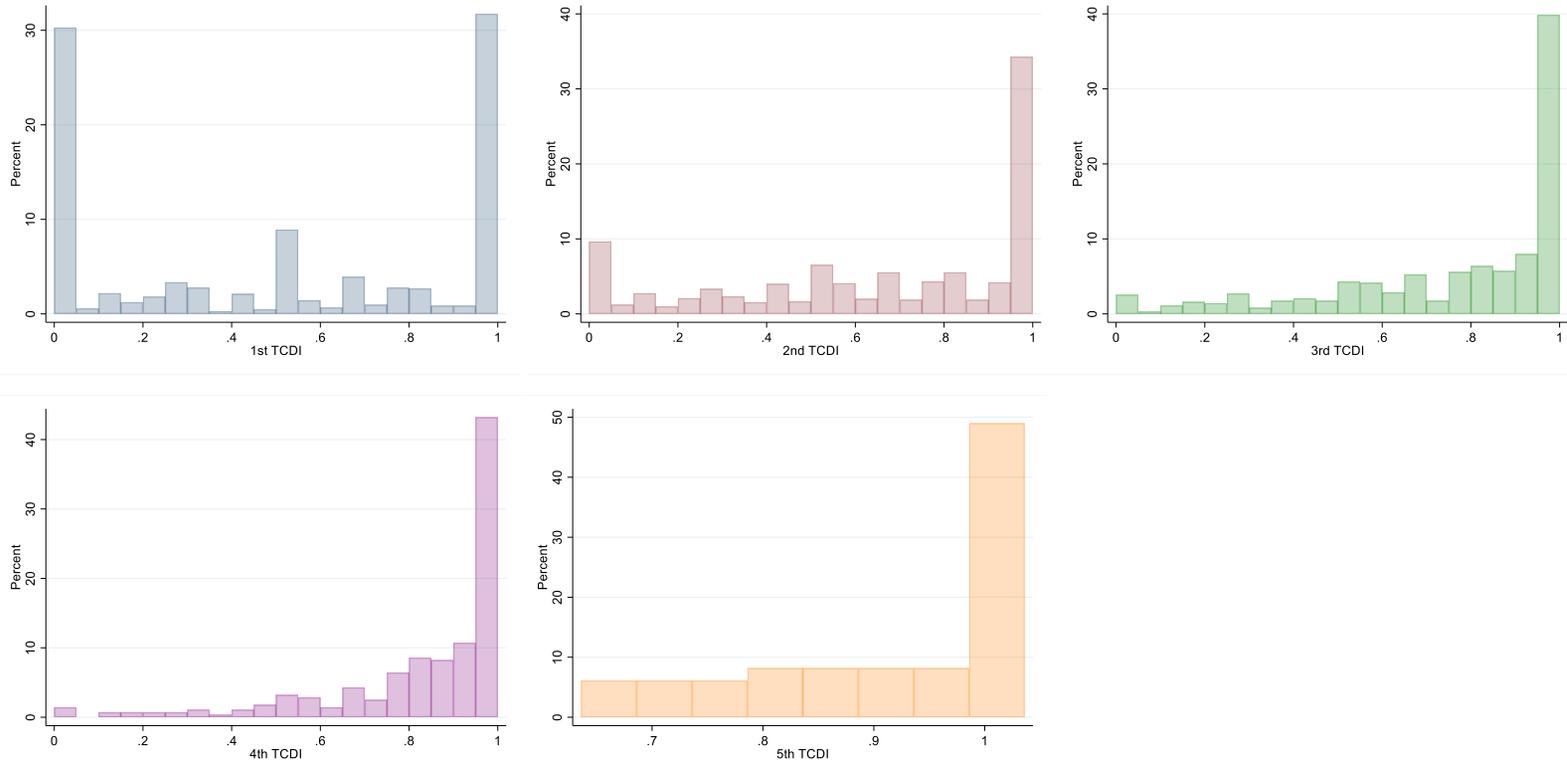
- Satisfactory: if the TCDI is equal to or greater than 0.75;
- Alert: if the TCDI is less than 0.75 but equal to or greater than 0.50;
- Problem: if the TCDI is less than 0.50.

This performance classification has been assigned yearly to each TC as of the 31st of December since 2016. In our sample, there are 1,043 TCs with a TCDI. The first graph in Figure 6 shows the distribution of TCs by the first observation of the indicator: 30 percent of TCs have a score equal to 1, indicating that 100% of the expected outputs have been achieved in that year; 30 percent of TCs have a score equal to 0, indicating that none of the expected outputs have been achieved at the time of observation. The following graphs show the TCDI scores in the 2nd, 3rd, 4th

and 5th year: as years go by, a larger percentage of TCs achieve all the expected outputs. In the first year they are evaluated, 45 percent of TCs are classified as problematic, 39 percent as satisfactory and 16 percent as alert (Figure 7, panel A). 47 percent of TCs that were problematic in the first year are problematic again in the second year, while the satisfactory state is more persistent, as 73 percent of TCs that were considered satisfactory in the first evaluation year appear satisfactory again in the second (Figure 7, panel B).¹⁸ Transition probabilities are not nil either: 18 percent of TCs that were in the problem state in the first year, for example, transition to satisfactory in the second. Panel C reinforces the previous findings, with most TCs that were classified as problematic in the first and second year being classified as problematic in the third year as well, and most TCs initially classified as satisfactory being subsequently classified as satisfactory, but also with non-zero transition probabilities to switch to a different state.

¹⁸ Figure 6, panels B-C also report the frequency of TCs transitioning from a TCDI classification to having no TCDI. 90 percent of the times this happens because the first TCDI was conducted in 2020 and the 2021 TCDI is not available yet.

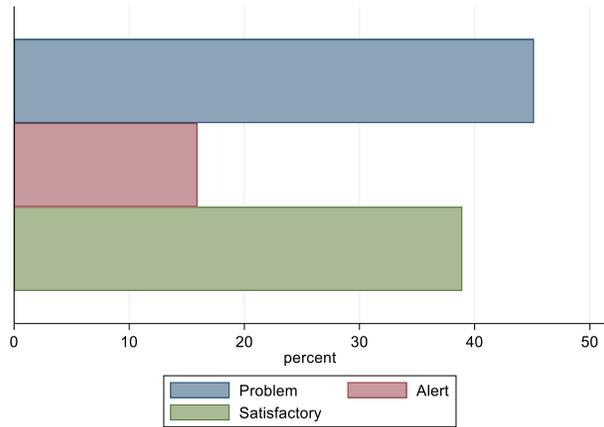
Figure 6. Distribution of TCs by TCDI



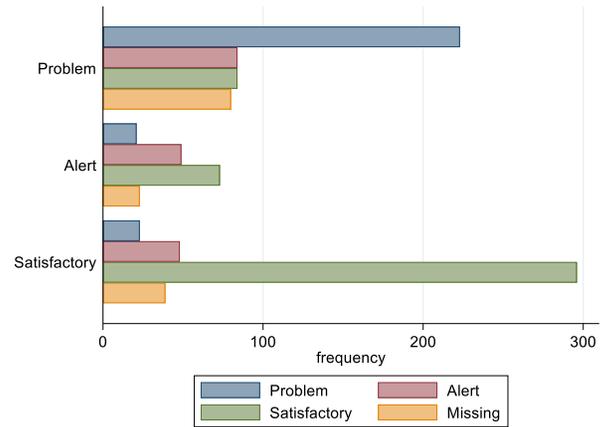
Notes. TCDI available since 2016 for TCs approved since 2013.

Figure 7. Distribution of TCs by TCDI conditional on previous TCDI

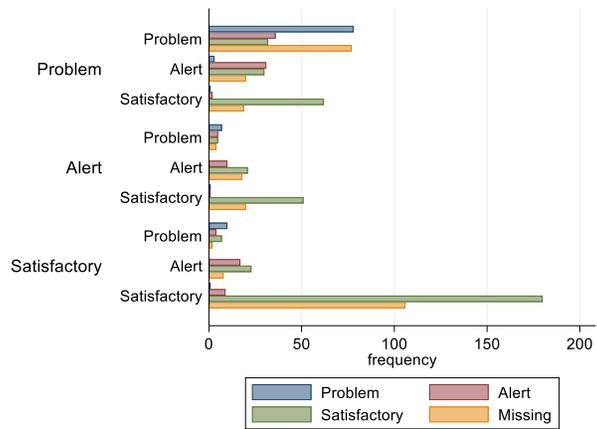
A. Distribution of 1st TCDI



B. Distribution of 2nd TCDI given 1st TCDI



C. Distribution of 3rd TCDI given 1st and 2nd TCDI



Notes. TCDI available since 2016 for TCs approved since 2013.

B. Empirical Strategy

The analysis initially estimates the following equation through ordinary least-squares:

$$y_p = \beta_{10} + \beta_{11}AI_p + \beta_{12}X_p + \varepsilon_p \quad (4)$$

where y_p is the outcome variable of interest related to project p : number of extensions, partial cancellation (% of original amount), available extensions not enough to extend deadline up to date, disbursement deadline expired, eligibility deadline expired, and eligibility deadline expired for Bank-executed TCs.

AI_p are alert indicators related to project p : 1) a dummy with unit value if there is no active team leader in a given moment over the first two years since eligibility, 2) a dummy with unit value if there are zero disbursements six months after eligibility (in the first two years since eligibility), 3) a dummy equal to one if there was an initial disbursement but then no disbursements for one year or more (two years since eligibility), and 4) a dummy with unit value if there was an initial disbursement but then no disbursements for six to twelve months (in two years since eligibility).

X_p are other project characteristics: original approved amount (in million USD), expected life of the project (i.e. years between approval and original disbursement expiration date), a dummy equal to 1 if the team leader at the approval of the project is in headquarters (HQ), the taxonomy of the technical cooperation,¹⁹ a dummy equal to 1 if the environmental category is A,²⁰ a dummy equal to 1 if the TC is Bank-executed (0 if it is client-executed or both the Bank and the client), department fixed effects, country fixed effects and year of approval fixed effects.

ε_p are standard errors clustered at the country level, where the country is the recipient of the technical assistance.

The satisfactory classification is the base outcome of the dependent variable. Therefore, the relative risk ratios obtained from the estimation will represent the probabilities of a TC to be classified as problem or alert relative to being classified as satisfactory:

$$rrr(c) = \frac{P(y = c | X)}{P(y = \text{"satisfactory"} | X)} = \exp(X\beta_c) \quad (5)$$

where c is alert or problem. Thus, the exponentiated value of a coefficient β_c is the relative-risk ratio for a one-unit change in the covariate X , measured as the risk of classification c relative to the base outcome satisfactory.

C. Results

Results from estimating equation (4) are presented in Table 9 and show the relevance of alert indicators in predicting later execution difficulties, holding other project characteristics as fixed. For example, TCs with the alert “no disbursement in one year (in two years since eligibility)” are significantly associated with 0.13 more extensions (column 1), while the alert “no disbursements in six months (in two years since eligibility)” is associated with a 4 percentage points higher cancelled amount (column 2).

The activation of the “over six months eligibility and zero disbursements” alert is positively and significantly correlated with an average increase of almost 0.3 extensions (column 1), which is sizeable when compared to the average 1 extension in the sample. The activation of this alert

¹⁹ TCs are grouped into client-support TCs, operation-support TCs, and TCs for research and development, as described in Section II.

²⁰ The Bank classifies projects in category A when they can potentially cause significant negative environmental or social impacts or have profound implications affecting natural resources (“[Environmental and Social Policy Framework](#)”, IDB, September 2020).

indicator is also significantly associated with a 5.5 percentage points higher cancelled amount with respect to the original approved amount (column 2) and a 2 percentage points higher likelihood of activating the alert “available extensions not enough to extend deadline up to date” (column 3).

In sum, the activation of the alert indicators related to initial problems in disbursements are significantly associated with subsequent issues that affect TCs along their execution, such as partial cancellations and extensions, except for the alert indicator on “no active team leader in two years since eligibility”.

Column (4) reports a result that might seem counter-intuitive at first: the activation of the alert indicators “no active team leader (in two years since eligibility)”,²¹ “no disbursements in six months (in two years since eligibility)” and “over six months since eligibility and zero disbursements” are negatively and significantly associated with the alert “disbursement deadline expired”. There are several plausible explanations for this. First, there are Bank specialists who are the sole authority on a topic within the IDB. If such a specialist who is leading a TC in a specific area leaves the Bank, the TC may become “abandoned”. Rather than trying to continue executing the TC, departments may opt for a cancellation. Furthermore, it is not uncommon for governments to change just as a TC is beginning its execution. If the TC is addressing an issue that is no longer a priority for the incoming government, not only will there be issues with disbursements on the front end, it may also be more likely for the Bank to cancel the TC prior to the disbursement expiration deadline to free up the committed resources for another purpose.

Column (5) reports the results for the alert “eligibility deadline expired” for TCs that are client-executed (or bank and client-executed) only, and column (6) the analysis for the alert “eligibility deadline expired (Bank-executed)” for the Bank-executed TCs only. Since the outcome in both cases refers to the expiration of the eligibility deadline, after which a TC can start disbursing, we do not include as regressors any of the alert indicators related to disbursements, as these can only be activated after eligibility. As can be seen from columns (5)-(6), larger TCs are more likely to have the alert “eligibility deadline expired” activated, whether they are Bank-executed or not. Longer TCs that are Bank-executed are also more likely to not meet the requirements for eligibility by the deadline. It could be that longer and larger Bank-executed TCs are more complex, and it becomes more difficult to fulfill conditions prior to first disbursement.

Moreover, TCs for operational support (OPS) are associated with 0.2 more extensions than technical cooperation for client-support,²² whereas having a team leader in HQ at approval or environmental classification A does not significantly affect the outcomes considered in the analysis.

Larger TCs are also more likely to experience more extensions. Longer TCs (measured in years between approval and original disbursement expiration date) are more likely to experience fewer extensions, more likely to have smaller amounts cancelled, and less likely to experience the activation of the alerts “available extensions not enough to extend deadline up to date” and “disbursement deadline expired”. To show whether original approved amount and expected duration have joint effects, Table 10 reports the estimated coefficients from equation (5) on the probability to have an extension (column 1), to have any partial cancellation (column 2), to have a partial cancellation above 10% of the approved amount (column 3), to have a partial cancellation above 20% of the approved amount (column 4), and to have the alert “disbursement deadline

²¹ All the results presented for the indicator “no active team leader (in two years since eligibility)” are unchanged if we consider two years since approval instead.

²² There are only 9 TCs with unavailable taxonomy (N/A) so the analysis does not highlight the associated estimated coefficients.

expired” activated (column 5); Figure 8, Panels A-C depict the results on the full sample, while panels B-D report the predicted probabilities for those TCs with approved amount and expected duration below the 95th percentile. For very large but short TCs, there is a higher likelihood to have an extension. However, the longer the TC is expected to take to execute, the smaller the probability becomes, especially for larger TCs. Smaller TCs instead, have a small probability to have an extension, irrespective of their expected duration.²³ Very small and short TCs have higher probabilities to cancel more than 20% of the approved amount (Figure 8, panels C-D), but for the majority of TCs (with amount and duration below the 95th percentile), the amount does not play a role, whereas the longer a TC is expected to be, the lowest the probability it will cancel more than 20%.

The relative-risk ratios defined in equation (7) are reported in Table 11. The dependent variable in columns (1)-(2) is the first-year TCDI classification, in (3)-(4) is the second-year TCDI and in (5)-(6) is the third-year classification. Relative-risk ratios greater than 1 indicate that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the base group increases as the covariate increases; for relative-risk ratios below 1 the opposite is true. Column (1) shows the relative risk ratios for a one unit increase in covariates of being classified as problem rather than satisfactory, given that the other variables in the model are held constant. If the alerts “no disbursements in one year (in two years since eligibility)” or “over six months since eligibility and zero disbursements” are activated, the relative risks for a TC to be classified as problem rather than satisfactory in the first evaluation year is much larger when the other variables in the model are held constant. The relative-risk ratio associated with the activation of the alert “no active team leader (in two years since eligibility)” would instead be lower for the probability of being classified as problem rather than satisfactory in the first year, but significant at 10 percent significance level only. The relative risk ratio of being classified as problematic rather than satisfactory in the second year would be instead larger for any of the four alert indicators. There is a weaker association between alert indicators and TCDI classifications in the third year, which is instead captured by having a TCDI problem classification in the second year.

²³ For TCs whose disbursement life is expected to be longer than 2 years, not having a team leader in the first 2 years since approval and not having disbursements for one year in the first 2 years since eligibility, are also predictors of more extensions (Table D1). See Appendix D for more details.

Table 9. Predictors of TC problems

| | (1) | (2) | (3) Alert: Available extensions not enough to extend deadline up to date | (4) Alert: Disbursement deadline expired | (5) Alert: Eligibility deadline expired | (6) Alert: Eligibility deadline expired (Bank- executed) |
|--|---------------------|----------------------|---|--|---|--|
| Alert: no active Team Leader (in two years since eligibility) | 0.027 (0.055) | -0.890 (0.804) | 0.002 (0.012) | -0.095*** (0.030) | 0.041 (0.040) | 0.031 (0.021) |
| Alert: no disbursements in one year (in two years since eligibility) | 0.135** (0.059) | 3.416 (2.617) | 0.021 (0.017) | 0.046 (0.033) | | |
| Alert: no disbursements in six months (in two years since eligibility) | -0.056 (0.034) | 4.231*** (0.816) | -0.001 (0.005) | -0.115*** (0.018) | | |
| Alert: over six months since eligibility and zero disbursements | 0.256*** (0.045) | 5.510*** (1.591) | 0.020* (0.010) | -0.079*** (0.025) | | |
| Amount (million USD) | 0.192*** (0.037) | 0.241 (0.420) | 0.008 (0.005) | 0.013 (0.013) | 0.027* (0.014) | 0.020* (0.011) |
| Years between approval and original disbursement expiration | -0.127** (0.047) | -2.489*** (0.593) | -0.024** (0.009) | -0.130*** (0.010) | -0.004 (0.006) | 0.014** (0.006) |
| Team Leader in HQ | 0.017 (0.033) | -1.166 (0.944) | 0.008 (0.009) | -0.009 (0.022) | 0.010 (0.013) | -0.007 (0.010) |
| Taxonomy = N/A | 0.823*** (0.167) | 3.501* (2.018) | 0.002 (0.017) | 0.276*** (0.033) | 0.002 (0.025) | 0.167 (0.188) |
| Taxonomy = OPS | 0.206*** (0.058) | 0.503 (0.958) | 0.014 (0.016) | -0.013 (0.033) | -0.017 (0.016) | 0.001 (0.022) |
| Taxonomy = RED | 0.072* (0.039) | -1.046 (0.643) | 0.018** (0.007) | -0.003 (0.014) | -0.008 (0.008) | 0.006 (0.012) |
| Environmental Classification: A | 0.194 (0.185) | 0.500 (2.424) | 0.075 (0.048) | 0.013 (0.085) | -0.009 (0.019) | -0.001 (0.074) |
| Executed by the IADB | 0.127** (0.057) | 1.566 (1.080) | 0.017 (0.011) | -0.069** (0.028) | - | - |
| Department FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of approval FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 2,091 | 2,095 | 2,095 | 2,095 | 399 | 1,696 |
| R-squared | 0.258 | 0.124 | 0.237 | 0.313 | 0.175 | 0.067 |

Notes. The table reports the estimated coefficients from equation (4), where alert indicators are dummies with unit value if no active team leader in the first two years since eligibility, if the technical cooperation experiences zero disbursements for six months or one year in the first two years since eligibility, and over six months since eligibility. Amount winsorized at top 1 percent. Department, country, and year of approval fixed effects are not reported but included. Standard errors are clustered at the country level, *** p<0.01, ** p<0.05, * p<0.1.

Figure 9 summarizes the average marginal effects of alert indicators on TCDI classification by evaluation year. Panel A shows that TCs experiencing the activation of the alert indicator “no disbursements in one year (in two years since eligibility)” are 28 percentage points (p.p.) more likely to be classified as problematic in the first evaluation year, and 20 p.p. less likely to be classified as satisfactory. For TCs experiencing the activation of the alert indicator “over six months since eligibility and zero disbursements” the probability of being classified as problematic increases by 22 p.p., while the probability of being satisfactory declines by 17 p.p. Figure 9, panel B reports the average marginal effects in the second evaluation year: having any of the alert indicators active increases the probability of being classified as problem or alert, consistent with the results shown in Table 11. Panel C shows that no alert indicator increases the probability for a TC to be classified as problematic.²⁴ Instead, being classified as problematic in the second year increases the probability of being classified as problematic in the third year by 25 p.p., and of being classified as alert by 17 p.p. (Figure 10, panel B). Moreover, being classified as alert in the second year increases the probability to be classified in the same category in the following year by 30 p.p.

Table 11 also reports the relative-risk ratios for other covariates, such as amount and duration. Larger TCs seem to have higher risk of being classified as problem or alert in the second year, while longer TCs have higher relative-risk ratios of being classified as problem or alert both in the first and second year. Figure 11 depicts the predictive probabilities of expected TC duration on different TCDI classifications and evaluation years. Panel A confirms that for TCs that are expected to last more than 2.5 years between approval and original disbursement expiration dates have significantly higher probabilities to be classified as problem in the first year.

IV. Conclusion

This study has investigated whether the TCs approved by the Inter-American Development Bank support efforts to identify client needs and increase demand for IDB lending, and which indicators can effectively act as warnings to anticipate future problems in TC execution.

The analysis suggests that approving a TC for the first time in a country/sector is associated with a higher likelihood to approve an investment loan or a policy-based loan in the same country/sector in subsequent years. Moreover, the approval of a TC in a country/sector is positively and significantly correlated with approving at least one investment loan or policy-based loan in the same country/sector in the same year, in the year after, and in some specifications up to 3 years later. The approval of a TC in a country/sector is also associated with the probability to disburse investment loans or policy-based loans.

Moreover, the study finds that the absence of disbursements in the first two years since eligibility, especially in the first six months, are significantly and positively correlated to a larger share of cancellations of original approved amounts, and more extensions. The activation of the alert indicators analyzed is also significantly and positively correlated with a higher likelihood to be classified as problematic or alert in TCDI.

The study sheds light on other interesting relationships. TCs that are expected to execute for a longer period are less likely to incur into delays (extensions, expiration of disbursement deadline) or partial cancellations, but they are more likely to achieve fewer outputs than planned, and hence, more likely to be classified as problem or alert than satisfactory in the first evaluation years. TCs that are larger are more likely to incur extensions and to have an expired eligibility deadline. This is true for both Bank-executed and recipient-executed TCs. Moreover, smaller TCs are more likely

²⁴ However, the activation of the alert indicator “over six months since eligibility and zero disbursements” increases the probability of being classified as alert by 5 p.p.

to be classified as satisfactory than problem or alert in the second evaluation year. Finally, there seems to be some degree of path dependence in the TCDI classifications given that even when transition probabilities from one state to another are not nil, it is much more likely that a TC will retain the same classification in subsequent years.

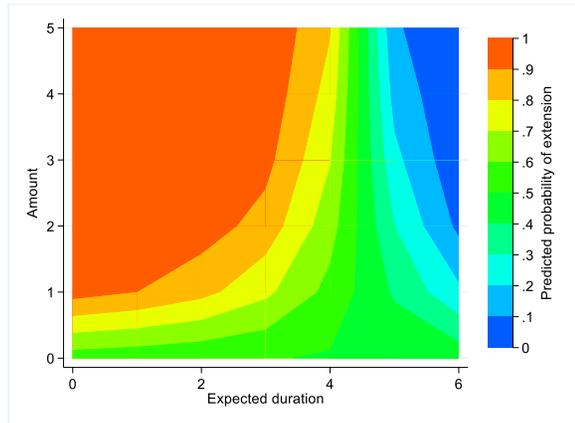
Table 10. Predictors of TC problems, exploring the interaction between amount and duration

| | (1) | (2) | (3) | (4) | (5) |
|--|----------------------------------|--|---|---|--|
| | Probability to have an extension | Probability to have partial cancellation | Probability to have partial cancellation >10% | Probability to have partial cancellation >20% | Probability of "disbursement deadline expired" alert activated |
| Alert: no active Team Leader (in 2 years since eligibility) | 0.231 (0.207) | -0.216 (0.336) | 0.237 (0.303) | -0.303 (0.387) | -0.550*** (0.172) |
| Alert: no disbursements in one year (in 2 years since eligibility) | 0.608 (0.379) | 0.008 (0.346) | 0.480 (0.338) | 0.800*** (0.301) | 0.233 (0.175) |
| Alert: no disbursements in six months (in 2 years since eligibility) | 0.093 (0.126) | -0.170 (0.155) | 0.664*** (0.147) | 0.892*** (0.196) | -0.620*** (0.090) |
| Alert: over six months since eligibility and zero disbursements | 0.759*** (0.143) | -0.330 (0.204) | 0.866*** (0.146) | 1.233*** (0.161) | -0.410*** (0.139) |
| Amount (million USD) | 3.853*** (0.851) | -0.510 (0.318) | -1.131* (0.644) | -0.837 (0.680) | 0.291 (0.313) |
| Duration (years between approval and original disbursement expiration) | -0.080 (0.113) | -0.694*** (0.132) | -0.725*** (0.130) | -0.869*** (0.137) | -0.748*** (0.092) |
| Amount # duration | -0.861*** (0.198) | 0.113 (0.094) | 0.328** (0.149) | 0.287* (0.159) | -0.056 (0.075) |
| Team Leader in HQ | -0.054 (0.129) | -0.221 (0.145) | -0.109 (0.238) | -0.198 (0.319) | -0.062 (0.127) |
| Taxonomy = N/A | 0.748*** (0.165) | 0.048 (0.250) | 1.533*** (0.471) | | 1.877*** (0.211) |
| Taxonomy = OPS | 0.472** (0.196) | -0.027 (0.216) | 0.232 (0.197) | 0.409* (0.237) | -0.092 (0.200) |
| Taxonomy = RED | 0.249*** (0.086) | -0.104 (0.102) | -0.466*** (0.145) | -0.414** (0.195) | -0.029 (0.084) |
| Environmental Classification: A | 0.508 (0.542) | -0.446 (0.569) | 0.533 (0.573) | 0.904 (0.670) | 0.141 (0.502) |
| Executed by the IDB | -0.006 (0.150) | 1.134*** (0.213) | 0.473** (0.237) | 0.274 (0.263) | -0.423*** (0.155) |
| Department FE | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes |
| Year of approval FE | Yes | Yes | Yes | Yes | Yes |
| Observations | 2,083 | 1,990 | 1,976 | 1,967 | 2,082 |

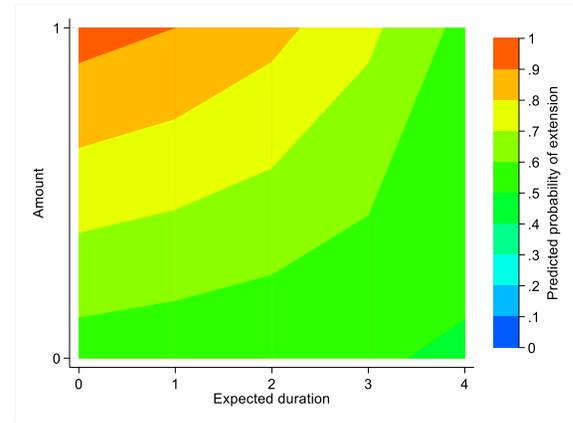
Notes. The table reports the estimated coefficients from equation (4), where alert indicators are dummies with unit value if no active team leader in the first 2 years since eligibility, if the technical cooperation experiences zero disbursements after being eligibility for 6 months, in the first 2 years since eligibility and over six months since eligibility. Amount is winsorized at top 1 percent. Department, country, and year of approval fixed effects are not reported but included. Standard errors are clustered at the country level, *** p<0.01, ** p<0.05, * p<0.1.

Figure 8. Predicted probability of TCs' extension and cancellations > 20% by amount and expected duration

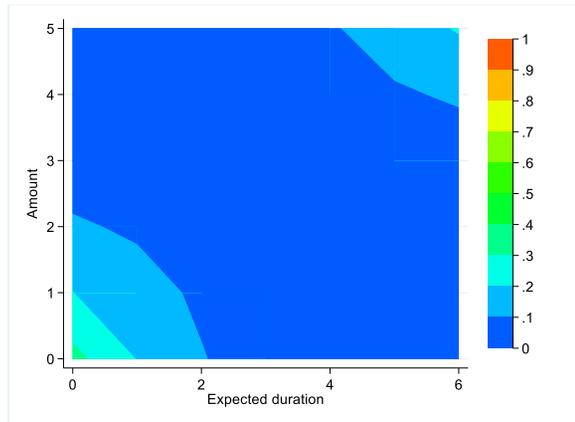
A. Probability of Extension, Amount winsorized at 1 percent



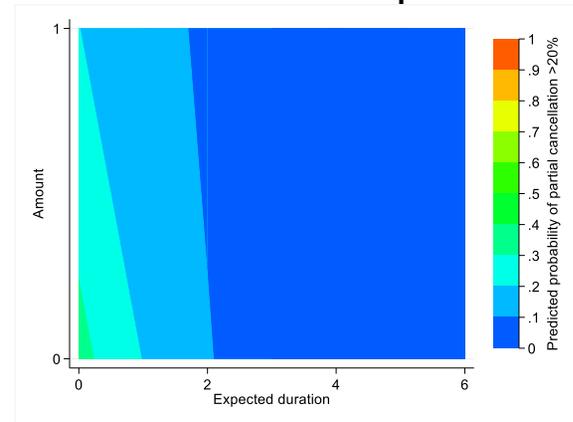
B. Probability of Extension, Sample of TCs with amount and expected duration below the 95th percentile



C. Probability of Cancellation > 20%, Amount winsorized at 1 percent



D. Probability of Cancellation > 20%, Sample of TCs with amount and expected duration below the 95th percentile



Notes. The figures report the probabilities that a TC will have an extension (panels A-B) or partial cancellation above 20% (panels C-D) given its approved amount and expected duration (estimates from equation 4). Panels A and C report the probabilities where the TC amount is one-sided winsorized at the top 1 percent. Panels B and D report the probabilities for TCs that have original amount approved and expected duration below the 95th percentile of the distribution. TCs approved since 2013.

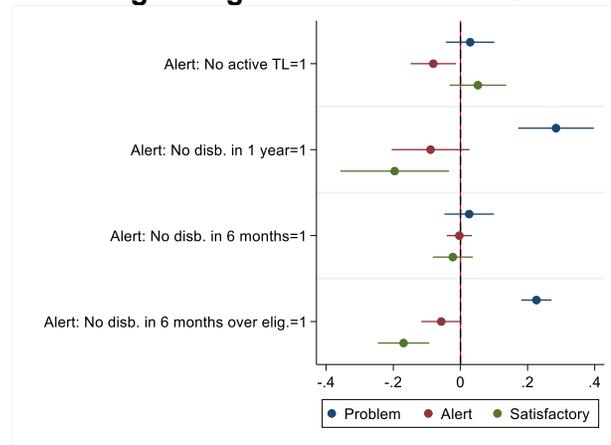
Table 11. Relative risk ratios for having TCDI as “problem” or “alert” over “satisfactory”

| | (1) First-year TCDI Problem | (2) TCDI Alert | (3) Second-year TCDI Problem | (4) TCDI Alert | (5) Third-year TCDI Problem | (6) TCDI Alert |
|---|-----------------------------------|----------------------|------------------------------------|----------------------|-----------------------------------|----------------------|
| Alert: no active Team Leader (in two years since eligibility) | 0.898 (0.209) | 0.523* (0.201) | 1.947** (0.512) | 3.096*** (1.162) | 1.986 (1.273) | 2.425* (1.139) |
| Alert: no disbursements in one year (in two years since | 3.979*** (1.575) | 1.040 (0.616) | 4.966*** (3.038) | 4.152** (2.810) | 4.662 (4.859) | 2.712* (1.463) |
| Alert: no disbursements in six months (in two years since | 1.152 (0.216) | 1.050 (0.154) | 1.795** (0.501) | 1.137 (0.307) | 0.964 (0.279) | 1.124 (0.288) |
| Alert: over six months since eligibility and zero disbursements | 3.116*** (0.558) | 1.158 (0.358) | 1.964*** (0.346) | 0.748 (0.156) | 0.739 (0.368) | 1.518 (0.432) |
| Amount (million USD) | 1.129 (0.211) | 0.739 (0.175) | 1.909** (0.505) | 1.710** (0.418) | 0.756 (0.191) | 0.888 (0.161) |
| Years between approval and original disbursement expiration | 1.922*** (0.374) | 1.860*** (0.397) | 2.039*** (0.273) | 1.460*** (0.157) | 1.548* (0.369) | 1.204 (0.190) |
| Team Leader in HQ | 0.720* (0.136) | 0.728* (0.121) | 0.983 (0.223) | 1.097 (0.286) | 0.752 (0.238) | 1.158 (0.286) |
| Taxonomy = N/A | 273,667*** (354,026) | 0.413*** (0.135) | 0.0909*** (0.0370) | 5.12e- (5.47e-08) | | |
| Taxonomy = OPS | 0.817 (0.181) | 0.679 (0.217) | 1.672 (0.588) | 2.388*** (0.706) | 1.118 (0.544) | 1.826 (0.928) |
| Taxonomy = RED | 0.695*** (0.0916) | 0.892 (0.130) | 0.691 (0.175) | 0.603*** (0.106) | 2.868*** (0.894) | 1.882 (0.928) |
| Environmental Classification: A | 0.741 (0.444) | 1.399 (0.840) | 0.393 (0.433) | 1.580 (1.411) | 6.316 (7.748) | 1.074 (0.680) |
| 1 st TCDI: Problem | | | 36.26*** (9.986) | 8.739*** (1.521) | 2.362** (0.887) | 1.406 (0.392) |
| 1 st TCDI: Alert | | | 3.950*** (1.428) | 5.578*** (1.245) | 0.798 (0.583) | 0.668 (0.247) |
| 2 nd TCDI: Problem | | | | | 261.7*** (206.1) | 21.24*** (7.709) |
| 2 nd TCDI: Alert | | | | | 1.596 (1.096) | 16.77*** (5.477) |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of approval FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of evaluation FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,028 | 1,028 | 890 | 890 | 624 | 624 |

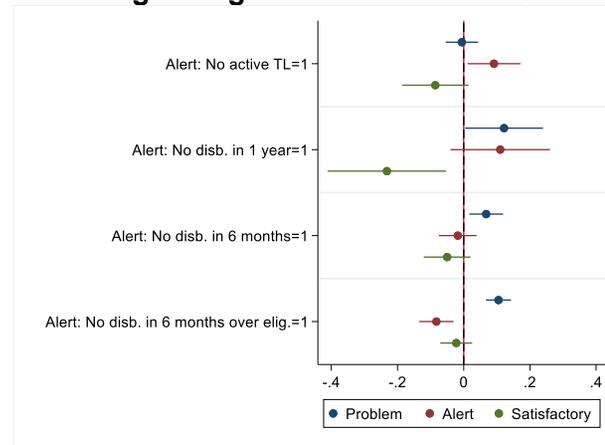
Notes. The table reports the relative risk ratios from the multinomial logistic regression defined in equation (5), where alert indicators are dummies with unit value if no active team leader in the first 2 years since eligibility, if the technical cooperation experiences zero disbursements after being eligibility for 6 months, in the first 2 years since eligibility and over six months since eligibility. Amount is winsorized at top 1 percent. Country, year of approval and year of evaluation fixed effects are not reported but included. Standard errors are clustered at the country level, *** p<0.01, ** p<0.05, * p<0.1.

Figure 9. Average marginal effects of alert indicators on TCDI

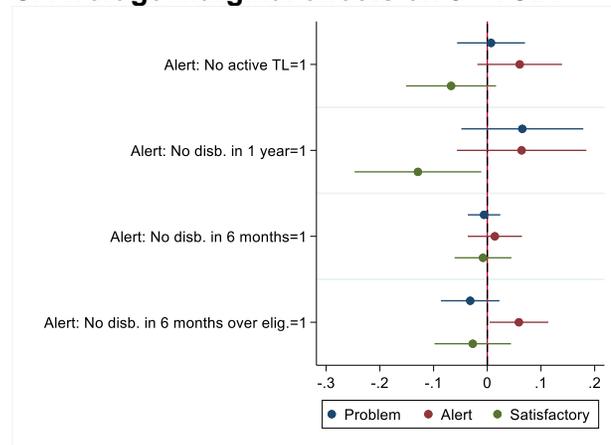
A. Average marginal effects on 1st TCDI



B. Average marginal effects on 2nd TCDI



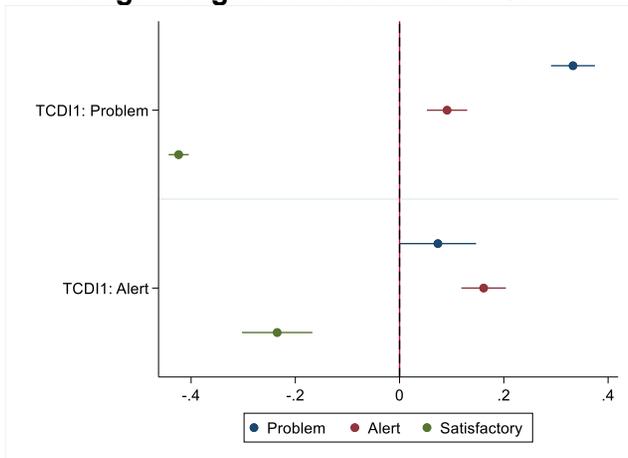
C. Average marginal effects on 3rd TCDI



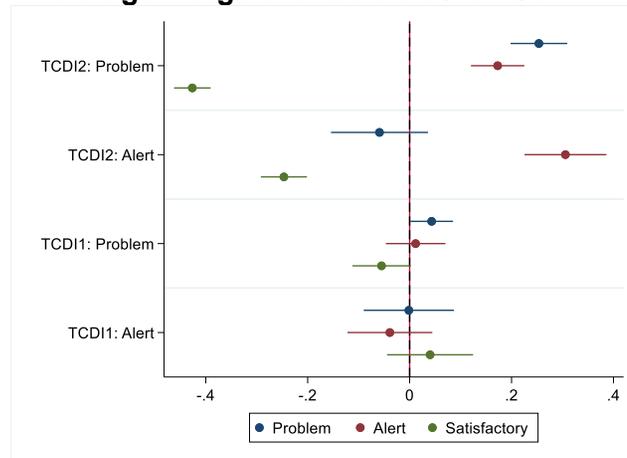
Notes. The dots represent the average marginal effects of having an alert indicator activated on the probability to classified as problem/alert/satisfactory in the first/second/third evaluation year, with all other covariates in the multinomial logistic model held constant. The lines represent the 95 percent confidence intervals.

Figure 10. Average marginal effects of previous TCDIs on TCDI

A. Average marginal effects on 2nd TCDI



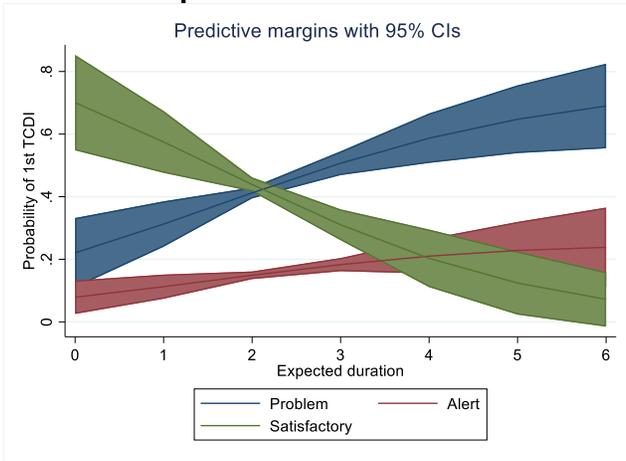
B. Average marginal effects on 3rd TCDI



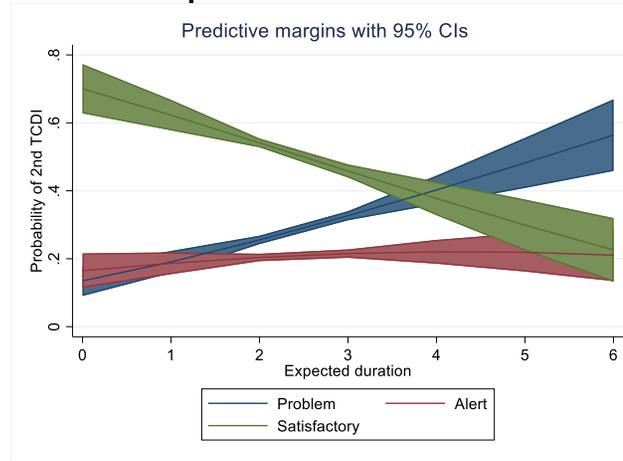
Notes. The dots represent the average marginal effects of being classified as alert or problematic in the previous year (panel A) or years (panel B) on the probability to classified as problem/alert/satisfactory in the second (panel A) or third (panel B) evaluation year, with all other covariates in the multinomial logistic model held constant. The lines represent the 95 percent confidence intervals.

Figure 11. Predictive probabilities on TCDI for different values of expected TC duration

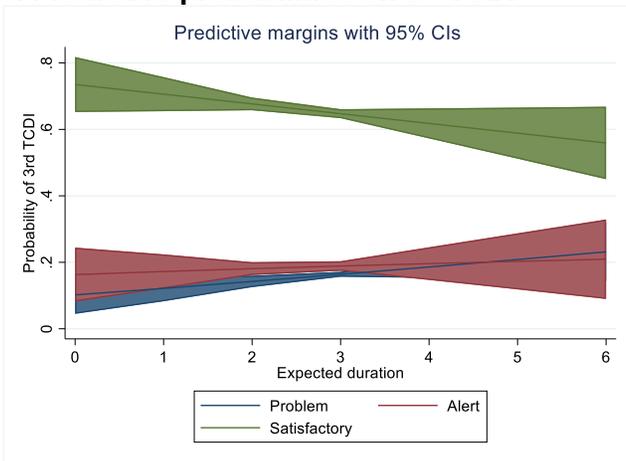
A. Predictive probabilities on 1st TCDI



B. Predictive probabilities on 2nd TCDI



C. Predictive probabilities on 3rd TCDI

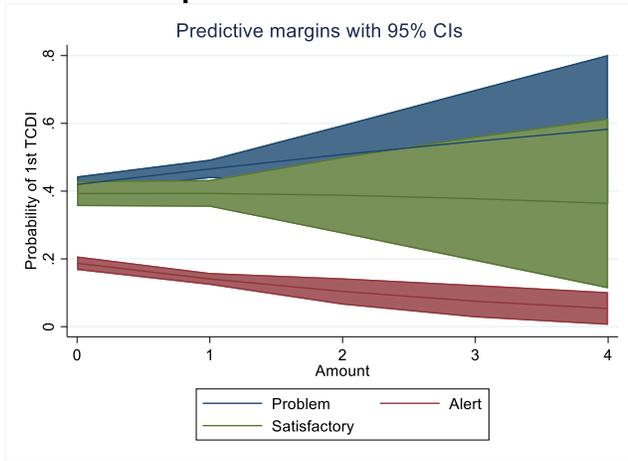


Notes. The lines represent the predictive probabilities of being classified as alert/problematic/satisfactory depending on expected duration (years between approval and expected final disbursement date), with all other covariates in the multinomial logistic model held constant. The areas represent the 95 percent confidence intervals.

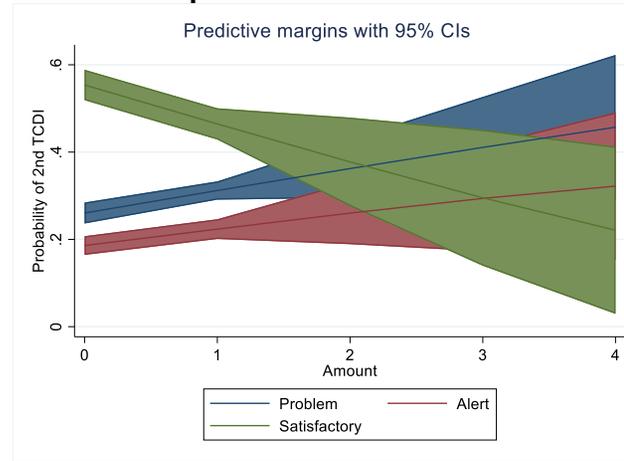
The probability of being classified as problem is also significantly larger in the second year for TCs that are expected to last for more than 5 years, while the classification in the third year is almost independent from the TC expected length. Figure 12 panel B gives a more complete picture than Table 11 and shows that TCs smaller than 1 million USD have a higher probability of being satisfactory in the second year than being problem or alert, but for TCs that are larger this is not true, and the probabilities to be classified as problem/alert/satisfactory are not significantly different from each other.

Figure 12. Predictive probabilities on TCDI for different values of original approved amount

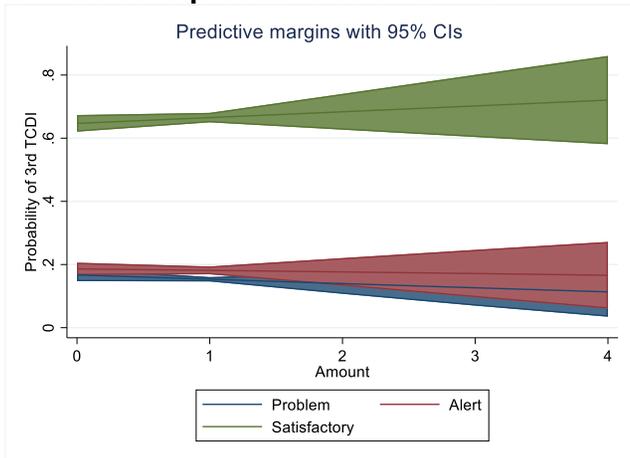
A. Predictive probabilities on 1st TCDI



B. Predictive probabilities on 2nd TCDI



C. Predictive probabilities on 3rd TCDI



Notes. The lines represent the predictive probabilities of being classified as alert/problematic/satisfactory depending on expected duration (years between approval and expected final disbursement date), with all other covariates in the multinomial logistic model held constant. The areas represent the 95 percent confidence intervals.

Appendix A

In the IDB repository, projects are divided in 51 different subsectors. We group the least numerous together and end up with 29 subsector categories: AG, AG-DEV, AG-RES, AS, DU, DU-NEI, ED, EN, FM, FM-BNK, IN, IS, IS-ECD, IS-POV, PA, PA-DRM, PS, RI, RM, RM-FIN, RM-FIS, RM-MFR, RM-PUB, SA, SA-SER, ST, TD, TR, TU. The following table summarizes which official subsectors and sectors the new categorization corresponds to:

| <u>New subsector category</u> | <u>Original Sector</u> | <u>Original Subsector</u> |
|-------------------------------|------------------------|---------------------------|
| AG | AG | AG |
| AG | AG | AG-ADM |
| AG | AG | AG-AGB |
| AG-DEV | AG | AG-DEV |
| AG | AG | AG-POL |
| AG-RES | AG | AG-RES |
| AG | AG | AG-RIE |
| AG | AG | AG-SAN |
| AG | AG | AG-TEC |
| AS | AS | AS |
| AS | AS | AS-AGR |
| AS | AS | AS-AGU |
| AS | AS | AS-DRA |
| AS | AS | AS-GRH |
| AS | AS | AS-SAR |
| AS | AS | AS-SAU |
| AS | AS | AS-SOL |
| AS | AS | AS-SOS |
| DU | DU | DU |
| DU | DU | DU-HER |
| DU | DU | DU-LAN |
| DU-NEI | DU | DU-NEI |
| DU | DU | DU-SUS |
| DU | DU | DU-VIV |
| ED | ED | ED |
| ED | ED | ED-ADU |
| ED | ED | ED-COM |
| ED | ED | ED-DOC |
| ED | ED | ED-EVA |
| ED | ED | ED-ICT |
| ED | ED | ED-NUM |
| ED | ED | ED-PRE |
| ED | ED | ED-PRI |
| ED | ED | ED-SEC |
| ED | ED | ED-STW |
| ED | ED | ED-SUP |
| ED | ED | ED-VOC |

| | | |
|--------|----|--------|
| EN | EN | EN |
| EN | EN | EN-BIO |
| EN | EN | EN-D&T |
| EN | EN | EN-EEC |
| EN | EN | EN-ERT |
| EN | EN | EN-HID |
| EN | EN | EN-INS |
| EN | EN | EN-INT |
| EN | EN | EN-PET |
| EN | EN | EN-REH |
| EN | EN | EN-TBC |
| EN | EN | EN-TER |
| FM | FM | FM |
| FM-BNK | FM | FM-BNK |
| FM | FM | FM-CAP |
| FM | FM | FM-FES |
| FM | FM | FM-INC |
| FM | FM | FM-INS |
| FM | FM | FM-INV |
| FM | FM | FM-MOR |
| FM | FM | FM-REG |
| FM | FM | FM-RSK |
| IN | IN | IN |
| IS | IS | IS |
| IS | IS | IS-AFR |
| IS | IS | IS-DER |
| IS-ECD | IS | IS-ECD |
| IS | IS | IS-EMP |
| IS | IS | IS-GDI |
| IS | IS | IS-IND |
| IS | IS | IS-LIS |
| IS | IS | IS-LPO |
| IS | IS | IS-MIG |
| IS-POV | IS | IS-POV |
| IS | IS | IS-PSS |
| IS | IS | IS-REL |
| IS | IS | IS-SEC |
| IS | IS | IS-VOC |
| IS | IS | IS-YAR |
| MU | MU | MULTIS |
| OT | OT | OT |
| PA | PA | PA |
| PA | PA | PA-ADA |
| PA | PA | PA-AMB |
| PA | PA | PA-BIO |

| | | |
|--------|----|--------|
| PA | PA | PA-COS |
| PA-DRM | PA | PA-DRM |
| PA | PA | PA-EIR |
| PA | PA | PA-FCC |
| PA | PA | PA-FOR |
| PA | PA | PA-MIT |
| PS | PS | PS |
| PS | PS | PS-CSC |
| PS | PS | PS-EMP |
| PS | PS | PS-MAJ |
| PS | PS | PS-MDF |
| PS | PS | PS-MIC |
| PS | PS | PS-NEG |
| PS | PS | PS-PYM |
| PS | PS | PS-REG |
| RI | RI | RI |
| RI | RI | RI-ENA |
| RI | RI | RI-RCC |
| RM | RM | RM |
| RM | RM | RM-CEN |
| RM | RM | RM-DBT |
| RM | RM | RM-DES |
| RM | RM | RM-EGO |
| RM | RM | RM-ETI |
| RM-FIN | RM | RM-FIN |
| RM-FIS | RM | RM-FIS |
| RM | RM | RM-JUS |
| RM-MFR | RM | RM-MFR |
| RM | RM | RM-PRO |
| RM-PUB | RM | RM-PUB |
| RM | RM | RM-REA |
| RM | RM | RM-REG |
| RM | RM | RM-SOC |
| RM | RM | RM-SUB |
| SA | SA | SA |
| SA | SA | SA-DPC |
| SA | SA | SA-FIN |
| SA | SA | SA-HSS |
| SA | SA | SA-ICT |
| SA | SA | SA-NUT |
| SA | SA | SA-PHC |
| SA-SER | SA | SA-SER |
| ST | ST | ST |
| ST | ST | ST-DIF |
| ST | ST | ST-HRD |

| | | |
|----|----|--------|
| ST | ST | ST-ICT |
| ST | ST | ST-INF |
| ST | ST | ST-RDH |
| ST | ST | ST-RDI |
| ST | ST | ST-REG |
| ST | ST | ST-RES |
| ST | ST | ST-TEL |
| TD | TD | TD |
| TD | TD | TD-EIP |
| TD | TD | TD-TAA |
| TD | TD | TD-TFL |
| TD | TD | TD-TIA |
| TR | TR | TR |
| TR | TR | TR-AED |
| TR | TR | TR-AEE |
| TR | TR | TR-FEI |
| TR | TR | TR-FRA |
| TR | TR | TR-INT |
| TR | TR | TR-LPM |
| TR | TR | TR-LUR |
| TR | TR | TR-PDO |
| TR | TR | TR-PDR |
| TR | TR | TR-PSE |
| TR | TR | TR-UGC |
| TR | TR | TR-UIN |
| TR | TR | TR-UMA |
| TR | TR | TR-UNM |
| TR | TR | TR-VEQ |
| TR | TR | TR-VMA |
| TR | TR | TR-VPR |
| TR | TR | TR-VRU |
| TR | TR | TR-VSE |
| TR | TR | TR-VSI |
| TU | TU | TU |
| TU | TU | TU-COM |
| TU | TU | TU-DES |

Notes: AG: Agriculture & Development; AS: Water & Sanitation; DU: Urban Development & Housing; ED: Education; EN: Energy; FM: Financial Markets; IS: Social Investment; PA: Climate Change & Environment; PS: Private Firms; RM: Modernization of the State; SA: Health; ST: Innovation & Technology; TD: Trade & Integration; TR: Transportation; TU: Sustainable Tourism; RI: Regional Integration.

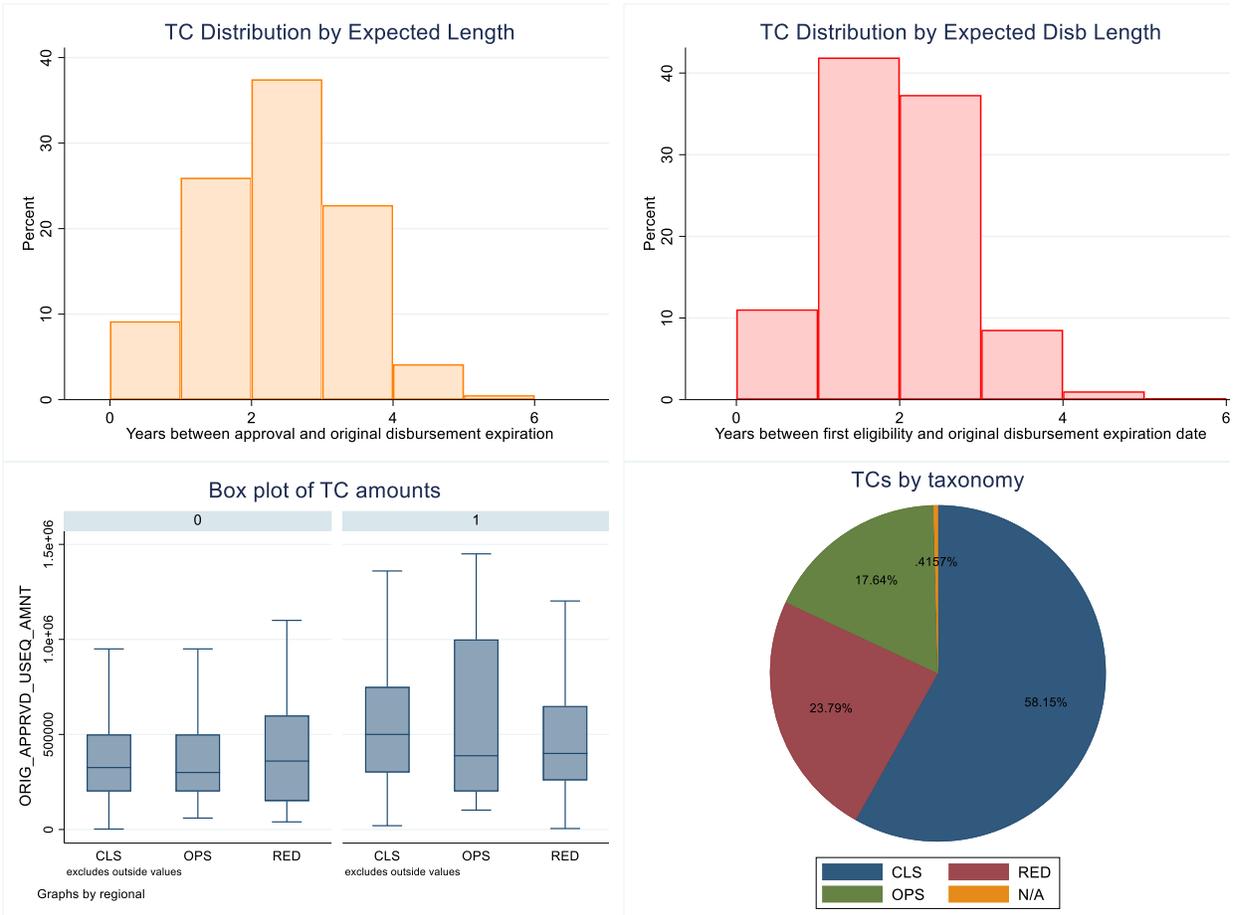
TC Execution Indicators

| Indicator Type | Indicator Name | Definition |
|-----------------------|---|---|
| Alert | No active team leader in the first 2 years since eligibility. | This indicator is triggered if an active IDB employee is not listed in Bank systems as the Team Leader for a TC. It is most commonly triggered when a Team Leader leaves the Bank and a replacement is not assigned. |
| Alert | Over six months since eligibility and zero disbursements. | This indicator is triggered if six months have passed since disbursement eligibility was declared but the TC has yet to disburse. |
| Alert | No disbursement in 6 months in the first 2 years since eligibility | This indicator is triggered if: (i) the TC has disbursed at some point in the past; (ii) six months or more, but less than 12 months have passed since its last disbursement; and (iii) less than two years have passed since the TC became eligible to disburse. |
| Alert | No disbursement in one year in the first 2 years since eligibility | This indicator is triggered if: (i) the TC has disbursed at some point in the past; (ii) 12 months or more have passed since its last disbursement; and (iii) less than two years have passed since the TC became eligible to disburse. |
| Outcome | Number of extensions | The number of times a request was made to extend the final disbursement date of the TC. Currently, two extensions are delegated by the President to Management. A third extension requires the President's authorization. |
| Outcome | Available extensions not enough to extend deadline up to date/Number of extensions allowed has been exceeded; | This indicator is triggered if a TC remains active, has undisbursed resources, but has already used up all available extensions. In this case the project team can either request an extension of last resort from the President or close the TC. |
| Outcome | Disbursement deadline expired/Final disbursement deadline expired. | This indicator is triggered when the TC remains active after the final day to disburse resources. |
| Outcome | Eligibility deadline expired | This indicator is triggered if the TC remains active but has not met the conditions required prior to the first disbursement. |

Source: IDB ORP GCM

Appendix B

Figure B1



Appendix C

In this section the analysis focuses on TCs that are expected to take 2 years or less between approval and final disbursement date. These TCs are in total 747 (35 percent of the total), but TCDI exist for less than half of them.

The relative risk ratios obtained from this exercise will represent the probabilities of a TC to be classified as problem or alert relative to being classified as satisfactory:

$$rrr(c) = \frac{P(y=c|X)}{P(y="satisfactory"|X)} = \exp(X\beta_c) \quad (5)$$

where c is alert or problem. Thus, the exponentiated value of a coefficient β_c is the relative-risk ratio for a one-unit change in the covariate X , measured as the risk of classification c relative to the base outcome satisfactory. X_p are other project characteristics: original approved amount (in million USD), expected life of the project (i.e. years between approval and original disbursement expiration date), a dummy equal to 1 if the team leader at the approval of the project is in headquarters (HQ), the taxonomy of the technical cooperation, a dummy equal to 1 if the environmental category is A, a dummy equal to 1 if it is Bank-executed (0 if it is client-executed or both the Bank and the client), and their interaction with the expected life of the project. Country fixed effects, year of approval fixed effects and year of evaluation fixed effects are also included in the model, together with the alert indicator with unit value if there are no disbursements for six months (in the initial 6-month period) for TCs that are Bank-executed.²⁵

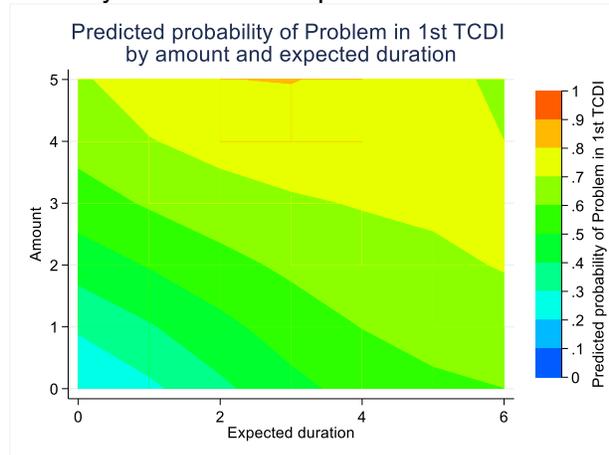
Results are reported in Table C1. As can be seen also in Figure C1, TCs that are expected to disburse within 2 years are less likely to be classified as problematic in the first year they are observed compared to TCs that are expected to take longer (panel A), while they are more likely to be classified as successful (panel B). The same holds true for the second year in which a TCDI is assigned (panels C-D).²⁶

²⁵ Since these TCs are expected to be shorter than 2 years, the analysis does not consider alert indicators that raise warnings in the first 2 years since eligibility, since the first TCDI is likely to be assigned before the activation of those indicators.

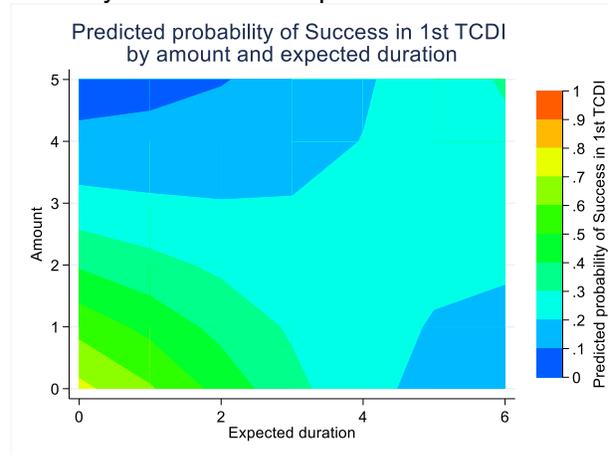
²⁶ The model does not converge for the TCDI observed in the 3rd year, so results are presented for TCDI of the first 2 years only.

Figure C1. Predictive probabilities on TCDI for different values of original approved amount and expected duration (years between approval and expected final disbursement date)

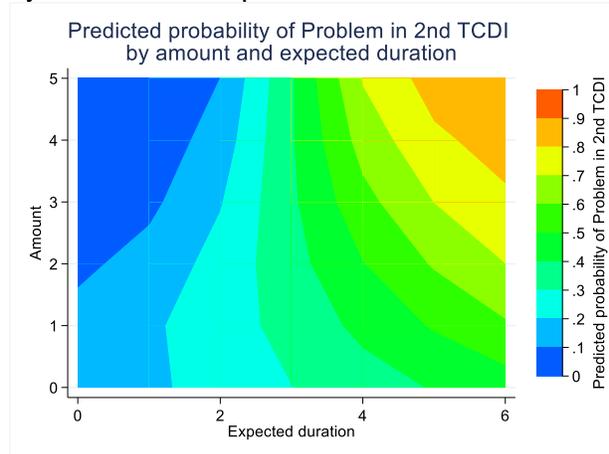
A. Predicted probability of Problem in 1st TCDI by amount and expected duration



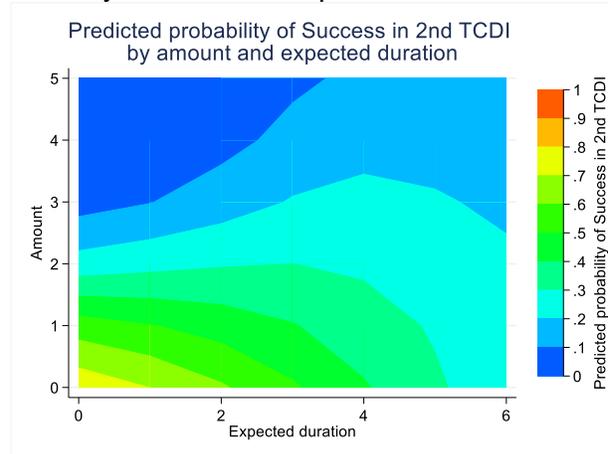
B. Predicted probability of Satisfactory in 1st TCDI by amount and expected duration



C. Predicted probability of Problem in 2nd TCDI by amount and expected duration



D. Predicted probability of Satisfactory in 2nd TCDI by amount and expected duration



Notes. The figure reports the probabilities that a TC will be classified as problem or satisfactory given its approved amount and expected duration (estimates from equation 8). Panel A reports the probabilities of being ranked as problem in the first year; panel B reports the probabilities of being ranked as satisfactory in the first year; panel C reports the probabilities of being ranked as problem in the second year; panel D reports the probabilities of being ranked as satisfactory in the second year.

Table C1. Relative risk ratios for having TCDI as “problem” or “alert” over “satisfactory”

| | (1) First-year TCDI Problem | (2) Alert | (3) Second-year TCDI Problem | (4) Alert |
|---|-----------------------------------|----------------------|------------------------------------|-----------------------|
| Amount | 0.919* (0.543) | 0.889 (0.645) | 0.681 (0.536) | 2.122*** (0.512) |
| Expected duration | 1.349*** (0.181) | 1.384*** (0.230) | 1.344*** (0.345) | 0.842*** (0.273) |
| Amount # Expected Duration | -0.193* (0.105) | -0.308* (0.161) | -0.019 (0.153) | -0.463*** (0.117) |
| Team Leader in HQ | 0.477 (0.548) | 0.618 (0.554) | 0.064 (1.144) | -0.843 (0.954) |
| Team Leader in HQ # Expected Duration | -0.362 (0.229) | -0.416* (0.230) | -0.009 (0.438) | 0.383 (0.379) |
| Taxonomy = N/A | 17.383*** (1.200) | 2.931*** (0.920) | -77.528*** (4.287) | -44.352*** (2.886) |
| Taxonomy = OPS | 0.873 (0.663) | 0.317 (0.972) | 0.250 (0.831) | 0.687 (0.865) |
| Taxonomy = RED | 1.351*** (0.474) | 0.669 (0.525) | 1.370 (0.834) | 0.269 (0.611) |
| Taxonomy = N/A # Expected Duration | -1.328*** (0.291) | -1.114*** (0.334) | 20.180*** (1.100) | 9.091*** (0.654) |
| Taxonomy = OPS # Expected Duration | -0.531* (0.305) | -0.374 (0.385) | 0.075 (0.293) | 0.076 (0.370) |
| Taxonomy = RED # Expected Duration | -0.676*** (0.171) | -0.319* (0.187) | -0.657** (0.310) | -0.268 (0.249) |
| Environmental Classification: A | 3.068 (2.550) | 3.545* (1.986) | 0.221 (2.512) | 7.957** (3.760) |
| Environmental Classification: A # Expected Duration | -1.357 (1.010) | -1.238** (0.631) | -0.322 (0.741) | -3.373** (1.692) |
| Executed by the IDB | 0.041 (0.510) | 0.684 (0.726) | 1.489 (1.133) | 0.993 (0.837) |
| Executed by the IDB # Expected Duration | -0.224 (0.184) | -0.355 (0.258) | -0.621 (0.397) | -0.436 (0.310) |
| Alert: over six months since eligibility and zero disbursements | 1.056*** (0.174) | 0.095 (0.311) | 0.540*** (0.176) | -0.362 (0.222) |
| score1 = 0, Problem | | | 3.569*** (0.261) | 2.104*** (0.180) |
| score1 = 1, Alert | | | 1.311*** (0.353) | 1.649*** (0.216) |
| Country FE | Yes | Yes | Yes | Yes |
| Year of approval FE | Yes | Yes | Yes | Yes |
| Year of evaluation FE | Yes | Yes | Yes | Yes |
| Observations | 1,028 | 1,028 | 890 | 890 |

Notes. The table reports the relative risk ratios from the multinomial logistic regression defined in equation (8), where all observable characteristics are interacted with expected duration of the project and the only indicator included is a dummy with unit value if the technical cooperation experiences zero disbursements after being eligibility for 6 months. Amount winsorized at top 1 percent. Country, year of approval and year of evaluation fixed effects are not reported but included. Standard errors are clustered at the country level, *** p<0.01, ** p<0.05, * p<0.1.

Appendix D

In this section the analysis focuses on TCs whose planned disbursement period (time between first eligibility date and original disbursement expiration date) is expected to exceed two years. These are 975 TCs (45 percent of the total). The results of estimating equation (4) for this subsample are reported in Table D1.

Table D1. Predictors of TC problems for TCs expected to disburse in more than 2 years

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|----------------------|----------------------------------|--|--------------------------------------|--|-------------------------------------|---|
| | Current extensions | Cancelled amount (% of original) | Alert: Available extensions not enough to extend deadline up to date | Alert: Disbursement deadline expired | Alert: No new commitments/disbursements in 12 months; deadline | Alert: Eligibility deadline expired | Alert: Eligibility deadline expired (Bank-executed) |
| Alert: no active Team Leader (in two years since eligibility) | 0.255*** (0.072) | 0.057 (1.588) | -0.006 (0.023) | -0.116*** (0.041) | -0.003 (0.003) | 0.003 (0.012) | -0.019 (0.035) |
| Alert: no disbursements in one year (in two years since | 0.176* (0.086) | 2.773 (3.967) | 0.000 (0.009) | -0.026 (0.039) | 0.001 (0.007) | | |
| Alert: no disbursements in six months (in two years since | 0.027 (0.051) | 2.328 (1.607) | 0.002 (0.006) | -0.114*** (0.022) | -0.004 (0.004) | | |
| Alert: over six months since eligibility and zero disbursements | 0.138* (0.070) | 5.727** (2.715) | 0.005 (0.006) | -0.084*** (0.025) | -0.003 (0.003) | | |
| Amount (million USD) | 0.119*** (0.039) | 0.522 (0.573) | 0.002 (0.006) | 0.013 (0.015) | -0.010* (0.005) | 0.021* (0.011) | 0.025 (0.015) |
| Years between approval and original disbursement expiration | -0.266*** (0.057) | -0.544 (0.913) | -0.010 (0.008) | -0.152*** (0.020) | 0.007 (0.006) | 0.018 (0.012) | 0.012 (0.015) |
| Team Leader in HQ | -0.087* (0.049) | -0.782 (1.313) | -0.002 (0.017) | -0.022 (0.036) | 0.014 (0.016) | 0.030 (0.026) | -0.035** (0.017) |
| Taxonomy = N/A | 1.028*** (0.229) | 2.844* (1.465) | -0.017* (0.009) | 0.228*** (0.032) | 0.113*** (0.034) | -0.013 (0.021) | 0.159 (0.229) |
| Taxonomy = OPS | 0.135* (0.078) | 1.277 (2.129) | -0.005 (0.016) | -0.059 (0.046) | -0.016 (0.011) | -0.037 (0.046) | 0.033 (0.035) |
| Taxonomy = RED | 0.057 (0.036) | -0.060 (0.715) | -0.010 (0.011) | -0.024 (0.038) | -0.001 (0.009) | -0.046 (0.032) | -0.008 (0.014) |
| Environmental Classification: A | 0.491* (0.285) | -0.428 (2.408) | 0.089 (0.093) | -0.061 (0.091) | -0.018 (0.015) | | -0.025 (0.087) |
| Executed by the IADB | 0.191*** (0.047) | 0.202 (1.612) | 0.028 (0.019) | -0.078 (0.050) | 0.003 (0.014) | | |
| Department FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of approval FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 997 | 998 | 998 | 998 | 998 | 216 | 782 |
| R-squared | 0.342 | 0.117 | 0.177 | 0.407 | 0.298 | 0.310 | 0.140 |

Notes. The table reports the estimated coefficients from equation (4) for the TCs that are expected to disburse in more than 2 years, where alert indicators are dummies with unit value if no active team leader in the first 2 years since eligibility, if the technical cooperation experiences zero disbursements after being eligibility for 6 months, in the first 2 years since eligibility and over six months since eligibility. Amount winsorized at top 1 percent. Department, country, and year of approval fixed effects are not reported but included. Standard errors are clustered at the country level, *** p<0.01, ** p<0.05, * p<0.1.