



**Information Frictions, Investment Promotion,
and Multinational Production: Firm-Level Evidence**

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Abstract

While countries make use of a wide range of policies to attract multinational firms, identifying the effect of such policies is difficult. Combining firm-level data on *both* the location of these firms' foreign affiliates and detailed service-specific information from Costa Rica's investment promotion agency (IPA) over time, we find that IPA support significantly increases the probability that a multinational firm establishes its first affiliate in the country. Using existing theory and data, we estimate that the associated welfare gains are between 0.2%-0.4%. We then show that the effect is primarily driven by the resolution of information asymmetries. It is stronger for IPA information services and on multinational firms from countries and in sectors facing more severe information frictions.

Keywords: Information Frictions, Investment Promotion, Multinational Production

JEL-Codes: F23, F13, F14, L23, L25, L52, O25

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1. Introduction

Multinational production —i.e., the production that is carried out by firms outside of their home country — accounts for a large share of global economic activity.¹ The extensive margin accounts for a large share of the variation of this production across countries and is responsible for most of given multinational firms' expansion over time (see Ramondo et al., 2015; and Garetto et al., 2019). Governments around the world have resorted to different policies to attract these multinational firms. One of these policies is *investment promotion* —a public intervention designed to reduce information frictions that does neither distort prices nor involve direct financial support—. ² Despite being ubiquitous, rigorous microeconomic evaluations of the causal impacts of this policy are virtually nonexistent. In this paper, we precisely examine whether and how investment promotion affects multinational firms' location decisions and the spatial patterns of multinational production's extensive margin. In so doing, we use a unique firm-level dataset over a long period of time that combines firm-level data on *both* location decisions and policy assistance status.

Gravity factors, in general, and trade costs, in particular, influence the level of multinational production and especially its extensive margin (see, e.g., Head and Mayer, 2004; Ramondo, 2014). Despite progress in information and communication technologies, information barriers remain an important component of these costs and, as such, a major determinant of the geography of this production (see, e.g., Oldenski, 2012; Keller and Yeaple, 2013; Allen, 2014; Ramondo et al., 2015; Alfaro and Chen, 2018). This is particularly true in the current economic environment characterized by trade disputes and the pandemic, which are reshaping global value chains, and the associated increased uncertainty (see, e.g., Baldwin and Evenett, 2020; and Fajgelbaum et al., 2020).

More specifically, firms seeking to invest abroad must learn about the regulations that need to be complied with and the costs and specific conditions implied when establishing and operating in the destination country. Information in these regards can be highly incomplete and gathering it can be very costly, especially in less popular or far away destinations. For instance, in Costa Rica, the country we focus on in this paper, each topic-specific study for a given possible location or establishment costs between US\$ 5,000 and US\$ 10,000.³ As a result, multinational firms may end up considering

¹ Thus, sales from foreign affiliates amount to approximately 40% of global GDP (see UNCTAD, 2018).

² Other policies include incentives to foreign firms in the form of income tax holidays, tariff exemptions, and subsidies for infrastructure, not infrequently combined under free zone regimes. Unlike investment promotion, these kinds of interventions imply deviations from policy neutrality and thus create price distortions (see Harrison and Rodriguez-Clare, 2010).

³ These figures come from a market study conducted by Costa Rica's national investment promotion agency. Examples of these studies are reports on tax incentives, tailored simulations of profits and

a small range of locations and disregarding several potentially convenient alternatives (see Loewendahl, 2018).⁴

Nearly all countries have established dedicated organizations, the so-called Investment Promotion Agencies (IPAs), whose activities aim at attracting multinational firms by precisely lowering information barriers. IPAs primarily provide these firms with a series of information and other support services (see, e.g., Alfaro and Charlton, 2007; and Harding and Javorcik, 2011; and Volpe Martincus and Sztajerowska, 2019).

In this paper, we address two main questions: (i) What is the impact of investment promotion on the likelihood that multinational firms establish an affiliate in a country? (ii) What are the mechanisms behind the observed effects? More specifically, are these effects consistent with an information friction-reduction mechanism —i.e., larger for IPAs' information services and firms from home countries or active in sectors facing more severe information frictions—?

In answering these questions, we use a rich dataset that combines data on the worldwide distribution of multinational firms' foreign affiliates including information on the country, the main sector, and the year of establishment for both each parent firm and each of its affiliates; and data on Costa Rica's IPA assistance to multinational firms that specify the activity through which the support actually took place over the period 2000–2016.

These data allow us to observe, for the first time to our knowledge, all four possible combinations of policy treatments and outcomes: assisted multinational firms that locate in the host country in a given year, assisted multinational firms that never locate in the host country, non-assisted multinational firms that locate in the host country in a given year, and non-assisted multinational firms that never locate in the host country.

To identify the effects of investment promotion on these firms' location decisions, we first apply an instrumental variables strategy. In particular, our baseline specification relates a firm-level binary indicator of affiliate establishment with a firm-level binary indicator of IPA assistance, along with firm fixed effects, year fixed effects, and multiple firm-level covariates that capture size and geography of network of affiliates. Given that multinational firms can self-select into support, we instrument the binary indicator of IPA assistance with variables that capture the agency's prioritization approach. More specifically, CINDE (Costa Rica's national investment promotion agency) targets

losses, and surveys to relevant firms established in the country based on interviews to senior managers, etc.

⁴ Given its virtual non-excludability and its non-rivalry use, gathered information can spillover to other firms, thus generating free riding. These externalities are typically not included in the private assessment of multinational firms of the costs and benefits associated with doing business and investing abroad and could provide a rationale for public intervention (see Blyde et al., 2014).

large multinational firms, mainly from the United States (see Volpe Martincus and Sztajerowska, 2019). This firm-level targeting strategy relies on the use of external lists of companies. This is primarily the case with the Fortune 1000 (F1000) list, which includes the 1,000 largest US firms by revenue in a specific year. We therefore instrument firms' investment promotion assistance status with a series of binary indicators that capture firms' contemporaneous and lagged membership to the F1000 list.

Our estimates indicate that investment promotion has been effective in attracting new multinational firms to Costa Rica. Support from the national IPA, CINDE, has been associated with an increase of 32 percentage points in the probability that these firms establish a first affiliate in the country, which translated to a 0.2%-0.4% welfare increase.⁵ In contrast, the IPA's assistance does not seem to have a robust effect on firms' reinvestment decisions—as measured through the opening of subsequent affiliates—. Admittedly, instruments are weaker in this case. More precisely, the F1000 lists have a lower conditional correlation with investment promotion assistance for reinvestment by multinational firms already active in the country.⁶ Taken together, these results suggest that investment promotion would operate by reducing information-related, location-specific fixed costs associated with starting new firms and especially with opening a first affiliate in a country.

While the aforementioned instruments are strong predictors of IPA support for first establishment, the validity of this identification strategy could be threatened by a potential violation of the exclusion restriction. Since variation comes primarily from changes in firms' membership into the F1000 list and these changes are driven by relative increases in firms' revenues, it might be argued that expanding firms that become part of the F1000 list will more probably open affiliates abroad, in general, and in Costa Rica, in particular, anyway, regardless of the IPA assistance.

However, the exclusion restriction is likely to be fulfilled. The reason is twofold. First, the baseline specification controls for the relevant determinants of multinational firms' geographical expansion identified in the literature (see, e.g., Antràs and Yeaple, 2013; Egger et al., 2014). This is especially the case when we also account for firms' annual revenue—which is the sole variable used by Fortune to produce the list—as we do in the subsample for which we have data thereon. Moreover, using worldwide

⁵ It is worth mentioning that, in general, instrumental variables point estimates are absolutely larger than their OLS counterparts. This is similar to several instrumental variable applications in the international trade literature. Having said that, in our case, these estimates are not significantly different in virtually all cases. Moreover, they tend to be closer to each other when the sample is restricted to include only multinational firms that are similar in size and received a similar level of assistance. We explicitly discuss this in-depth in Subsection 4.2.

⁶ According to OLS estimates, IPA support for reinvestment would appear to make some difference when several years have elapsed from the previous establishment and thus installation-specific information originally provided is likely to have depreciated due to changes in the business environment.

data on the location of multinational firms' affiliates over time, we consistently show that, conditional on the covariates and the benchmark fixed effects, the F1000 indicator does not directly affect the probability of establishing an affiliate in 94% of the smaller economies (i.e., with GDP below US\$ 100 billion). In the specific case of Costa Rica, the F1000 indicator has a significant effect in the full sample (which corresponds to the reduced-form estimate), but a insignificant effect on such a probability when we exclude the firms assisted by the national investment promotion agency. Furthermore, we have conducted event studies that clearly show that F1000 multinational firms did not experience significant increases in their global revenues or global assets when they were approached by CINDE. Similarly, evidence also indicates that these firms were not more likely to open new foreign affiliates in other locations (such as other Central American countries, other Latin American countries or North America) around the assistance time.

Second, we primarily exploit two sources of exogenous variation: firms' ownership type (i.e., public firms which are required to submit financial statements vs. private firms that are not required to do so) and firms' accounting and reporting practices (e.g., filing dates).⁷ Using these data, we show that multinational firms that have higher revenues *and* are public and submit their financial statements in the second semester of the year are more likely to be part of the F1000 list, even after controlling for the firm-level covariates and fixed effects in our baseline specification.⁸ This might be related to the fact that such statements, which are used as a key source for firms' revenues, are more readily available for public firms and that the list is compiled during the first semester of the subsequent year. Importantly, such differences in reporting practices are unlikely to be directly correlated with firms' decisions to locate in Costa Rica. From an economic point of view, in addition to being a proxy for size, membership in the Fortune lists is perceived as a mark of prestige (see, e.g., Meneghetti and Williams, 2017). Hence, the F1000 can be seen as a signalling mechanism that helps reduce the multidimensional information problem confronted by IPAs when selecting the firms to prioritize. Conditional on the control variables, the effect of F1000 on firms' investment promotion assistance status can only come precisely from its signalling function.

In addition to the baseline instrumental variables estimations, we conduct a series of robustness check exercises that aim at providing further support to a causal inter-

⁷ The location of multinational firms' headquarters also plays a role. Thus, non-US-based multinational firms whose performance in general and their revenue in particular are comparable to those of their US peers do not belong to the F1000 as this list only includes firms that are incorporated and operate in the United States and file financial statements with US government agencies.

⁸ Our baseline specification includes time-varying firm-level controls and firm(-home country-sector) and year fixed effects that account for differences in the propensity to locate in Costa Rica across similar parent firms based in different countries and operating in different sectors.

pretation of our results. First, we estimate alternative specifications that include stricter sets of fixed effects that further ameliorate the risk of omitted variable biases. This is for instance the case with the estimation equations that feature firm, country-year, and sector-year fixed effects and firm and country-sector-year fixed effects, in both cases along with time-varying firm level covariates.

Second, we take advantage of the detailed data stored in CINDE's information systems and distinguish assisted firms between those that initiated the contact (*reactive assistance*) and those that were approached by the agency (*proactive assistance*). The latter are typically selected based on variables that are either observable to us and accounted for by the covariates included in the baseline specification (e.g., firm's size) or controlled for by the array of fixed effects (e.g., sector of activity). Thus, given our baseline specification, self-selection into investment promotion support can be considered to be a less severe issue for the latter firms (see Munch and Schaur, 2018). We find that *proactive assistance* has a positive and significant impact on attracting multinational firms whose magnitude is similar to that obtained in our benchmark estimation. Third and similarly, we exclude those multinational firms that visited the IPA's website and could therefore have already decided to establish an affiliate in the country. Fourth, we remove from the estimation sample multinational firms that have been supported through other investment attraction policy instruments (i.e., free trade zones) that could potentially confound the effect of investment promotion assistance. Fifth, we estimate our main equation on additional alternative samples that primarily restrict the control group and both the control and treatment groups to make assisted and non-assisted multinational firms most similar in terms of relevant observable characteristics (e.g., the size and expansion of their network of foreign affiliates and the growth rate of their global revenues), thus reducing the scope for firm heterogeneity to affect our estimates. The results of all of these estimations confirm our initial findings.

Sixth and importantly, we replicate the entire set of baseline and robustness check exercises using event study designs implemented through the standard two-way fixed effects regressions and the new estimator proposed by Sun and Abraham (2021). These event studies consistently indicate that investment promotion has not been associated with any difference in investment behavior between assisted multinational firms and non-assistance multinational firms before assistance takes place but only afterwards.

Finally, we perform a more thorough assessment of the information cost mechanism using novel firm-level, program-specific data. If these information costs are the source of observed impacts, then we would expect the size of these impacts to vary with the type of assistance and the level of these costs. We accordingly examine whether effects are heterogeneous across different IPA services and different firms' home countries and

sectors in a manner that is consistent with the severity of information incompleteness along these dimensions. Given that no instruments are available for specific services, in this case, we rely on event study designs. Evidence based therein indicates that the impacts are larger when firms are assisted in gathering relevant and accurate information on business conditions, in general, and installation-related matters, in particular, and these firms are from home countries or active in sectors that can be considered to face more severe information frictions.

Our study contributes to two main strands of the literature. First, a large number of papers examine the patterns, determinants, and implications of multinational production, including a few recent studies focused on Costa Rica (see, e.g., Alfaro and Chen, 2014; Egger et al., 2014; Ramondo et al., 2015; Conconi et al., 2016; Alviarez, 2019; Garetto et al., 2019; Head and Mayer, 2019; Alfaro-Ureña et al., 2022a,b,c; and Méndez and van Patten, 2022).⁹

We add to these papers by incorporating a public policy angle into the analysis. More specifically, we assess the role of investment promotion, a widely used firm-level policy aiming at lowering information barriers in shaping the geography of multinational production. Our findings highlight that this policy is a relevant determinant of multinational firms' spread over space and time. Thus, they suggest that quantitative frameworks for multinational production would benefit from incorporating more explicitly information frictions and policies aimed at reducing them.

Second, we complement a series of papers that evaluate the impact of investment promotion on foreign direct investment (FDI).¹⁰ Broadly speaking, these papers proxy such a policy through aggregate binary variables indicating either (i) the existence of an IPA or an IPA's office in the host or home country/city (see, e.g., Head et al., 1999; Bobonis and Shatz, 2007; Hayakawa et al., 2014; and Ni et al., 2017) or (ii) whether specific sectors are targeted by the IPA (see, e.g., Alfaro and Charlton, 2007; Harding and Javorcik, 2011; and Crescenzi et al., 2021).¹¹ For instance, in a pioneer paper which can be considered the reference in this literature, Harding and Javorcik (2011) use changing IPAs' sector targeting to identify the impact of investment promotion on FDI inflows. In so doing, they apply a DID-type estimation strategy on host country-sector-year data

⁹ Earlier contributions include Markusen (2002), Markusen and Maskus (2002), Yeaple (2003), Nunn and Trefler (2008), Antràs et al. (2009), Alfaro and Charlton (2009), Chen and Moore (2010), Antràs en Yeaple (2013), and Irarrazabal et al. (2013), among others.

¹⁰ Most of the papers in this literature use FDI as the outcome of interest. FDI is primarily a financial variable whose spatial distribution does not necessarily correspond to that of multinational production, especially across industries (see, e.g., Lipsey, 2007). Thus, while it actually implies a change in the extensive margin of such a production, the establishment of an affiliate in a country would not show up in the FDI statistics if it was financed with resources from local sources (see Ramondo et al., 2015).

¹¹ Harding and Javorcik (2012) and Harding et al. (2019) exploit sectoral targeting to identify the effects of FDI on recipient countries' export quality and comparative advantage.

based on a specification that includes host country-sector, host country-year, and sector-year fixed effects. Their results indicate that sector prioritization has translated into an additional annual inflow of US\$ 17 million from the US for the median country-sector combination in 1990-2004.

We contribute to this literature in three main ways. First, we assess the effectiveness of public interventions specifically designed to attract multinational firms using firm-level data on *both* location decisions and assistance statuses.¹² Using data at the level at which the policy operates allows us to have a tighter identification strategy. Unlike studies based on aggregate data, we can apply a firm-level instrumental variables approach. In so doing, we can explicitly control for unobserved time-invariant and observed time-varying firm-level factors that are relevant for the spatial distribution of multinational production and potentially correlated with investment promotion. Furthermore, in a robustness check exercise, we can additionally account for unobserved, time-varying country-sector heterogeneity through appropriate sets of fixed effects.

Second and related, taking advantage of our policy micro data, we examine whether investment promotion actually influences the firms' extensive margin of multinational production, which plays a major role in the expansion of this production. Importantly in this regard, we can distinguish between margins and estimate the specific impacts of investment promotion on the establishment of the first affiliate and on subsequent establishments (reinvestment) in a country.¹³ The severity of the information barriers faced by multinational firms is likely to differ between these instances. Hence, the margin-specific estimations help inform the channels through which the policy intervention works, in general, and whether the effects are aligned with reduction of information frictions, in particular, thereby also contributing to their identification.

Third and further along these lines, we characterize the extensive margin of investment promotion policies (i.e., the number of supported firms) and explore potential heterogeneous effects of the different specific IPAs services and across groups of firms depending on the severity of information problems associated with their home countries or sectors. In so doing, we provide entirely new evidence on the underlying mechanisms of the effects, which also supports causal identification.

The remainder of this paper consists of five sections. Section 2 introduces the databases used in the empirical analysis and presents descriptive evidence. Section 3

¹²The virtual absence of evidence based on investment promotion data at the firm-level sharply contrasts with that on the effects of export promotion, a policy that also aims at reducing information-related trade costs but to make it easier for domestic firms to start selling and to expand their sales abroad instead of to facilitating the arrival of foreign firms (see, e.g., Volpe Martincus and Carballo, 2008, 2010; Cadot et al., 2015; van Biesebroeck et al., 2016; and Munch and Schaur, 2018).

¹³We also present evidence on the impact of investment promotion on the intensive margin of multinational production in the Online Appendix.

explains the empirical strategy. Section 4 reports the main estimation results along with relevant robustness checks, Section 5 explores the mechanisms of the observed effects, Section 6 quantifies the role of investment promotion in the gains from multinational production for Costa Rica, and Section 7 concludes.

2. Data and Descriptive Evidence

2.1. Data

To characterize the patterns and evolution of multinational production in Costa Rica we rely on four main databases: Dun and Bradstreet (DB)'s WorldBase and three databases that were kindly shared with us by CINDE.¹⁴

Our initial sample consists of all (global ultimate) parent firms that, at some point of the period 2000-2016, have at least one affiliate in a different country (i.e., roughly 200,000 firms as of 2016). From this set, we remove those firms that did not open any foreign affiliate over such a period to create a more comparable sample of firms to carry out our empirical analysis. For these multinational firms, the WorldBase furnishes us with data on home country, year of establishment, and sector of activity of the parent firm as well as data on location —i.e., host country—, year of establishment, and sector of activity for each of its affiliates.

Given that the coverage of WorldBase is not perfect in developing countries such as Costa Rica, we complement it using two databases kindly shared by CINDE.¹⁵ The first database also provides us with data on parent firm, home country, sector of activity, and starting year for the foreign affiliates established in the country. The second database includes information on firms' revenues, ownership type (public vs. private), financial statement filling date (quarter) from S&P Capital IQ. Additionally, a third database provided by CINDE informs all firms in free trade zones. This allows us to identify foreign affiliates operating under such a regime.

In Costa Rica, the responsibility for national investment promotion has been assigned to a single agency: CINDE.¹⁶ This IPA, whose unique mandate is precisely to promote inward FDI, has a sectoral focus in its promotional efforts and actively targets multinational firms from the United States —where the agency has its single overseas

¹⁴For details on how the WorldBase is constructed and its coverage and accuracy, see Alfaro and Chen (2012, 2014); DB (2019); and Carballo et al. (2020).

¹⁵Our baseline estimation results are robust to considering only those multinational firms present in the WorldBase data. These results are available from the authors upon request.

¹⁶In the Online Appendix, we provide further background information on CINDE.

office—. ¹⁷ Importantly, CINDE prioritizes investment projects of large foreign firms.

CINDE has a highly developed CRM (Customer Relationship Management) system that accurately tracks all these support activities (and their modalities) to individual firms since 2000. This is precisely the information that we use in our empirical analysis. In particular, CINDE has also kindly granted us access to the list of all multinational firms assisted by the agency each year over the period 2000–2016, the nature of the service (either reactive—initiated by the firm or proactive—initiated by the agency), and the specific type of service.

As mentioned above, CINDE targets large firms. Exploiting the IPA’s institutional arrangements and following its own operational practices, we will proxy such firm prioritization with the Fortune 1000 list over the period —which are available on the web—.

The databases on multinational production, investment promotion assistance, and F1000 list have been merged using firms’ names. While these names generally differ in the databases, all assisted firms could be identified in the base of multinational firms after harmonizing their names and applying a fuzzy matching algorithm complemented with a clerical review of the resulting matches. ¹⁸

2.2. Descriptive Evidence

Using these merged data, columns 1-2 in the top panel of Table 1 report the total number of multinational firms and that of their affiliates established in Costa Rica. The number of multinational firms located in Costa Rica grew in 285, from 183 in 1990 to 468 in 2016, thus more than doubling over our sample period (i.e., an average annual increase of 17 between 2000 and 2016 and of 20 between 2010 and 2016). ¹⁹

Column 3 in the top panel of Table 1 presents the total annual number of multinational firms assisted by CINDE —i.e., regardless of whether they located or did not locate in the country—. The number of firms supported by CINDE grew significantly

¹⁷ Priority sectors include various manufacturing activities; recycling; computer programming and related activities; research and experimental development in natural sciences and engineering; architectural, engineering and other technical activities; advertising; business activities; and higher education.

¹⁸ For additional details on the matching procedure, see Carballo et al. (2020). It is worth stressing that our estimation results remain the same when the sample is restricted so that only perfect initial matches are considered. These estimation results are available from the authors upon request.

¹⁹ The most recent figure is comparable to that reported in Alfaro-Ureña et al. (2022a) who use data from Costa Rica’s Central Bank. These firms from approximately 50 countries have more than 600 affiliates that are active in 141 4-digit ISIC sectors. Most multinational firms are headquartered in the United States, Panama, and the United Kingdom, and operate in the financial services (ISIC 64), wholesale trade (ISIC 46), and office administration, office support, and other business support activities (ISIC 82) sectors (see Carballo et al., 2020).

in these years.²⁰ It increased from less than 10 at the beginning of the 2000s to more than 150 in most recent years.²¹ As shown in the bottom panel of Table 1, out of the 1,065 assistance instances between 2000 and 2016, 23.5% correspond to F1000 firms (see Figure 1).²²

Figures in this panel also reveal that, overall, over our sample period, almost 18% of the 285 multinational firms that established by a first foreign affiliate in Costa Rica were assisted by CINDE, 12% belonged to the F1000, and 4% were both supported by CINDE and members of the F1000 lists. On average, the contemporaneous conversion rate—as measured by the number of support instances that are associated with the establishment of a multinational firm in the same year—is 9.5%. This figure rises to 13.5% for members of the F1000 lists.²³

In promoting investment into Costa Rica, CINDE provides multinational firms with different services. These services can be grouped in two main categories: (i) *information services* through which CINDE supports firms in gathering specific information on local business conditions, in general, and the installation process, in particular;²⁴ and (ii) *other services*, which include *procedural services* through which CINDE assists firm in completing relevant procedures and *human capital services* through which CINDE helps firms find and hire personnel.²⁵ Importantly, these services to multinational firms are provided free of charge.

Columns 4 and 5 in the top panel of Table 1 present the distribution of the firms' assistances between those for first establishment (i.e., multinational firms that were not previously established in Costa Rica) and for reinvestment (i.e., multinational firms that were already located in Costa Rica), whereas Columns 5-7 report the number of firms supported through information services both overall and for each specific location decision, respectively. On average, assistances for first establishment accounted for roughly 50% of the total number of firms working with CINDE every year and around 70% of these assistances for first establishment corresponded to provision of relevant

²⁰ Multinational firms from the United States represented more than 50% of the total number of supported firms.

²¹ As a percentage of the total number of multinational firms established in Costa Rica, it increased from approximately 2% in 2000–2003 to 37% in 2013–2016.

²² The percentage share for multinational firms proactively approached by CINDE was 23%.

²³ This percentage drops to an average of 2.1% for the subsequent three years.

²⁴ Specific examples include participation and establishment of contacts with investors in sectoral fairs and exhibitions; reply to specific inquiries including analysis of raw data and production of market studies, tailored Gantt charts along with a detailed explanation of the installation process in a specific sector, simulations of expected profits and losses for concrete business models, and organization of meetings with potential clients, suppliers, and government officials to learn about specific prices and conditions.

²⁵ Specific examples include assistance for registration, acquisition of licenses and construction, health, and environmental permits—including scheduling of meetings with government officials—; and assistance to hire and programs to train their local personnel, respectively

business data.

Approximately, 16% of the multinational firms that opened their first affiliate in Costa Rica over the sample period were supported by CINDE through the provision of information services. This corresponds to roughly 85% of all cases of assistances followed by firms' establishments.²⁶ On average, the contemporary conversion rate was 10.8% for information services and below 5% for the other services.²⁷

In the next section, we explain our empirical approach to formally establish whether and, if so, how strong is the link between opening of affiliates and support from CINDE.

3. Empirical Methodology

We aim at estimating the effects of investment promotion assistance on multinational firms' decisions to establish an affiliate in the country. This requires to properly account for other relevant observed and unobserved factors that may affect both location decisions and use of investment promotion services. In so doing, we use the following baseline general linear probability model:²⁸

$$\mathbb{I}(E)_{\text{fhst}} = \sum_{k=0}^K \alpha_k \mathbb{I}(\text{IPA})_{\text{fhst-k}} + \sum_{j=1}^J \sum_{k=1}^K \beta_k^j \chi_{\text{fhst-k}}^j + \lambda_{\text{fhs}} + \rho_t + \varepsilon_{\text{fhst}} \quad (1)$$

where $\mathbb{I}(E)_{\text{fhst}}$ is a binary indicator of either first establishment or expansion of a multinational firm in the country. More precisely, in the former case, the binary indicator takes the value of one if the (ultimate) parent firm f operating in sector s from home country h establishes its first affiliated firm in Costa Rica in year t and zero otherwise, whereas in the latter case it takes the value of one if the parent firm f operating in sector s from home country h opens an additional affiliated firm in the country in year t and zero otherwise.²⁹ These dependent variables correspond to the extensive margin of multinational production. This is precisely the margin that accounts for the largest share of the variation in bilateral flows of multinational production and for most of multinational firms' growth (see Ramondo et al., 2015; and Garetto et al., 2019).³⁰

²⁶ Slightly more than half of the 67 multinational firms entered Costa Rica with CINDE's assistance established their first affiliates outside of the free trade zones and one quarter of those belong to the F1000.

²⁷ The results of CINDE's customer satisfaction survey in recent years present anecdotal support to the presumption that firms find information provision services especially useful (see Table A1 in the Appendix).

²⁸ As mentioned below, we have used non-linear estimators for robustness check purposes.

²⁹ In additional exercises, we examine the impact of investment promotion assistance on the intensive margin of multinational production. See Section 5.

³⁰ Using data across 59 countries for the late 1990s, Ramondo et al. (2015) find that two-thirds of the increase in bilateral multinational production flows can be traced back to increase in the number of affiliates and only one third can be attributed to larger sales per affiliate. This is different from international trade where the intensive margin appears to be dominant.

$\mathbb{I}(\text{IPA})_{fhsst(-k)}$ is a binary indicator that takes the value of one if the parent firm f operating in sector s from home country h was assisted by the national investment promotion agency CINDE in year $t(-k)$ and zero otherwise, where $k \neq 0$ allows for non-contemporaneous supports to affect the outcome variable. The coefficient on $\mathbb{I}(\text{IPA})$, α , is accordingly our parameter of interest. If $\alpha > 0$ ($\alpha = 0$), then investment promotion support has a positive (no) impact on the probability that a multinational firm establishes or increases its number of affiliates in Costa Rica.

The remaining terms of Equation (1) correspond to control variables. Thus, $X_{fhsst-k} = \{X_{fhsst-1}^1, \dots, X_{fhsst-K}^J\}$ is set of lags of time-varying firm-level characteristics. Thus, these covariates capture firm's size such as the parent firm's total number of affiliates, the total number of countries in which the parent firm is present (which can also be considered a proxy for productivity —see, e.g., Helpman et al., 2004; Yeaple, 2009; and Chen and Moore, 2010—), and the number of sectors in which the parent firm operates (across affiliates).

In addition, they account for firm's geographical network such as binary indicators for the presence of affiliates in neighboring countries, other non-neighboring Central American countries, other Latin American countries, countries in the same income group (according to the World Bank's classification), and countries with which Costa Rica has a preferential trade agreement (PTA), a bilateral investment treaty (BIT), or double taxation treaty (DTT) in force in the year in question (see, e.g., Head and Mayer, 2004; Baltagi et al., 2007; Blonigen et al., 2007; Chen, 2011; Antràs and Yeaple, 2013; Egger et al., 2014; and Conconi et al., 2016).

λ_{fhs} and ρ_t are sets of firm(-home country-sector) fixed effects and year fixed effects, respectively. The former control for both time-invariant firm-specific factors and standard bilateral gravity variables such as distance, common language, and common border between the home country and Costa Rica and hence for the firm's systematic propensity to establish an affiliate therein. The latter account for macroeconomic factors. ε is the error term.

These sets of fixed effects (along with the time-varying firm-level variables) account for a wide range of potential confounding factors and reduce the risk of omitted variable biases. Admittedly, though, actual support can be endogenous to multinational firms' location decisions for several reasons. Thus, for instance, one could conceivably think that firms that are strongly interested or have already decided to establish an affiliate in Costa Rica self-select into CINDE assistance, in which case the agency would behave in a reactive manner.

To isolate a source of variation in CINDE's support that is exogenous with respect to firms' location decisions, we exploit the agency's firm-level prioritization approach de-

scribed in Section 2. As explained there, CINDE targets large multinational firms, particularly those headquartered in the United States. This firm size-based prioritization strategy has been operationalized through the use of reference external multinational firms' lists. More specifically, according to our interviews with CINDE's management, the IPA uses the F1000 list to target firms and began to actively do so in 2006. Consistently, the average F1000 percentage share in assisted multinational firms increased from 29.3% in 2003–2005 to almost 40% in 2006–2008 (see Figure 1). This is the maximum increase in such a share from 2000 to 2016. We accordingly estimate Equation (1) by instrumental variables using the annual F1000 lists as instruments for investment promotion assistance status starting in 2006.³¹ Formally, the first-stage equation is as follows:

$$\mathbb{I}(\text{IPA})_{\text{fhst}} = \sum_{k=0}^K \psi_k \mathbb{I}(\text{L})_{\text{fhst}-k} + \sum_{j=1}^J \sum_{k=1}^K \theta_k^j \chi_{\text{fhst}-k}^j + \sigma_{\text{fhs}} + \nu_t + \varepsilon_{\text{fhst}} \quad (2)$$

where $\mathbb{I}(\text{L})_{\text{fhst}}$ is a binary indicator that takes the value of one if the multinational firm belongs to the F1000 list in the year in question and zero otherwise. In particular, we consider the contemporaneous and three lags of this binary indicator to allow for targeting of firms that have joined the list and therefore become more visible in recent years and not just the current one.³²

To be valid instruments, the F1000 list should predict investment promotion assistance, but it should be otherwise uncorrelated with multinational firms' location decisions. This involves two conditions. First, being part of the aforementioned list must be correlated with investment promotion support once other relevant variables have been netted out. This can be expected to be the case, as CINDE targets large multinational firms, primarily from the United States. More specifically, firms entering the F1000 list are more likely to be targeted for attraction and assisted by CINDE.

Second, being in the F1000 list must be uncorrelated with the error term after conditioning on all other relevant explanatory variables. In other words, it must be exogenous. To reduce the risk of a potential violation of such an assumption, we estimate alternative specifications that include stricter sets of fixed effects as robustness check exercises. Thus, in the most demanding variant, we introduce home country-sector-year fixed effects along with firm fixed effects and time-varying firm-level covariates. The former account for a myriad of time-varying (host country-)home country-sector factors including market size; Costa Rica's productivity growth and changing comparative advantages in given sectors (e.g., relative skilled labor endowments; sector-specific

³¹ It is worth stressing that instrumental variable estimates are virtually identical if we alternatively use as starting years 2005 or 2007. These estimation results are available from the authors upon request.

³² In Subsection 4.1 we explore the implication of using different combinations of these instruments.

policies; differences in business cycles; the number of affiliates from the home country operating in Costa Rica; share of those firms that were assisted by the IPA; sectoral and actual country IPA's prioritization; potential information spillovers across parent firms in given sectors and home countries; exchange rates; trade-related procedures (i.e., port handling and customs processing times); transport costs and tariffs (see, e.g., Alfaro and Chen, 2018); preferential trade agreements (PTAs), bilateral investment treaties (BITs), and double taxation treaties (DTTs), and tax rates differentials between Costa Rica and the home countries. These sets of fixed effects are stricter than those previous studies using more aggregated data could rely on to deal with unobserved heterogeneity.³³ Also important in this regard, while data on annual revenues are not available for all firms in our main estimation sample, we were able to gather these data for a relatively large number of these firms and hence explicitly control for this variable in the respective subsample.

True, it may still be argued that foreign firms joining the F1000 list are growing and specifically expanding and are therefore more likely to open affiliates in other countries, in general, and in Costa Rica, in particular. To check whether this was the case, we implement event study designs to examine how F1000 firms behave along these dimensions around the assistance time. Formally, we estimate the following specification that includes lags and leads of IPA assistance on F1000 firms' outcomes:

$$Z_{fhsst} = \sum_{\tau=-3}^3 \phi_{\tau} \mathbb{I}(t - t_{fhs}^* = \tau) + \sum_{j=1}^J \sum_{k=1}^K \delta_k^j X_{fhsst}^j + \chi_{fhs} + \zeta_t + \varepsilon_{fhsst} \quad (3)$$

where Z denotes either the (natural logarithm of) multinational firms' global revenues or assets or a binary indicator that takes the value of one if the multinational firm establishes a foreign affiliate in a given region (i.e., other Central American countries, other Latin American countries, North America, and the Rest of the World) and zero otherwise. t_{fhs}^* is the year t when a multinational firm f from country h and in sector S is first assisted by CINDE. For supported firms, the indicators $\mathbb{I}(t - t_{fhs}^* = \tau)$ measure the number of years relative to the first assistance, t_{fhs}^* . These indicators are equal to zero for all time periods for firms that are never supported by CINDE. If outcomes were following similar trends before the support, then we expect that the coefficient estimates for $\tau \leq -1$ will be statistically insignificant. The estimates are presented in Figure 2. These estimates indicate that F1000 firms neither experienced higher revenue or asset growth nor were more likely to open foreign affiliates elsewhere before or after

³³For instance, Harding and Javorcik (2011) work with host country-sector-year level data and their main specification includes host country-sector, host country-year, and sector-year fixed effects.

the assistance time.³⁴

Moreover, we examine whether our instruments have a direct effect on the location decisions of (non-assisted) multinational firms. We estimate a reduced-form equation which corresponds to a modified version of Equation (1) where the IPA assistance indicator is replaced by a binary indicator of membership to the F1000 list:

$$\mathbb{I}(E)_{\text{fhst}} = \sum_{k=0}^K \kappa_k \mathbb{I}(L)_{\text{fhst-k}} + \sum_{j=1}^J \sum_{k=1}^K \omega_k^j \chi_{\text{fhst-k}}^j + \mu_{\text{fhs}} + \iota_{\text{hst}} + \varepsilon_{\text{fhst}} \quad (4)$$

Equation (4) is estimated for both all countries around the world and the subset of countries with annual GDP below US\$ 100 billion to which Costa Rica belongs. Furthermore, we estimate this equation both with the standard set of firm-level controls and with those controls plus firms' annual revenue. Estimates are reported in Figure 3.³⁵ These estimates reveal that the F1000 indicator is positive and significant in 18% of the countries worldwide and in only 6.1% of the 112 small economies. After conditioning by relevant factors driving multinational firms' location decisions, no mechanical relationship seems therefore to generally exist between membership to the F1000 list and first (or subsequent) establishments, especially for smaller countries.

Noteworthy, Costa Rica is among the few small economies for which F1000 has a positive and significant effect on this outcome. This is in line with what should be expected from an instrument meeting the first condition referred to above. Importantly, such an indicator ceases to be significant when the reduced form equation is estimated on the sample excluding assisted multinational firms (see Figure 3 and Table A2 in the Online Appendix). While the validity of the exclusion restriction cannot be tested, this evidence would informally suggest that being on the F1000 list does not have a direct effect on the probability that multinational firms establish an affiliate in Costa Rica, but through the IPA assistance.

It must be admitted, though, that such evidence naturally leads to the question of what exogenous variation that makes firms, which are similar in size, geographical spread, and performance, to be part or not of the F1000 list is being used to identify the impact of interest. Such an exogenous variation has two main sources.

To start with, the F1000 list only includes firms incorporated in the United States that submit financial statements to US government agencies. In this sense, it is worth recalling that our baseline specification encompasses firm(-home country-sector) fixed effects,

³⁴We have conducted similar event studies on alternative samples including all multinational firms and only non-F1000 firms. The estimates are also non-significant in those cases. These estimation results can be found in Figure A1 in the Online Appendix.

³⁵The figure only shows estimates for first establishment. Those for reinvestment are similar and are available from the authors upon request.

which control for potential systematic differences in firms' propensity to establish an affiliate in Costa Rica across home countries-sector combinations.

Furthermore, among firms based and with presence in the United States, a number of accounting rules and practices can play an important role. More precisely, the reason why some similarly large and strong performing firms do not show up in the F1000 list could be fourfold. First, firms can be publicly traded or privately held. Despite that both groups include large firms, these different types of firms face different reporting regulations. Thus, the latter are not required to produce or disclose financial reports nor have them audited (see Minnis and Schroff, 2017; Lisowsky and Minnis, 2020). As a consequence, while revenues for public firms are readily available, those for private firms need to be searched for in alternative —generally unofficial— sources and could be not systematically accessible.³⁶ This can influence membership to the F1000 list, as it excludes firms that fail to report full financial statements for at least three quarters of the relevant fiscal year.³⁷

Second, even among those firms that report, they typically do so at different times since they can determine when their fiscal years start and end to accommodate different seasonal trends. In this regard, it should be mentioned that the F1000 list is produced in the first semester of the calendar year using data from the end of the previous year. Hence, growing firms that submit their statements in the second semester might potentially register larger (conditional) revenues at the margin.

Third, there may be significant measurement errors. In particular, firms' financial statements depend on estimates and judgement calls that can be inaccurate (see, e.g., Sherman and Young, 2016). Fourth and related, according to prevailing financial reporting rules, firms are not allowed to record any revenues from sales whose costs cannot be established beforehand.

To assess whether these factors make a difference, we estimate the equation: $\mathbb{I}(L)_{fhs} = a_1 \text{Revenues}_{fhs-1} + a_2 \text{Revenues}_{fhs-1} \mathbb{I}(\text{PF})_{fhs} + a_3 \text{Revenues}_{fhs-1} \mathbb{I}(\text{SS})_{fhs} + \sum_{j=1}^J b_j \chi_{fhs-1}^j + c_{fhs} + d_t + e_{fhs}$, where $\mathbb{I}(\text{PF})_{fhs}$ is a binary indicator that takes the value of one if the firm is publicly traded and zero otherwise and $\mathbb{I}(\text{SS})_{fhs}$ is a binary indicator that takes the value of one if the firm reports during the second semester and zero otherwise. The estimating sample consists of either all of US-based multinational firms whose annual revenues are as large as those of those of the firms in the F1000 list or all multinational firms based on the United States.

³⁶ These sources are usually idiosyncratic and are accordingly less comparable across them and even for each of them over time.

³⁷ Firms that become publicly traded typically report their revenues backwards, thus making them available after the lists were completed. Moreover, F1000 revenues are based on originally reported data. Changes are made only for significant restatements due to errors that required firms to fill in an amended financial form.

OLS estimates of this equation indicate that multinational firms that have larger revenues and are public and present their financial statements in the second semester are indeed more likely to be part of the F1000 list (see Table A3 in the Appendix). Importantly, these conditioning factors that influence inclusion in the F1000 list can be considered uncorrelated with probability firms opening an affiliate in Costa Rica. Economically, in addition to proxing for size in general and revenue in particular, the F1000 is an independent mark of prestige (see, e.g., Meneghetti and Williams, 2017). As such, it serves as a signalling mechanism that helps reduce the information problem encountered by IPA’s officials when selecting which large firms to approach. This is precisely what we exploit for identification purposes after conditioning by all control variables and fixed effects.

In addition to the baseline instrumental variable estimations, we carry out robustness check exercises to provide further evidence to support a causal identification of the effects of interest. First, we use event study designs and apply both the standard two-way fixed effects and the new generation of estimators to implement them:³⁸

$$\mathbb{I}(E)_{\text{fhst}} = \sum_{\tau=-3}^3 \zeta_{\tau} \mathbb{I}(t - t_{\text{fhs}}^* = \tau) + \sum_{j=1}^J \sum_{k=1}^K \Omega_k^j \mathcal{X}_{\text{fhst}}^j + \iota_{\text{fhs}} + \nu_t + \varepsilon_{\text{fhst}} \quad (5)$$

Second, in both the instrumental variables estimations and the event studies, we additionally take advantage of the highly detailed data in CINDE’s CRM to distinguish assisted multinational firms between those that approached the IPA and their counterparts that were approached by the agency when estimating the impact of investment promotion on the location decision. While self-selection is clearly a concern for estimates specific to firms that decided to contact the IPA in the first place and accordingly received a *reactive assistance*, this is less likely to be the case for those corresponding to their peers that were contacted by the IPA and hence received a *proactive assistance*. More specifically, under the assumption that IPA’s proactive selection of firms is exogenous conditional on the observable time-varying firm-level covariates and the fixed effects, the estimated effect of proactive assistance would more accurately identify the true impact of the investment promotion (see Munch and Schaur, 2018).³⁹ In this regard, it is worth noting that such an identifying assumption could be expected to hold as these control variables account for virtually all relevant information observed and considered by IPA’s officials when deciding which firms to approach.

Third, and similarly, we use unique information from CINDE’s intelligence database

³⁸ In particular, we primarily use the estimator proposed by Sun and Abraham (2021) and, in robustness check exercises, those developed by Borusyak et al. (2022) and Chaisemartin and D’Haultfoeuille (2020).

³⁹ Munch and Schaur (2018) use a similar strategy to identify the effects of trade promotion on firms’ exports.

to remove multinational firms that visited the agency’s website. Fourth, we exclude multinational firms that received support through other policy instruments, such as free-trade zones, that could be correlated with investment promotion assistance. Fifth, we consider alternative samples that restrict the control group and both the control and treatment groups to make multinational firms that are part of them even more similar in terms of relevant characteristics, thus reducing the potential incidence of firm heterogeneity in driving our results.

Finally, as explained in Section 1, investment promotion operates primarily by reducing information barriers for multinational firms. Therefore, we explicitly investigate whether observed specific effects are consistent with such a mechanism. In so doing, we estimate the impact of IPA’s information services and other services, both overall and for groups of firms from home countries and in sectors subject to different levels of information frictions. Given that no instruments are available for specific services, we resort to event study designs to do so. In particular, the following specification is estimated:

$$\mathbb{I}(E)_{\text{fhst}} = \sum_{m=1}^M \sum_{l=1}^L \sum_{\tau=-3}^3 \zeta_{\tau,m,l} \Phi_1 \mathbb{I}(t - t_{\text{fhs}}^* = \tau) + \sum_{j=1}^J \sum_{k=1}^K \Xi_k^j \chi_{\text{fhst}}^j + \iota_{\text{fhs}} + \nu_t + \varepsilon_{\text{fhst}} \quad (6)$$

where m and l index IPA’s specific services (i.e., information services and other services) and groups of firms defined according to their specific home countries (i.e., with and without common language with Costa Rica, where language is both a communication vehicle and a contextual cultural factor), or their specific sectors (i.e., differentiated and non-differentiated); and Φ_1 is the corresponding group indicator.

In all cases, standard errors will be clustered by firm for inference purposes, thus allowing for an unrestricted covariance structure over time within firms, which may differ across them.

4. Estimation Results

4.1. Baseline Estimates

Table 2 reports instrumental variables estimates of alternative specifications of Equation (1) that focus on contemporaneous support along with their respective specification test statistics and OLS counterparts for reference.⁴⁰ These estimates have been obtained

⁴⁰ Table A4 in the Online Appendix presents OLS estimates of specifications that also include one lag of the investment promotion support indicator for first establishment. These estimates coincide with those shown in Table 2. In particular, lagged support does not seem to have a significant effect. As suggested by the lower panel of the table, this likely reflects the fact that firms can be and are assisted on several occasions over time. Hence, we will continue using our baseline specification hereafter.

on the sample of multinational firms that established at least one foreign affiliate anywhere in the world over the period 2000-2016.⁴¹ The instruments consist of a set of binary indicators capturing contemporaneous and up to three lags of firms' membership to the F1000 list.⁴²

Starting with a specification with neither covariates nor fixed effects in Column 1, those in successive columns incorporate different sets of controls. Thus, Column 2 introduces sets of fixed effects that are standard in cross-country-sector analyses, i.e., home country-sector, home country-year and sector-year fixed effects. Columns 3 and 4 include country-sector-year and firm and year fixed effects, respectively. Column 5, which is our baseline, adds time-varying firm-level covariates capturing size and geographical distribution of affiliates, lagged one year, to the latter.⁴³ Columns 6 and 7 further incorporate a set of home country-year and sector-year fixed effects and home country-sector-year fixed effects, respectively.⁴⁴ Finally, Column 8 augments our baseline specification by introducing firms' total revenues, lagged one year, to control for the single variable based on which the F1000 lists are constructed.⁴⁵ As discussed in Section 3, in this case, the remaining exogenous variation used for identification is associated with the interplay between these revenues and firms' ownership type (publicly traded vs. privately held) and accounting practices (presenting financial reports in the second semester vs. in the first semester), which significantly affect firms' likelihood to be in

⁴¹ Table A5 in the Online Appendix reports the estimates for the full sample of multinational firms and bias-corrected fixed effect probit and logit and conditional logit estimates that take into account the binary nature of the dependent variable. These are in line with our baseline.

⁴² Table A6 in the Online Appendix shows the respective first stage estimates. Consistent with a priori expectations, these estimates reveal that becoming an F1000 firm significantly increases the likelihood of being assisted by CINDE. Table A7 in the Online Appendix presents instrumental variable estimates for different sets of instruments: contemporaneous, one lag, two lags, and three lags of the F1000 lists and their combinations. The combination of instruments that includes the contemporaneous and up to three (or two) lags of the F1000 lists is a stronger instrument than the individual F1000 lists. This reflects both that CINDE staff not only look at the current F1000 list but also at previous versions when selecting firms to approach and, as indicated by their cross-year correlation, that there are no trivial changes in the composition of the lists over time. Therefore, we retain the aforementioned combination of lists as instruments.

⁴³ Table A8 in the Online Appendix reports instrumental variable estimates of the full specification incorporating three lags of the time-varying firm-level size and geographical network variables. These estimates are also entirely consistent with the baseline.

⁴⁴ These specifications account for cross-firm, within country, within sector, and within country-sector information spillovers. In variants of the baseline specification, we explicitly include the number of multinational firms or foreign affiliates from the same country, sector, or country-sector, as additional covariates to capture these spillovers. These variables have a positive but small impact on the probability of first establishment. This is especially the case for the number of firms from the same country and in the same sector. Importantly, the estimated impact of IPA support remains positive and significant and virtually identical to our baseline (see Table A9 in the Online Appendix).

⁴⁵ Note that, as mentioned above, we do not have data on revenues for all firms in our sample. Hence, the total number of observations is smaller in this case.

the F1000 list but in no obvious systematic way that to locate in Costa Rica.⁴⁶

The different panels distinguish between the first and subsequent affiliates. Thus, the top panel (*First Establishment*) shows the estimated effect of investment promotion assistance on the probability that a multinational firm that is not yet present in Costa Rica establishes its first affiliate in the country, while the bottom panel (*Reinvestment*) reports that on the probability that a multinational firm that already has an affiliate in Costa Rica opens another one.⁴⁷

The results consistently indicate that support from the investment promotion agency has had a positive and significant effect on the first establishments of multinational firms in Costa Rica. Thus, according to the baseline instrumental variables estimates, investment promotion assistance has been associated with an increase of 32 percentage points in the probability that a multinational firm opens its first affiliate in the country. These estimates can be seen to be consistent with the existence of an information-related location-specific fixed cost of establishing a first affiliate in a host country, which the IPA appears to effectively reduce through their support activities.⁴⁸

The Kleibergen-Paap robust F test statistics of weak identification are above 10, thus indicating that there is a strong conditional correlation between the instruments and the annual lists of firms assisted by CINDE. As for the exclusion restriction, the evidence presented in Section 3 indicates that the F1000 indicators do not appear to directly affect multinational firms' decision to open an affiliate in Costa Rica.⁴⁹

In contrast, the estimated impact on reinvestment is weaker and substantially less robust. This could be interpreted as indicating that, once the multinational firm is present in the country, the respective fixed costs of opening a new affiliate are lower, so that general investment promotion assistance, on average, would make less of a

⁴⁶ Table A10 in the Online Appendix presents instrumental variable estimates of the baseline equation based on a modified set of instruments whereby we allow the F1000 list to have differential effects depending on whether multinational firms are publicly registered and submit their financial statements in the second semester or not. The first stage of these estimates reveal that the F1000 lists have a positive and significant effect on the probability of IPA assistance, particularly when firms are public and present their statements in the second half of the year.

⁴⁷ The estimation samples are accordingly different. The *First Establishment* sample consists of all firm-year observations since the creation of the firms and either up to the year in which the firms establish their first affiliate in Costa Rica, if they do so, or until the end of the study period if they do not do so. The *Reinvestment* sample only includes multinational firms that are already present in Costa Rica.

⁴⁸ Given that multinational firms frequently divest (see, e.g., Javorcik and Poelhekke, 2017; and Borga et al., 2020), assistance could play an important role in retaining firms. Regrettably, our data do not allow us to rigorously examine whether CINDE support impacts divestment.

⁴⁹ The Hansen J test statistics, which are available from the authors upon request, are consistently non-significant. This indicates that our overidentifying restrictions cannot be rejected. To be more precise, as a test of joint-exogeneity, these Hansen tests do not strictly provide information on the validity of the instruments but on their coherence, i.e., whether they identify the same vector of parameters (see Parente and Santos Silva, 2012).

difference.⁵⁰ However, these estimates are not as reliable as those for first establishment because the F1000 instruments are weak in this case. This would be consistent with the fact that, while CINDE uses the F1000 lists to target large multinational firms without presence in Costa Rica, it does not appear to systematically resort to them to prioritize specific groups of firms among those already established in the country.⁵¹

As discussed above, there is a potential for multinational firms that are already interested in establishing an affiliate in the country to self-select into investment promotion assistance. If this is the case, we would expect that instrumental variables estimates to be smaller than their OLS counterparts. Our results indicate that the opposite holds for the first establishment. This is similar to what is observed in some existing instrumental variables applications in international trade (see, e.g., Costinot et al., 2012; Paravisini et al., 2015). In addition, note that, according to the Hausman test statistics, these different estimates are not significantly different from each other in our baseline sample. We will nonetheless come back to this issue in Subsection 4.2.2 and discuss two factors that can contribute to explain why our instrumental variables point estimates based on IPA's prioritization strategy could be larger than those obtained with OLS: what is prioritized (large firms) and how prioritization is implemented (higher assistance intensity).

4.2. Robustness

In this subsection, we present the results of several robustness checks that provide further supporting evidence for our empirical approach. These exercises primarily consist of alternative strategies to address concerns related to potential firms' self-selection into investment promotion assistance. They include: (i) estimations that exploit information on who initiated the contact—either the IPA or the multinational firm—and hence on the nature of the assistance—either *proactive* or *reactive*—, respectively, on whether multinational firms visited or not the IPA's website, and whether these firms received or not support through other investment attraction policy instruments; (ii) use of alternative samples that restrict the control group and both the control and treatment groups to make assisted and non-assisted multinational firms even more similar to their assisted peers along relevant dimensions.

⁵⁰ This could be seen as an extreme (within country instead of cross country) version of the extended gravity observed in international trade (see Morales et al., 2019). Note, however, that recent studies could not corroborate the existence of such an extended gravity for affiliate entry (see Garetto et al., 2019).

⁵¹ We have also estimated the impact of investment promotion assistance on established multinational firms' total domestic sales, number of domestic buyers, total domestic purchases, number of domestic suppliers, and number of employees using confidential firm-level data at the Central Bank of Costa Rica. The results of these estimations are presented in Table A11 of the Online Appendix. They indicate that IPA support does not seem to have had robust effects on these intensive margin outcomes.

4.2.1. *The Nature of IPA Assistance and Other Investment Attraction Policy Instruments*

Multinational firms that were already planning to invest in the country for some reason may have actually approached the IPA and ended up receiving its support. As an alternative way to address such firms' self-selection into investment promotion assistance, we use detailed information from CINDE's CRM system on the direction of the initial contact between the IPA and the firms.

More specifically, this information allows us to distinguish assisted multinational firms between those that contacted the agency (*services initiated by the firm*) and those that were contacted by the agency (*services initiated by the agency*). Conditional on the firm fixed effects and time-varying multinational firms' characteristics—which control for relevant dimensions of IPA's prioritization including of specific types of investors—, it can be argued that, when services are initiated by the IPA, there is no systematic bias in the IPA's approaching of firms and thus the treatment could be considered essentially exogenous (see Munch and Schaur, 2018). The first column of Table 3 reports estimates of Equation (1) whereby we restrict the treatment group to those multinational firms approached by the agency. These estimates reveal that agency-initiated investment promotion, which can be considered less subject to self-selection concerns, has a positive and significant effect on first establishment.

Web search activities performed by multinational firms can also signal their pre-existing interest in opening a foreign affiliate in a country. CINDE monitors these activities. In particular, the agency tracks the web traffic on its website and identifies the firms that visit it using their IP addresses. We use this unique information from CINDE's intelligence database to remove from the estimation sample all multinational firms that visited the agency's website and, hence, could have been already inclined to invest in Costa Rica. Estimates of the benchmark specification on this restricted sample are presented in Column 2 of Table 3. While in this case the instruments are weaker, the estimated effect is similar to our baseline, and thus corroborates our initial findings.

It is well-known that investment promotion is one among various policy instruments governments resort to to attract multinational firms to their territories. The possibility to locate in free trade zones and accordingly receive fiscal and even financial incentives is a prominent widely used tool. In fact, Costa Rica has free trade zones where several multinational firms are established. The question then arises of whether it is the assistance from the agency or the more favorable tax and customs regime that is inducing multinational firms to open an affiliate and be present in this host country. To assess whether this potential confounding factor is contaminating our results, we use information on free trade zone status and estimate Equation (1) on a sample that excludes multinational firms operating in these zones. Estimates are reported in the third column

of Table 3. These estimates indicate that, albeit relatively smaller, investment promotion assistance has a positive impact on the probability of first establishment even when multinational firms locate outside of the free trade zones and therefore do not enjoy advantages in the form of tax deductions.

4.2.2. *Alternative Samples*

While our baseline estimation sample already excludes multinational firms that did not expand abroad through the establishment of foreign affiliates between 2000 and 2016, it may admittedly still be argued that it includes an extensive set of non-assisted firms that may not constitute the most appropriate control group for their assisted counterparts. Thus, the raw data reveal that the former tend to be smaller and less dynamic than the latter, in general, and the targeted F1000 firms, in particular.

Hence, to further reduce the scope of firm heterogeneity to drive our results, we re-estimate Equation (1) on the following samples: (i) multinational firms that belonged to the F1000 at some point during our sample period (F1000 firms); (ii) F1000 and assisted multinational firms; (iii) F1000 and proactively assisted multinational firms; (iv) the 50 most similar non-assisted multinational peers in terms of size (within the respective home country-sector combination);⁵² and (v) assisted multinational firms and non-assisted multinational peers with a propensity score between the percentiles 25 and 75 of the distribution across firms (see Crump et al., 2009);⁵³

The estimates of Equation (1) obtained in these alternative samples are presented in Table 4. These are comparable and thus confirm our baseline.⁵⁴ The Hausman test statistics indicate that, also in most of these cases, the instrumental variable estimates are not significantly different from their OLS counterparts. Still, it is worth noting that the differences between the point estimates are smaller in these samples. Thus, while

⁵²The most similar firms are identified using a Mahalanobis measure of multidimensional distance among firms from the same home country and operating in the same sector of activity. The dimensions of firms' size considered for this purpose are the total number of foreign affiliates worldwide, the total number of host countries, and the total number of active sectors.

⁵³The variables used to compute the propensity score are those capturing the firm size and the firm network described in Section 3, along with binary indicators for home country, sector, and F1000 list membership. We have also restricted the sample by imposing alternative minimum thresholds on the propensity score for control firms (i.e., percentiles 25 and 50). Estimation results are similar to those reported here and are available from the authors upon request.

⁵⁴It is well-known that multinational firms can: (i) be assisted by other countries' IPAs; (ii) experience ownership changes over time; (iii) be located in tax heavens; and (iv) behave differently depending on their main sector of activity, particularly those operating in the financial sector. Estimates presented Table A12 of the Online Appendix reveal that the baseline results are robust to controlling for support by Costa Rica's main competing location (Mexico according to CINDE's CRM) and to excluding firms in groups (ii)-(iv).

such a difference is 0.159 for our baseline, the average difference is only 0.100 (almost 40% smaller) for the estimations in Table 4.

In addition, we re-estimate Equation (1) on alternative samples that restrict the control group and, to make them even more similar, both the control and the treatment groups based on relevant single measures of firms' size and performance. These restrictions are: (i) the number of foreign affiliates is between the percentiles 25 and 75 of the respective distribution of assisted firms; (ii) the number of host countries is between the percentiles 25 and 75 of the respective distribution of assisted firms;⁵⁵ (iii) the number of new foreign affiliates is between the percentiles 25 and 75 of the respective distribution of assisted firms; (iv) positive global revenue growth over the sample period; and (v) average growth in global revenues over the sample period is between the percentiles 25 and 75 of the respective distribution across assisted firms. The estimation results are shown in the top and middle panel of Table 5. As expected, the discrepancies between instrumental variables and OLS point estimates are smaller when restrictions are imposed on both groups (almost 30% than for our baseline). This suggests that such differences can be at least partially traced back to differences in the size of targeted assisted firms and the average assisted firms relative to their non-assisted peers. More specifically, prioritized multinational firms (on which instrumental variables estimates are based) tend to be larger, have a larger potential for geographical diversification, and can therefore be more responsive to investment promotion assistance than the mean supported firm (on which OLS estimates are based).

The prioritization implied by the IPA's targeting approach exploited in our instrumental variables estimations is also typically associated with higher levels of support intensity (see Blyde et al., 2014). In fact, less than 15% of the F1000 firms were assisted only once a year, but approximately 40% of the non-F1000 firms were in that situation. Hence, the discrepancy between instrumental variables and OLS estimates might be also partially driven by such differences in assistance intensity —average in the case of OLS estimates and high in the case of the instrumental variables estimates. This appears to be the case—. Estimation results shown in the bottom panel of Table 5 indicate that, when the treatment group is restricted to multinational firms with similar levels of support (i.e., more than once per year), instrument variables and OLS point estimates become further closer to each other. The average ratio of instrumental variable estimates to the respective OLS counterparts is only 1.5 (with the minimum being just 1.2) and the average absolute difference is only 0.08 (almost 50% smaller than for our baseline). As before, no difference is significant according to the Hausman test.⁵⁶

⁵⁵ Similar results are obtained when restricting the control group based on the number of sectors.

⁵⁶ The estimated impact of IPA assistance for prioritized sectors does not seem to be significantly differ-

Hence, the instrumental variable estimates could be seen as providing an average local treatment effect for multinational firms that are relatively large and receive support through a relatively larger number of services.

4.2.3. Evidence Based on Event Studies

In this subsection, we implement event study designs to examine the time profile of the effects and specifically the potential existence of pre-trends. In so doing, we primarily use the standard two-way fixed effects estimator and the observation-re-weighting approach proposed by Sun and Abraham (2021) to account for the differential timing of the policy interventions.

The first graph in Figure 4 presents the estimation results for first establishment (presence) based on Equation (5).⁵⁷ All estimated pre-assistance effects are insignificant. Hence, assisted multinational firms did not show a higher propensity to establish foreign affiliates in Costa Rica before being supported. Importantly, the event study also reveals that assistance by CINDE has been associated with a significant increase in the probability that multinational firms open a first affiliate in the country after it actually takes place.⁵⁸ It is worth noting that results based on the estimators developed by Borusyak et al. (2022) and Chaisemartin and D'Haultfoeuille (2020) corroborate these findings.⁵⁹

The remaining graphs in Figure 4 correspond to alternative specifications and samples used to check the robustness of our instrumental variables estimates (see Tables 2-3). The results of all these event studies are in line with our baseline. More precisely, estimated impacts are not significant before IPA support and are positive and significant afterward.

5. Mechanisms: IPA's Services and Firms' Characteristics

IPAs support multinational firms through a wide variety of services. As mentioned in Section 2, in the case of Costa Rica, the main services can be broadly classified into

ent from that for non-prioritized sectors. These estimation results are available from the authors upon request.

⁵⁷ Unlike our instrumental variables and OLS estimations and consistent with the typical implementation of the event study designs, observations after firms' first establishments are kept in the estimation sample (thus, our dependent variables becomes presence) and assistance is assumed to be an absorbing state. This can help explain the difference between the estimated impact of first assistance according to the event studies and those based on OLS. This can be seen in Table A13 in the Online Appendix that presents OLS estimates under the aforementioned conditions.

⁵⁸ In Figure A2 in the Online Appendix we present the estimation results for reinvestment (additional presence). As with our instrumental variable estimates, they do not allow for drawing clear cut conclusions.

⁵⁹ See Figure A2 in the Online Appendix.

two main categories: assistance to gather relevant information on local business conditions and installation process (*information services*) and assistance to complete relevant administrative procedures and to find and recruit properly trained employees (*other services*). Given their different nature and purpose, these services predictably have different effects depending on the location outcomes in question.

Given that we cannot apply the instrumental variables strategy in this case because no instruments are available for specific services, we explore these potential heterogeneous effects by implementing event study designs through the standard two-way fixed effects estimator.⁶⁰ In so doing, we estimate Equation (6) that includes individual binary indicators for specific investment promotion supports.

Evidence presented in Figure 5 suggests that information services have a strong effect on establishing the first affiliate.⁶¹ These results indicate that provision of relevant information helps multinational firms expand along the extensive margin, mainly by establishing an affiliate for the first time in Costa Rica. This alignment between services and outcomes provides further informal support to our identification of the effects of interest and the channels thereof.

Investment promotion services can be anticipated to have heterogeneous effects depending on the prevailing information barriers associated with firms' home countries and sectors. For instance, we could expect the impact to be larger on location decisions by multinational firms from home countries that are less familiar with the host country and hence there is less information available. Similarly, support from the agency can affect differently decisions of multinational firms operating in sectors producing goods and services with varying degrees of differentiation. We examine whether this is the case in the remaining graphs of Figure 5 through standard event studies. More specifically, the graphs show the estimated effects of investment promotion support for: (i) home countries that have/do not have a common language with Costa Rica, where a common language can be seen as a summary measure of more broadly cross-country similarities in terms of cultural, historical, social, political, economic, and consequently business contexts (see, e.g., Guiso et al., 2009; Egger and Lassmann, 2015); and (ii) dif-

⁶⁰ Unfortunately, new event study approaches do not generally allow for simultaneous estimation of multiple treatments and cannot therefore be applied.

⁶¹ Table A14 in the Online Appendix presents OLS estimates for reference. According to these estimates, assistance with information has a stronger positive and significant effect on the probability that already established firms open a new affiliate (reinvestment) when a significant amount of time (i.e., five years) has elapsed since the previous opening. Thus, information provided by IPAs through their support services appears to remain pertinent to address firms' knowledge needs for some years and can be reused by these multinational firms as inputs for their location decisions. However, such an information is subject to depreciation and obsolescence as contextual conditions and businesses change over time. Hence, after a period, multinational firms considering establishing a new affiliate in the country are confronted with renewed information gaps, which IPAs' services impactfully help to fill in.

ferentiated and non-differentiated sectors (see Rauch, 1999). These estimates indicate that promotion efforts are more effective in attracting multinational firms from countries whose populations speak a different language, and that operate in differentiated sectors. Noteworthy, this seems to be particularly the case when the assistance takes the form of information provision.⁶² These estimation results consistently point to stronger effects of investment promotion, in general, and information services, in particular, on the extensive margin of multinational production when information obstacles are large.

To sum up, IPA's information services have stronger effects on the cross-country firms' extensive margin of multinational production (first establishment) than on the within-country firms' extensive margin of such production (reinvestment—expansion of subsequent affiliates) and hence when information problems are more severe. Furthermore, along the cross-country firms' extensive margin, the impacts are specifically larger when multinational firms come from countries where a different language is spoken and where the business environment is not similar and operate in differentiated sectors, and thus face more information barriers. This is precisely what can be expected if investment promotion acts as an information cost reduction mechanism.

6. The Role of Investment Promotion in the Gains from Multinational Production

We perform a back-of-envelope calculation to quantify the role of IPA in the gains from multinational production in Costa Rica. To do so, we use the multicountry general equilibrium Ricardian model of trade and multinational production developed by Ramondo and Rodriguez-Clare (2013). According to this model, the gains from multinational production for country n , GMP_n^* , can be expressed as follows:⁶³

$$GMP_n^* = \left(\sum_{i \neq n} Y_{ni} / (w_n L_n) \right)^{-\frac{\eta}{\theta}} \times \left(1 - (1/2) \sum_{i \neq n} Y_{ni} / (w_n L_n) \right)^{-\frac{1}{\theta}} \quad (7)$$

where the first term, GMP_n^{g*} , denotes the gains from multinational production in intermediate goods sectors and the second term, GMP_n^{f*} , the gains from multinational production in the final goods sector.⁶⁴

We follow Ramondo and Rodriguez-Clare (2013) and set $\eta = 0.5$ and $\theta = 4.2$. Given these parameters, we only need data on the inward multinational production share to

⁶² Admittedly, in these cases, estimated effects of specific services are not significantly different from each other.

⁶³ See Ramondo and Rodriguez-Clare (2013) for details on the assumptions. This formula applies to both a case in which there is only multinational production and a case in which gains from trade and gains from multinational production are independent of each other.

⁶⁴ This expression also assumes that the share of multinational production in the intermediate-goods sector is 0.5. Ramondo and Rodriguez-Clare (2013) use U.S. data to obtain this value for this parameter.

quantify the effect of interest. Since we do not have data on multinational production in Costa Rica, we rely on Ramondo et al. (2015) and Alfaro-Ureña et al. (2022a). Based on these papers, the inward multinational production share ranges between 0.098 and 0.332. Then, to construct the counterfactual inward multinational product share in Costa Rica if there was no investment promotion, we take the number of assisted firms that established an affiliate in the country and subtract the impact of investment promotion assistance based on our IV estimated coefficient. We obtain that 22 fewer firms would have established in Costa Rica if they had not received the IPA support. Assuming that all firms contribute equally to the inward multinational production share, this implies a counterfactual inward multinational product share that ranges between 0.088 and 0.321.

These counterfactual changes in the inward multinational production share translate in a welfare change between -0.40% and -0.17% using data from Alfonso-Ureña et al. (2022a) and a welfare change of -0.25% based on data from Ramondo et al. (2015). As a reference, Ramondo and Rodriguez-Clare (2013) report that the average welfare gains from multinational production is 8.6%. Hence, the contribution of investment promotion would have amounted to 1.9%-4.5% to that average welfare gains.⁶⁵

7. Concluding Remarks

Investment promotion policies are ubiquitous. However, no matter how widespread these policies are and besides valuable insights from a few studies using aggregated data, little is known on whether, and, if so, to what extent and how they affect multinational firms' location decisions. In this paper we attempt to close this gap in the literature by providing, for the first time to our knowledge, microeconomic evidence on the effects of investment promotion and their mechanisms and channels using time-specific, firm-level data on both location decisions and support status over a long period of time for Costa Rica.

Our instrumental variables estimates reveal that investment promotion assistance has had significant positive effects on the probability that multinational firms establish an affiliate in Costa Rica for the first time. These results are confirmed by event studies and are robust to using alternative specifications; restricting the treatment group to firms proactively approached by the agency, firms that never visited its website, and firms that did not received support through other policy instruments; and restricting the control group and both the control and treatment groups to those multinational firms that are most similar. Using existing theoretical models and data, we show that, in so doing, investment promotion has made an important contribution to the country's welfare gains from multinational production.

⁶⁵For a standard cost-benefit calculation, see Carballo et al (2021).

Importantly, evidence based on event study designs reveals that the provision of relevant specific information appears to be the main channel through which the IPA affects multinational firms' location decisions. In particular, the positive effects of information seem to be larger for countries and sectors facing higher information barriers, such as countries not sharing a common language with Costa Rica and sectors producing differentiated goods and services.

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Table 1
Multinational Firms and Investment Promotion Assistance in Costa Rica

Year	Number of Firms							
	Established in Costa Rica		Assisted by the IPA					
	MNF	FA	All Services			Information Services		
			Total	FE	RE	Total	FE	RE
1999	183	247						
2000	197	267	5	3	2	5	3	2
2001	213	285	8	4	4	6	4	2
2002	221	297	9	6	3	6	6	0
2003	232	314	7	3	4	4	3	1
2004	245	332	13	6	7	8	5	3
2005	258	355	21	9	12	15	7	8
2006	278	382	25	10	15	17	8	9
2007	299	411	25	9	16	13	7	6
2008	311	430	30	8	22	16	6	10
2009	326	453	32	12	20	14	9	5
2010	348	482	70	40	30	31	20	11
2011	374	510	94	48	46	41	26	15
2012	397	537	110	57	53	36	22	14
2013	418	563	124	68	56	49	34	15
2014	435	590	159	89	70	58	35	23
2015	451	610	177	101	76	53	40	13
2016	468	633	156	81	75	52	33	19
Total	285	386	1,065	554	511	424	268	156
Assistances, Establishments, and F1000 (2000-2016)								
Assistances by the IPA								
Total						1,065	554	511
					<i>x F1000</i>	23.5	14.3	33.5
					<i>Average Contemporaneous Conversion Rate, All Firms</i>		9.0	3.3
					<i>Average Contemporaneous Conversion Rate, F1000 Firms</i>		13.5	4.7
Established Multinational Firms								
Total						356	285	71
					<i>x Assisted by the IPA</i>	18.8	17.5	23.9
					<i>x Assisted by the IPA with Information Services</i>	16.3	16.1	16.9
					<i>x F1000</i>	16.3	11.9	33.8
					<i>x Assisted by the IPA x F1000</i>	5.3	3.9	11.3
					<i>x Assisted by the IPA with Information Services x F1000</i>	4.5	3.2	9.9

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

Top Panel of the Table: Columns 1 and 2 characterize the evolution of the multinational firms established in Costa Rica over time in terms of both the number of multinational (parent) firms and the number of foreign affiliates. Columns 3-8 presents information on the multinational firms assisted by CINDE each year of the sample period, including: the total number of assisted multinational firms, the total number of assisted multinational firms that were not previously present in Costa Rica (*First Establishment*), the total number of firms assisted multinational firms that were already present in Costa Rica (*Reinvestment*), the total number of multinational firms assisted with information services (both total and distinguishing between for *First Establishment* and *Reinvestment*). Bottom Panel of the Table – Assistances by the IPA: It reports the number of IPA assistances over the sample period along with the percentage share accounted for by F1000 multinational firms and the contemporaneous conversion rate of IPA assistance into establishment for both all multinational firms and F1000 multinational firms (in all cases, both total and distinguishing between for *First Establishment* and *Reinvestment*). Bottom Panel of the Table – Established Multinational Firms: It shows the total number of multinational firms that established a foreign affiliate over the sample period along with the respective percentage of those that were assisted by the IPA, those that were assisted by the IPA with information services, those that belonged to the F1000 lists, those that were assisted by the IPA and belonged to the F1000 lists, and those that were assisted by the IPA with information services and belonged to the F1000 lists (in all cases, both total and distinguishing between for *First Establishment* and *Reinvestment*).

Table 2
Impact of Investment Promotion on Multinational Firms' Location Decisions

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
First Establishment									
I(IPA)									
	IV	0.229*** (0.073)	0.216*** (0.076)	0.209*** (0.077)	0.347*** (0.114)	0.318** (0.124)	0.292** (0.128)	0.269** (0.126)	0.410** (0.175)
	<i>F-Statistics</i>	14.789	14.697	14.956	14.614	12.333	11.631	12.049	9.729
	OLS	0.132*** (0.020)	0.133*** (0.020)	0.130*** (0.021)	0.160*** (0.024)	0.159*** (0.024)	0.156*** (0.024)	0.155*** (0.025)	0.212*** (0.041)
	<i>Hausman Test [p-value]</i>	[0.178]	[0.325]	[0.326]	[0.048]	[0.163]	[0.286]	[0.358]	[0.172]
	Observations	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	200,665
Reinvestment									
II(IPA)									
	IV	-0.027 (0.046)	0.185 (0.961)	-0.003 (0.504)	-0.044 (0.189)	-0.156 (0.258)	0.067 (0.439)	0.150 (0.932)	0.046 (0.183)
	<i>F-Statistics</i>	13.838	1.162	2.045	6.725	6.070	3.814	3.742	7.136
	OLS	0.020** (0.009)	0.020 (0.015)	0.015 (0.018)	0.037** (0.019)	0.037* (0.019)	0.031 (0.028)	0.013 (0.041)	0.059* (0.030)
	<i>Hausman Test [p-value]</i>	[0.302]	[0.894]	[0.266]	[0.739]	[0.492]	[0.953]	[0.483]	[0.443]
	Observations	4,088	4,088	4,088	4,088	4,088	4,088	4,088	2,626
Fixed Effects									
	<i>Country-Sector</i>	No	Yes	No	No	No	No	No	No
	<i>Country-Year</i>	No	Yes	No	No	No	Yes	No	No
	<i>Sector-Year</i>	No	Yes	No	No	No	Yes	No	No
	<i>Country-Sector-Year</i>	No	No	Yes	No	No	No	Yes	No
	<i>Firm</i>	No	No	No	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	No	No	No	Yes	Yes	No	No	Yes
Time-Varying Covariates									
	<i>Firm Size</i>	No	No	No	No	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	No	No	No	No	Yes	Yes	Yes	Yes
	<i>Firm Revenue</i>	No	No	No	No	No	No	No	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The table reports IV and OLS estimates of alternative specifications of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 (in Column 8 only those firms with global revenue data). In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm establishes its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*) the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opens a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. No and alternative sets of fixed effects are included (not reported). The (time-varying) *Firm Size Controls* are one lag of the total number of affiliates of the multinational firm worldwide, the total number of countries in which the multinational firm is present worldwide, and the total number of sectors in which the multinational firm's affiliates operate worldwide (not reported). The (time-varying) *Firm Network Controls* are one lag of a series of binary indicators that take the value of one if the multinational firm has an affiliate in a certain country group and zero otherwise. The country groups are: Central American countries bordering Costa Rica, other Central American countries, other Latin American countries (not in Central America), upper-middle income countries, countries in which the same language is spoken, countries with which Costa Rica has a Preferential Trade Agreement (PTA), countries with which Costa Rica has a Bilateral Investment Treaty (BIT), and countries with which Costa Rica has a Double Taxation Treaty (DTT). *Firm Revenue*: is one year lag of the (natural logarithm of the) firm's global revenue (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table 3
Impact of Investment Promotion on Multinational Firms' Location Decisions
Robustness Checks: Nature of IPA Assistance and Controlling for Other Policy Instruments

		(1)	(2)	(3)
		Proactive Assistance	No Website	No FTZ
First Establishment				
I(IPA)				
	IV	0.338** (0.142)	0.295** (0.137)	0.253* (0.140)
	<i>F-Statistics</i>	10.419	8.478	10.221
	OLS	0.140*** (0.025)	0.139*** (0.025)	0.088*** (0.019)
	<i>Hausman Test [p-value]</i>	[0.105]	[0.347]	[0.337]
Observations		1,830,856	1,819,143	1,835,327
Reinvestment				
II(IPA)				
	IV	-0.021 (0.219)	-0.007 (0.221)	-0.359 (0.527)
	<i>F-Statistics</i>	3.661	6.147	3.699
	OLS	0.016 (0.017)	0.035 (0.026)	0.049** (0.020)
	<i>Hausman Test [p-value]</i>	[0.892]	[0.516]	[0.298]
Observations		4,627	3,242	3,522
Fixed Effects				
	<i>Firm</i>	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes
Time-Varying Covariates				
	<i>Firm Size</i>	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. *Proactive Assistance* (Column 1): The sample is restricted to multinational firms that were either proactively assisted or never assisted. *No Website* (Column 2): The sample is restricted to multinational firms that never visited the IPA's website. *Not FTZ* (Column 3): The sample is restricted to firms that are not established in a free trade zone. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table 4
Impact of Investment Promotion on Multinational Firms' Location Decisions
Alternative Samples (I)

		(1)	(2)	(3)	(4)	(5)
		F1000	F1000 and Assisted Firms	F1000 and Proactively Assisted Firms	Overall Similar Size	PS P25-P75
First Establishment						
<i>I(IPA)</i>						
	IV	0.396** (0.165)	0.208*** (0.049)	0.196*** (0.053)	0.297** (0.126)	0.244*** (0.086)
	<i>F-Statistics</i>	9.740	48.060	39.943	11.932	15.073
	OLS	0.182*** (0.057)	0.160*** (0.024)	0.151*** (0.026)	0.190*** (0.036)	0.160*** (0.024)
	<i>Hausman Test [p-value]</i>	[0.091]	[0.235]	[0.302]	[0.392]	[0.321]
	Observations	13,647	15,116	14,761	229,249	745,381
Reinvestment						
<i>I(IPA)</i>						
	IV	-0.173 (0.127)	-0.028 (0.101)	-0.047 (0.102)	-0.158 (0.250)	-0.020 (0.198)
	<i>F-Statistics</i>	7.530	9.051	8.477	6.608	7.181
	OLS	0.045 (0.044)	0.040* (0.021)	0.039* (0.022)	0.035 (0.025)	0.045* (0.023)
	<i>Hausman Test [p-value]</i>	[0.211]	[0.971]	[0.878]	[0.520]	[0.903]
	Observations	1,262	1,942	1,846	2,798	1,250
Fixed Effects						
	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates						
	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. *F1000* (Column 1): The sample is restricted to multinational firms that belonged to the F1000 list at least once over our sample period. *F1000 and Assisted Firms* (Column 2): The sample is restricted to multinational firms that belonged to the F1000 list at least once over our sample period and multinational firms that were assisted by the IPA. *F1000 and Proactively Assisted Firms* (Column 3): The sample is restricted to multinational firms that belonged to the F1000 list at least once over our sample period and multinational firms that were proactively (approached and) assisted by the IPA. *Overall Similar Size* (Column 4): The sample is restricted to assisted multinational firms and the 50 most similar non-assisted counterparts in terms of the total number of foreign affiliates, number of host countries, and number of sectors within the country-sector combination according to a Mahalanobis measure of multidimensional distance. *PS, P25-P75* (Column 5): The sample is restricted to assisted multinational firms and their non-assisted counterparts whose propensity score is within the 25th and 75th percentiles of the respective distribution across firms. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

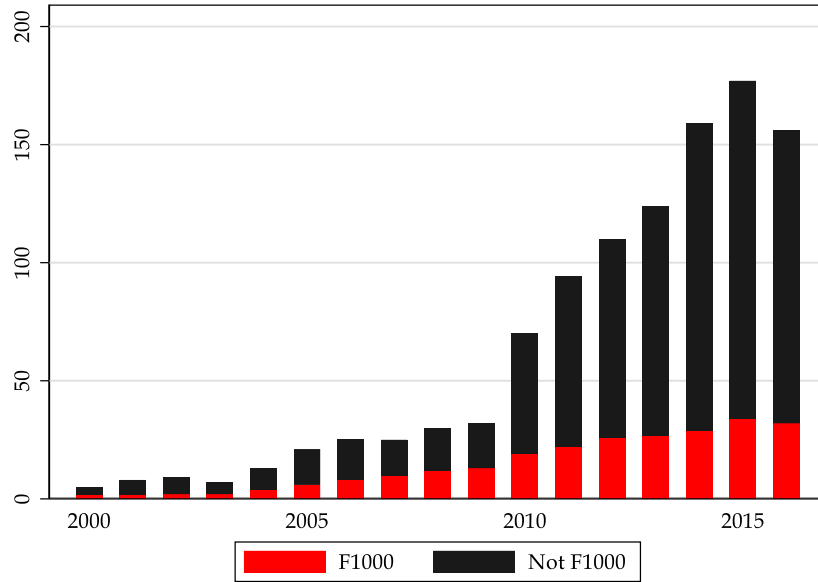
Table 5
Impact of Investment Promotion on Multinational Firms' Location Decisions
Alternative Samples (II)

		(1)	(2)	(3)	(4)	(5)
		Number of Affiliates P25- P75	Number of Countries P25-P75	Expansion in Affiliates P25-P75	Positive Revenue Growth	Revenue Growth P25-P75
Restrictions Only on the Control Group						
I(IPA)						
	IV	0.341*** (0.124)	0.317*** (0.116)	0.345*** (0.122)	0.396** (0.172)	0.384** (0.166)
	<i>F-Statistics</i>	12.795	12.968	13.272	9.382	9.624
	OLS	0.160*** (0.024)	0.160*** (0.024)	0.160*** (0.024)	0.209*** (0.041)	0.210*** (0.041)
	<i>Hausman Test [p-value]</i>	[0.209]	[0.234]	[0.069]	[0.225]	[0.192]
	Observations	328,149	359,331	301,981	118,579	88,273
Restrictions on Both the Treatment and the Control Group						
I(IPA)						
	IV	0.273** (0.109)	0.270*** (0.102)	0.240** (0.098)	0.411** (0.178)	0.466** (0.209)
	<i>F-Statistics</i>	12.306	14.065	12.108	9.008	7.151
	OLS	0.135*** (0.029)	0.158*** (0.031)	0.180*** (0.035)	0.258*** (0.052)	0.242*** (0.052)
	<i>Hausman Test [p-value]</i>	[0.208]	[0.175]	[0.655]	[0.595]	[0.258]
	Observations	327,326	358,564	301,112	118,293	87,876
Restrictions on Both the Control and Treatment Group and Similar Assistance Intensity						
I(IPA)						
	IV	0.235** (0.097)	0.257** (0.101)	0.224** (0.096)	0.420** (0.182)	0.434** (0.191)
	<i>F-Statistics</i>	11.211	11.902	10.701	8.018	8.583
	OLS	0.155*** (0.038)	0.184*** (0.040)	0.192*** (0.043)	0.298*** (0.061)	0.276*** (0.062)
	<i>Hausman Test [p-value]</i>	[0.550]	[0.436]	[0.901]	[0.759]	[0.341]
	Observations	327,085	358,330	300,897	117,916	87,398
Fixed Effects						
	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates						
	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The table reports IV and OLS estimates of Equation (1) for *First Establishment* along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates obtained on the sample restricted to those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. In the first panel, the sample restrictions are imposed only on the control group, whereas in the second and third panels, the sample restrictions are imposed on both the control and treatment groups. Restrictions corresponding to Columns 1-4 and 6 are defined based on the distribution of treated firms. When similar assistance intensity is imposed, the treatment group is restricted to those multinational firms that were assisted by the national IPA more than once in the year in question. *Number of Affiliates P25-P75* (Column 1): The sample is restricted to multinational firms whose number of foreign affiliated was within the 25th and 75th percentiles of the respective distribution across assisted firms. *Number of Affiliates P25-P75* (Column 2): The sample is restricted to multinational firms whose number of host countries was within the 25th and 75th percentiles of the respective distribution across assisted firms. *Expansion in Affiliates, P25-P75* (Column 3): The sample is restricted to multinational firms whose number of new foreign affiliates over our sample period was within the 25th and 75th percentiles of the respective distribution across assisted firms. *Revenues P25-P75* (Column 4): The sample is restricted to multinational firms whose global revenues were within the 25th and 75th percentiles of the respective distribution across assisted firms. *Positive Revenue Growth* (Column 5): The sample is restricted to multinational firms that experienced positive global revenue growth over our sample period. *Revenue Growth, P25-P75* (Column 6): The sample is restricted to multinational firms whose average global revenue growth over our sample period was within the 25th and 75th percentiles of the respective distribution across assisted firms. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

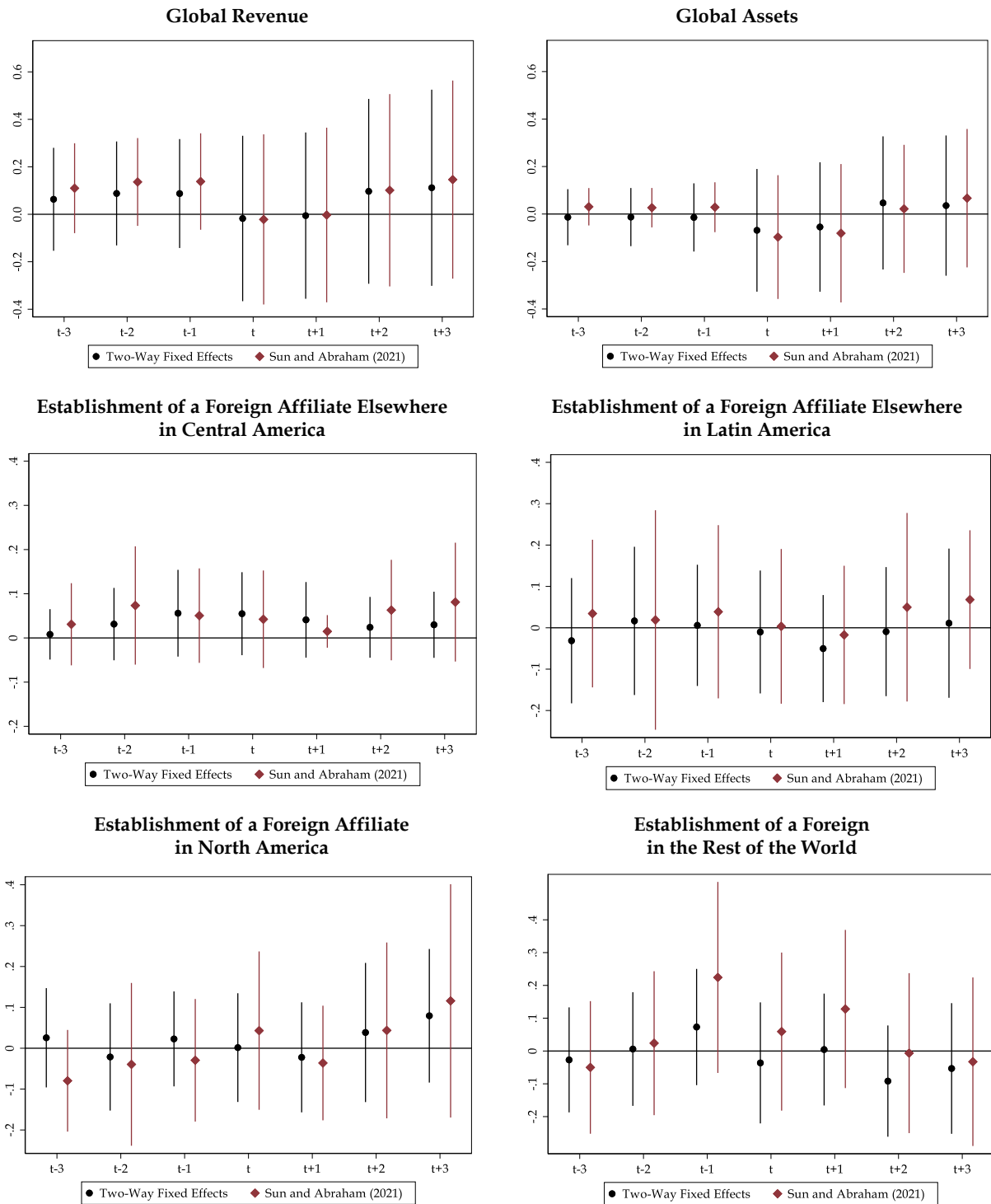
Figure 1
Number of Multinational Firms Assisted by CINDE,
Total and Depending on Whether They Were or Not Part of the Fortune 1000



Source: Authors' calculations based on data from CINDE and Fortune 1000 lists.

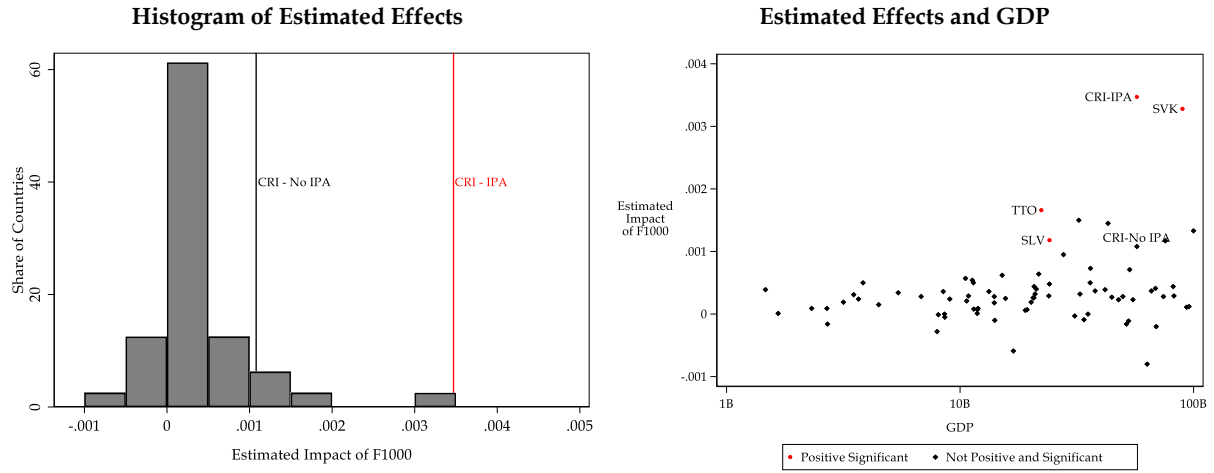
The graph shows the total number of multinational firms assisted by CINDE each year over the period 2000-2016 along with its distribution in two groups: (i) firms that were part of the Fortune 1000 list in the year in question; and (ii) firms that were not part of the Fortune 1000 in the year in question.

Figure 2
Impact of Assistance on F1000 Multinational Firms'
Global Revenues and Assets and Location Decisions in Other Regions
Event Studies

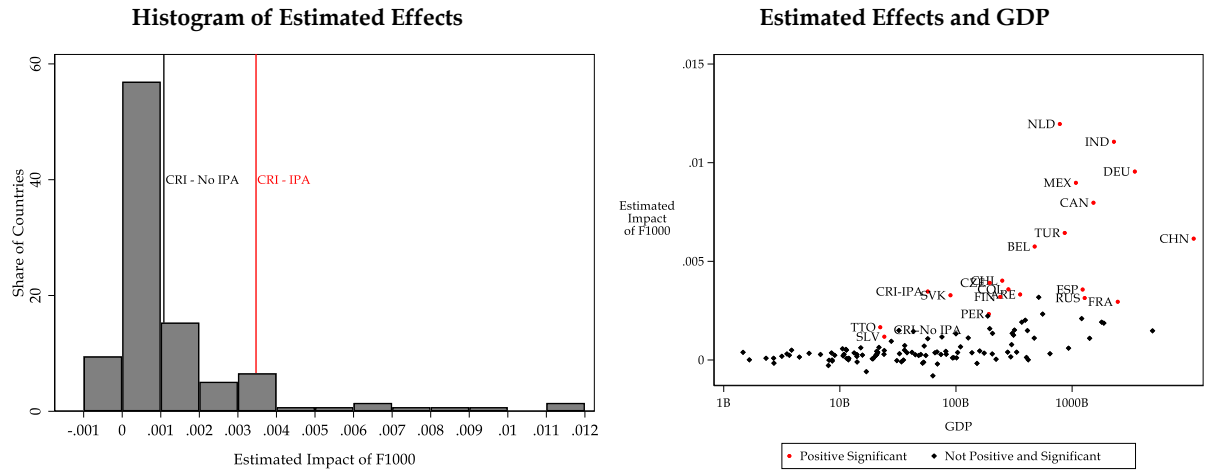


Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE. The figure presents estimates of Equation (3) obtained with the standard two-way fixed effects estimator and the estimator proposed by Sun and Abraham (2021) along with the respective 95% confidence intervals. The sample only includes all multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and that belonged to the F1000 at least once over our sample period. The dependent variables are: (the natural logarithm of) firm's global revenue; (the natural logarithm of) firm's global assets; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Central American country other than Costa Rica and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Latin American country other than Costa Rica (and its Central American neighbors) and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in North America and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in the Rest of the World and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the first year the multinational firm was assisted by the national IPA onwards and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm.

Figure 3
Direct Effect of Membership to the F1000 on Firms' First Establishment in a Country
Countries with GDP Below US\$ 100 Billion



All Countries

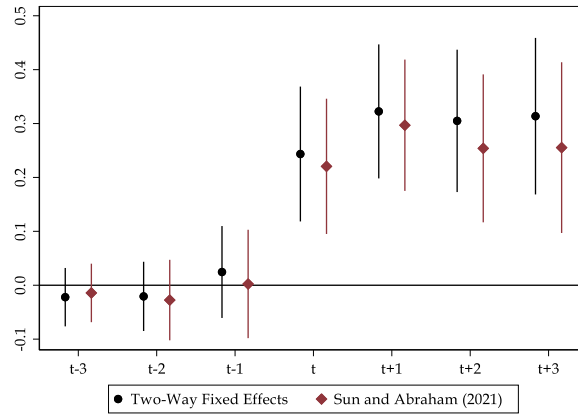


Share of Countries with Significant Estimated Coefficients per Country Category

Country Category	Positive and Significant	Not Positive and Significant	Not Significant	Negative and Significant
All countries	18.0%	81.2%	79.5%	2.5%
All countries excluding tax havens	15.4%	82.4%	74.1%	2.2%
Tax havens	32.0%	68.0%	64.0%	4.0%
Countries below \$US 100B GDP	6.1%	93.9%	89.8%	4.1%
Countries above \$US 100B GDP	36.5%	63.5%	63.5%	0%
Countries below \$US 100B GDP excluding tax havens	5.1%	94.9%	91.1%	3.8%
Countries above \$US 100B GDP excluding tax havens	29.8%	70.2%	70.2%	0%

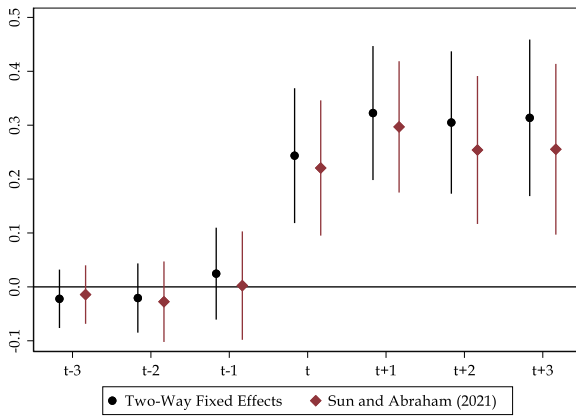
Source: Authors' calculations based on data from Worldbase, CINDE, and World Bank's World Development Indicators. The figures exhibit the OLS estimates of Equation (3) for each host country in the world. The dependent variable is a binary variable that takes value one if the multinational firm opens an affiliate in the host country for the first time and zero otherwise. The independent variable is a binary variable that takes value one if the multinational firm was part of the Fortune 1000 list in that year and zero otherwise. The regressions include the same *Firm Size Controls* and *Firm Network Controls* as well as firm and year fixed effects as the baseline specifications. An estimated coefficient is considered significant based on a 95% confidence level and using standard errors clustered by firm. The figures include the data for Costa Rica with (CRI - IPA) and without the assistance of the investment promotion agency (CRI - No IPA). Note that the USA is excluded because it is the country of origin of F1000 firms.

Figure 4
The Impact of Investment Promotion Assistance on Multinational Firms' Location Decisions
First Establishment (Presence) – Average Effects
Event Studies
Baseline

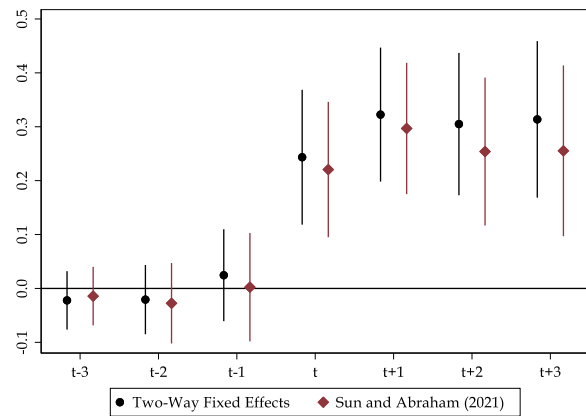


Alternative Specifications (with Baseline Sample)

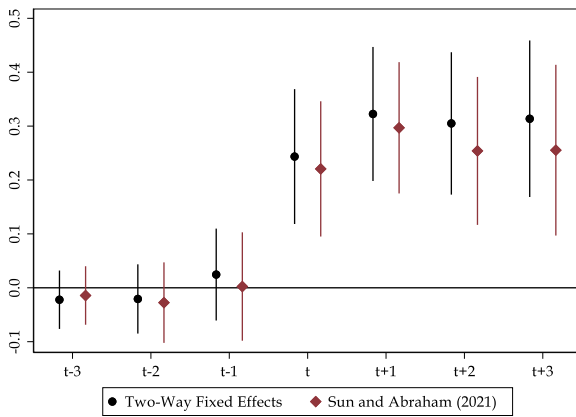
FE: f,t; No Firm-Level Covariates



FE: f, hst; Baseline Firm-Level Covariates

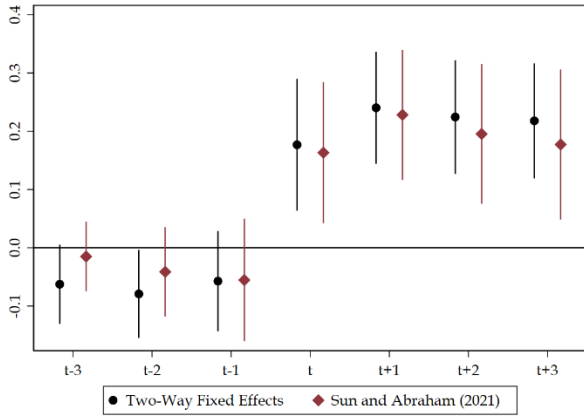


FE: f,t; Baseline Firm-Level Covariate and Revenue

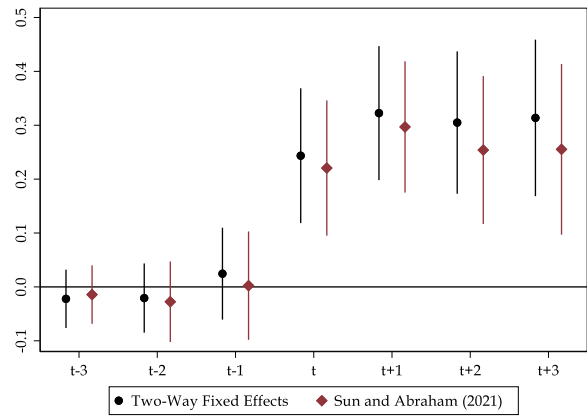


Alternative Samples (with Baseline Specification)

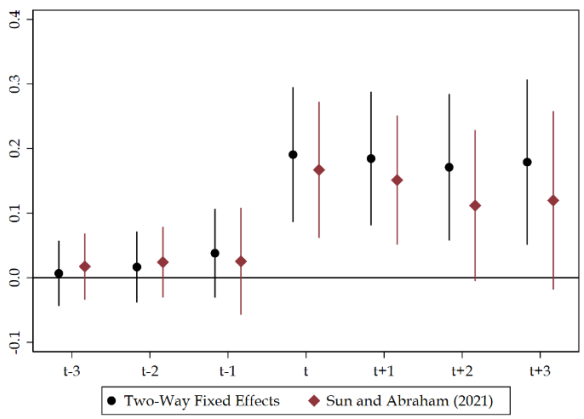
Proactive Assistance



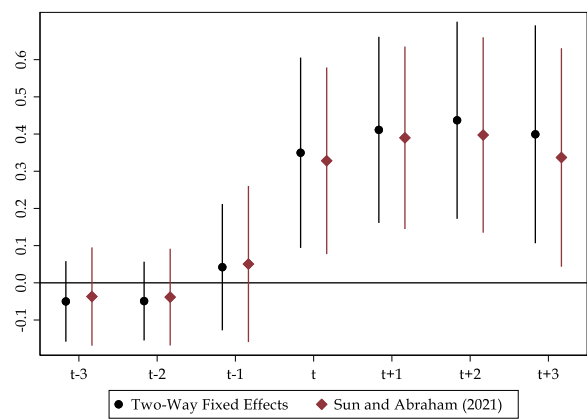
No Visits to the IPA's Website



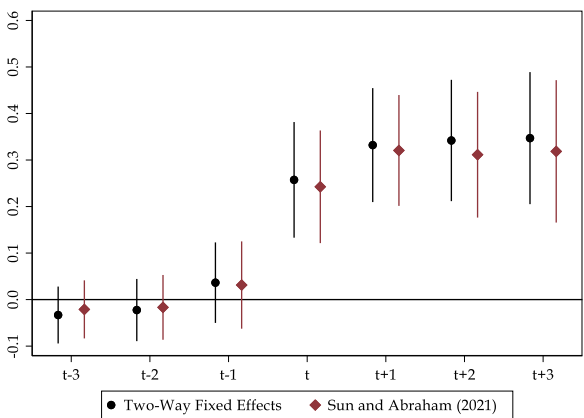
No Free Trade Zones



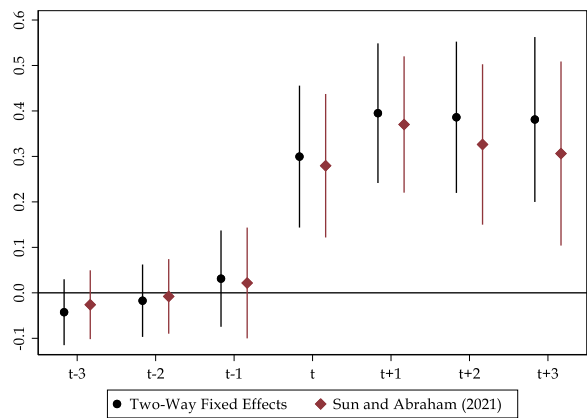
F1000 Firms



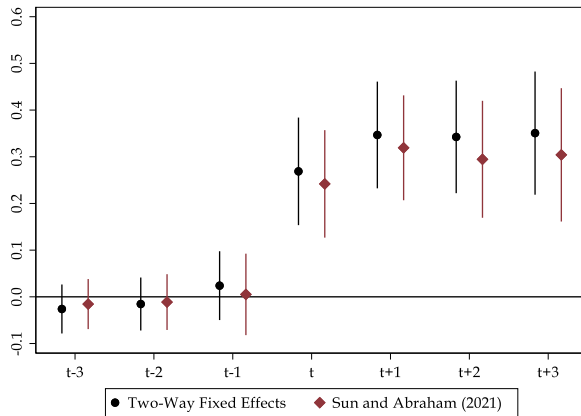
F1000 and Proactive Assistance



Overall Similar Size



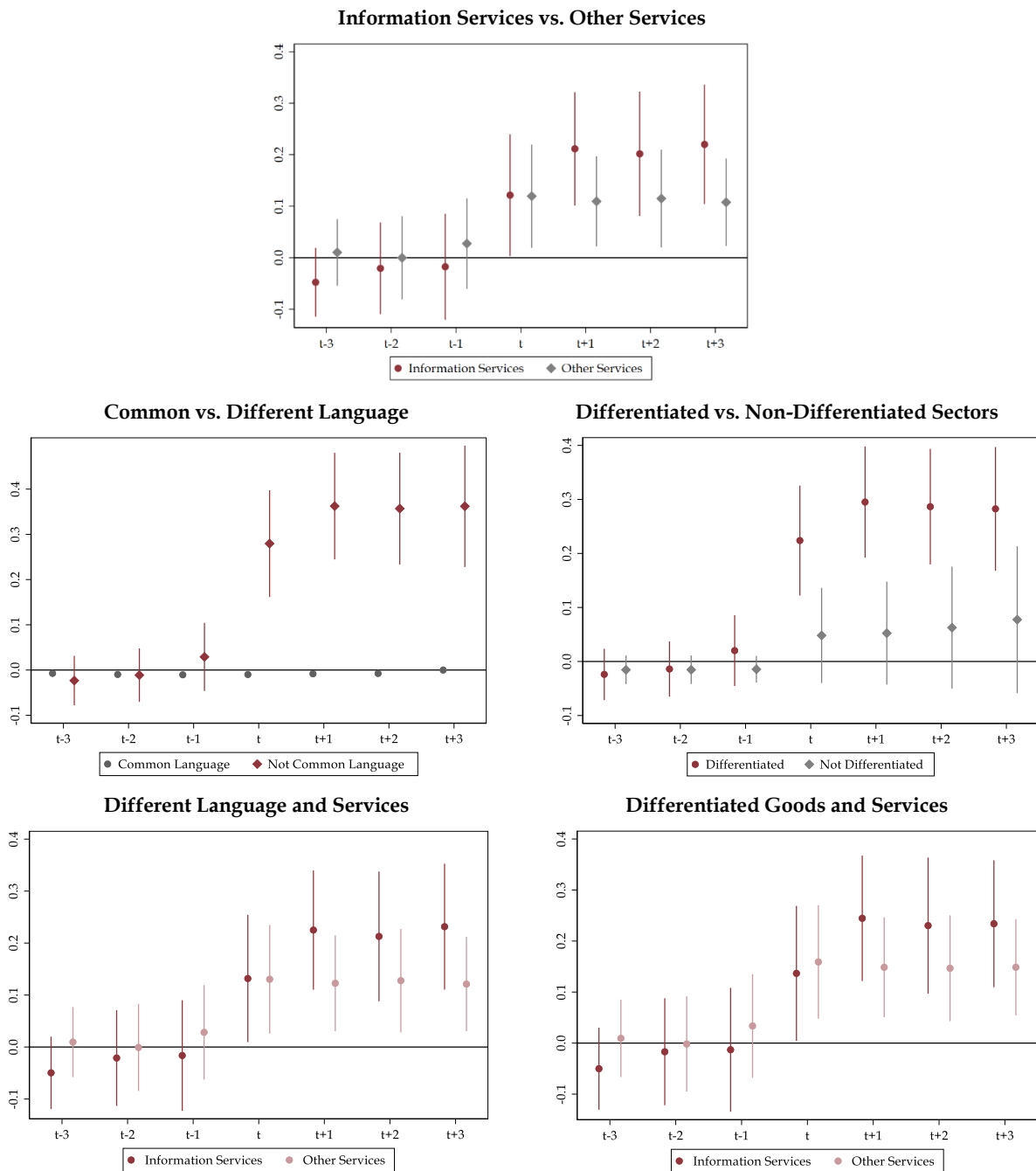
PS, P25-P75



Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The figure presents estimates of alternative specifications of Equation (5) obtained on alternative samples with the standard two-way fixed effects estimator and the estimator proposed by Sun and Abraham (2021) along with the respective 95% confidence intervals. The starting sample is balanced and only includes those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. *Proactive Assistance*: The sample is restricted to multinational firms that were either proactively assisted or never assisted. *No Website*: The sample is restricted to multinational firms that never visited the IPA's website. *Not FTZ*: The sample is restricted to firms that are not established in a free trade zone. *F1000*: The sample is restricted to multinational firms that belonged to the F1000 list at least once over our sample period. *F1000 and Proactively Assisted Firms*: The sample is restricted to multinational firms that belonged to the F1000 list at least once over our sample period and multinational firms that were proactively (approached and) assisted by the IPA. *Overall Similar Size*: The sample is restricted to assisted multinational firms and the 50 most similar non-assisted counterparts in terms of the total number of foreign affiliates, number of host countries, and number of sectors within the country-sector combination according to a Mahalanobis measure of multidimensional distance. *PS, P25-P75*: The sample is restricted to assisted multinational firms and their non-assisted counterparts whose propensity score is within the 25th and 75th percentiles of the respective distribution across firms. The dependent variable is a binary indicator that takes the value of one from the year the multinational firm established its first affiliate in Costa Rica and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the first year the multinational firm was assisted by the national IPA onwards and zero otherwise. In the figures in Alternative Specifications, we add different sets of fixed effects, along with time-varying firm size controls, and firm network controls. In the figures in Alternative Samples, we add firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included. Standard errors clustered by firm.

Figure 5
The Impact of Investment Promotion Assistance on Multinational Firms' Location Decision
First Establishment (Presence) – Mechanisms
Event Studies



Source: Authors' calculations based on data from Worldbase, CINDE, Rauch (1999), and CEPIL.

The figure presents estimates of alternative specifications of Equation (6) obtained on alternative samples with the standard two-way fixed effects estimator along with the respective 95% confidence intervals. The starting sample is balanced and only includes those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one from the year the multinational firm established its first affiliate in Costa Rica and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the first year the multinational firm was assisted by the national IPA onwards and zero otherwise; *Information Services* and *Other Services*, which are binary indicators that take the value of one from the first year the multinational firm was assisted by the national IPA with the respective services onwards and zero otherwise. In the second and third estimations, the single IPA assistance indicator is interacted with two binary indicators that take the value of one if the country of origin of the multinational firm shares a language (*Common Language*) or if it doesn't (*Different Language*) and with binary variables that take the value of one if the majority of affiliates of the multinational companies operate in differentiated sectors (*Differentiated*) or if they don't (*Non-Differentiated*), respectively. In the fourth and fifth estimations, the *Information Services* and *Other Services* indicators are interacted with the latter two binary indicators of language and differentiation. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (Alternative Samples) (not reported). Standard errors clustered by firm.

Online Appendix

CINDE: Costa Rica's National Investment Promotion Agency

CINDE was established in 1982 as a private organization whose unique mandate is to promote inward FDI, is headquartered in San José, and has a single overseas office located in the United States (New York). Its highest governing body is the Board of Directors, which is exclusively composed of nine representatives from the private sector. In addition to the board, CINDE's organizational structure consists of a general manager and four departments which are responsible for investment promotion, research, international affairs, and aftercare.

As of 2016, the agency's budget was US\$4.7 million. In that year, the agency had 47 employees, most of whom had previous experience in the private sector in general and in multinational firms in particular and speak a foreign language. More than three quarters of the financial resources and the personnel were assigned to two core investment promotion functions: investment generation and investment facilitation and retention (i.e., primarily attraction of new investment and keep and expand existing investments). The remaining resources were assigned to national image building and policy advocacy actions such as advertisement campaigns and investment climate monitoring and formal and informal suggestions to the government on how to improve such a business climate.

CINDE's promotional efforts have a sectoral focus. Priority sectors, which slightly changed over our sample period, include various manufacturing activities; recycling; computer and related activities; research and experimental development on natural sciences and engineering; architectural, engineering, and other technical activities; advertising; business activities; and higher education.¹

While declaredly it does not target specific home countries, the agency could be considered to do it given the location of its single office abroad, the United States, and the fact that this country accounts for a substantial share of the assisted multinational firms. Importantly, CINDE prioritizes large foreign firms.

¹ Targeted manufacturing activities include: manufacture of food products and beverage; manufacture of textiles; manufacture of rubber and plastic products; manufacture of basic metals; manufactured of fabricated metal products (except machinery and equipment); manufacture of office, accounting and computing machinery; manufacture of electrical machinery and apparatus; manufacture of medical, precision and optical instruments, watches and clocks; manufacture of parts and accessories for motor vehicles and their engine.

Table A1
CINDE's Customer Satisfaction Survey: Comments from Selected Multinational Firms

A total of 270 multinational firms that replied to the 2015/2016 questionnaire graded the agency with an average score of 9.83 out of 10. The response rate of the survey was 77.1. Importantly, the survey contains several testimonials that highlight how firms assessed CINDE's services and thereby give insights on the channels through which these services would have influenced their location decisions. These testimonials consistently indicate that firms highly valued CINDE's provision of information on local business conditions and perceived it as an effective means to address the information incompleteness they faced when deciding on the location of their affiliates. Specific firms' comments precisely highlight such information services' additionality. For example, representatives from a firm operating in the pharmaceutical sector highlighted CINDE's value added in obtaining facts and getting introduced to other operating companies, where counterparts from a food manufacturing firm declared that CINDE has eliminated the guess work. Testimonials from assisted multinational firms that did not ultimately establish an affiliate in Costa Rica also praised CINDE's support and identified cost considerations as the main reason for their decisions (e.g., freight costs for bulky products and labor costs for highly qualified personnel).

#	Comment	Affiliates	Countries	Sector of Activity	Home Country
1	"Very good information with a whole picture of the country capabilities and suppliers that have come to support the sector cluster."	186	75	2100	DEU
2	"The best promotion agency I have ever worked with. The agent understood exactly our needs and the meeting and recommendations provided an extremely useful overview and information."	23	14	6420	DEU
3	"I found the service very professional, well-structured and took actions to obtain missing information. The agent understood our needs and re-adjusted when required in order to ensure full support."	74	22	3030	CAN
4	"CINDE obviously took the time to understand our firm as a client and listened effectively to our needs. I really appreciated the presentation and information the team presented as well as the connections to others in Costa Rica with similar challenges. Excellent discussion of service offerings, availability of qualified personnel and capabilities."	322	55	4620	USA
5	"CINDE is a good counterbalance to the complexity of starting business operations in Costa Rica. All CINDE personnel who assisted our firm were very responsive and provided great guidance on all topics."	44	30	5820	USA
6	"CINDE is the best partner one can have. Their agents gave us the possibility to fully understand the different alternatives of properties and projects available that fit our initiatives. They did an excellent job selecting alternatives and preparing the visits to fulfill our needs."	165	50	1030	USA
7	"CINDE continues to be a "best-in-class" investment promotion agency and an example to others. The agent is a pleasure to work with: professional, courteous, knowledgeable and diligent with the way she answers questions and follows up with extra information."	11	3	6820	GBR
8	"CINDE is very customer focused, they have an effective and excellently organized agenda, well-structured presentations and information. The agents were very service oriented, with a strong knowledge about the situation of different industries of Costa Rica and a good network of local and international companies and universities."	61	20	2930	DEU
9	"CINDE is a great resource for collecting facts and getting introduced to other operating companies. Having a third party integrate the introductions and navigate the process was value added. All the meetings were relevant and informative."	20	16	2100	USA
10	"I feel very comfortable with the professionalism with which CINDE works. They are an important powerhouse for any company wishing to locate in Costa Rica that is unfamiliar with the country's bureaucracy."	50	20	2651	USA
11	"CINDE has eliminated the guess work and made our initiatives possible. The agents have done an amazing job at coordinating solutions for our project."	1	1	0122	CAN
12	"We would absolutely recommend CINDE as the number one contact for Costa Rican business opportunities. The agents are very knowledgeable and a great resource of information and contacts."	326	56	6420	FRA
13	"All CINDE contacts have been collaborative, responsive, open, constructive and genuinely supportive of our mission and needs. CINDE has provided us with reliable market intelligence, trend information and useful best practice considerations and hints."	672	99	2651	DEU
14	"Excellent investment promotion agency. One of the best we have worked with globally. The agents are great, showed excellent knowledge of the area and are very interactive with the client"	245	40	2651	USA
15	"The knowledge and information the agency provides to potential investors are invaluable. The team, resources and presentations are very professional. We can say from experience that the data and insight CINDE provides saves companies like us a lot of time we would otherwise use to research on our own (and not as effectively as CINDE)."	1	1	7020	USA

Source: CINDE's Customer Satisfaction Survey and authors' calculations based on data from the WorldBase and CINDE. "Affiliates" refers to the total number of affiliates of the multinational firm worldwide. "Countries" refers to the total number of countries in which the affiliates of the multinational firm operate worldwide. "Main Sector of Activity" refers to the main sector of activity of the multinational firm (according to the ISIC Rev. 4-4 digit classification). "Home Country" refers to the country in which the multinational firm is headquartered.

Table A2
Impact of Investment Promotion on Multinational Firms' Location Decisions
Including or Excluding Firms Assisted by the National IPA
First Establishment

	(1)	(2)	(3)	(4)
	All Firms		Excluding Assisted Firms	
F1000(t)	0.003*** (0.001)	0.001* (0.001)	0.001 (0.001)	0.001 (0.001)
F1000(t-1)		0.003* (0.001)		0.002 (0.002)
F1000(t-2)		0.001 (0.002)		-0.000 (0.002)
F1000(t-3)		-0.001 (0.001)		-0.001 (0.001)
Observations	1,830,856	1,830,856	1,827,795	1,827,795
Fixed Effects				
<i>Firm</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates				
<i>Firm Size</i>	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports OLS estimates for a reduced form version of Equation (1) for both the sample of firms that were not previously present in Costa Rica (*All Firms*) and for such sample excluding assisted firms (*Excluding Assisted Firms*). The dependent variable is a variable that takes value one if the multinational firm opened a foreign affiliate in Costa Rica for the first time and zero otherwise. The independent variable is a binary variable that takes the value one if the multinational firm was part of the Fortune 1000 list and zero otherwise, along with three lags of such variable in the case of Columns (2) and (4). Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A3
Inclusion in the Fortune 1000 Index, Reporting and Public Firms

	(1)	(2)	(3)	(4)	(5)	(6)
	All Firms			Top 1000 Highest Revenues		
	F1000					
Revenue x						
<i>Report in the Second Semester</i>	0.006*** (0.001)	0.006*** (0.001)	0.019*** (0.006)	0.009*** (0.002)	0.010*** (0.001)	0.064*** (0.020)
<i>Public Firm</i>	0.004*** (0.001)	0.005*** (0.001)	0.022*** (0.006)	0.008*** (0.002)	0.007*** (0.001)	0.086*** (0.022)
Observations	25,680	25,680	25,680	8,570	8,570	8,570
Fixed Effects						
<i>Firm</i>	No	No	Yes	No	No	Yes
<i>Year</i>	No	Yes	Yes	No	Yes	Yes
Time-Varying Covariates						
<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Firm Revenue</i>	Yes	Yes	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, S&P Capital IQ, and CINDE.

The table reports OLS estimates for the relationship between being in the Fortune 1000 lists and both the time when the firm reports and the public status of the firm. The dependent variable is a binary variable that takes the value one if the multinational firm is in the F1000 list of firms and zero otherwise. The independent variables are interaction between revenue and a binary variable that takes value one if the firm reports in the second semester of the year and a binary variable that takes value one if the firm is a publicly traded company. No fixed effects (Columns 1 and 4), year fixed effects (Columns 2 and 5), or firm and year fixed effects (Columns 3 and 6) are included along with time-varying firm size controls, firm network controls, and global revenue (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A4
Impact of Investment Promotion on Multinational Firms' Location Decisions and Assistances' Recurrence
First Establishment and Assistance--- Dynamics

	(1)	(2)	(3)	(4)
First Establishment				
OLS				
I(IPA) (t)	0.159*** (0.024)	0.160*** (0.023)		0.173*** (0.028)
I(IPA) (t-1)			0.068*** (0.019)	-0.030 (0.022)
Observations	1,835,627	1,746,655	1,746,655	1,746,655
Fixed Effects				
<i>Firm</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates				
<i>Firm Size</i>	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes
IPA Assistance				
OLS				
I(IPA) (t-1)	0.743*** (0.029)			0.690*** (0.031)
I(IPA) (t-2)		0.611*** (0.047)		0.031 (0.086)
I(IPA) (t-3)			0.583*** (0.058)	0.103* (0.059)
Observations	1,746,655	1,610,496	1,475,719	1,475,719
Fixed Effects				
<i>Country-Sector</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates				
<i>Firm Size</i>	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase and CINDE.

The top panel of the table reports OLS estimates of alternative specifications of Equation (1). The sample is restricted to those multinational firms that established a new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm establishes its first affiliate in Costa Rica in the year in question and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. Up to one lag of this variable is included. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). The lower panel of the table reports OLS estimates of a specification where the dependent variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. The main explanatory variables are one, two, and three lags of the dependent variable. (Home) country-sector and year fixed effects are included along with the time-varying firm size controls and firm network controls (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A5
Impact of Investment Promotion on Multinational Firms' Location Decisions
Full Sample and Non-Linear Models with Firm-Fixed Effects and Bias-Correction

	(1)	(2)	(3)	(4)	(5)	(6)
	IV	OLS	OLS	Conditional Logit	Fixed Effects Logit	Fixed Effects Probit
Bias Correction				No	Yes	Yes
Sample	All Firms	All Firms	Baseline	Baseline	Baseline	Baseline
I(IPA)	0.315** (0.124)	0.105*** (0.016)	0.159*** (0.024)	4.822*** (0.627)	2.088*** (0.341)	1.865*** (0.208)
Average Marginal Effect				0.492*** (0.005)	0.085*** (0.001)	0.093*** (0.001)
<i>F-Statistics</i>	12.341					
<i>Hausman Test [p-value]</i>		[0.051]				
Observations	2,710,732	2,710,732	1,830,856	1,830,856	1,830,856	1,830,856
I(IPA)	-0.151 (0.258)	0.035* (0.018)	0.037* (0.019)	1.092*** (0.575)	0.489* (0.252)	1.093* (0.508)
Average Marginal Effect				0.249*** (0.108)	0.029* (0.012)	0.034* (0.014)
<i>F-Statistics</i>	6.110					
<i>Hausman Test [p-value]</i>		[0.163]				
Observations	5,005	5,005	4,088	4,088	4,088	4,088
Fixed Effects						
<i>Firm</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates						
<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

Columns 1 and 2 of the table report IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates for the full, unrestricted sample of multinational firms that did not have an affiliate in Costa Rica in previous years (*First Establishment*) or had at least one affiliate in the respective year (*Reinvestment*). Column 3-8 of the table reproduce OLS estimates and present non-linear estimations of Equation (1) for the sample restricted to those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years (*First Establishment*) or had at least one affiliate in the respective year (*Reinvestment*). Column 4 (*Conditional Logit*): The column reports the estimated coefficients and the margin effects obtained when using a conditional logit model. Column 5 (*Fixed Effects Logit*): The column reports the estimated coefficients and the margin effects obtained when using a fixed effect logit model. Column 6 (*Fixed Effects Probit*): The column reports the estimated coefficients and the margin effects obtained when using a fixed effect probit model. The incidental parameter bias-correction for fixed effects logit and fixed effects probit is based on Fernandez-Val (2009). The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimation, the main explanatory variable is instrumented a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A6
Impact of Investment Promotion on Multinational Firms' Location Decisions
First Stage Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
First Establishment								
F1000(t)	0.004** (0.002)	0.005** (0.002)	0.005** (0.002)	0.004* (0.002)	0.003* (0.002)	0.003 (0.002)	0.004* (0.002)	0.002 (0.002)
F1000(t-1)	0.006*** (0.002)	0.006*** (0.002)	0.007*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.006*** (0.002)	0.005*** (0.002)
F1000(t-2)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.002 (0.002)
F1000(t-3)	0.002 (0.002)	0.001 (0.003)	0.001 (0.003)	0.003 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.003)	0.001 (0.002)
Observations	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	1,830,856	200,665
Reinvestment								
F1000(t)	-0.022 (0.033)	-0.035 (0.104)	-0.026 (0.140)	-0.048* (0.028)	-0.041 (0.027)	-0.081 (0.075)	-0.040 (0.102)	-0.056* (0.031)
F1000(t-1)	0.018 (0.021)	0.033 (0.072)	0.003 (0.088)	0.027 (0.023)	0.022 (0.022)	0.028 (0.066)	0.002 (0.082)	0.022 (0.025)
F1000(t-2)	0.047** (0.020)	0.017 (0.045)	0.041 (0.052)	0.041* (0.021)	0.037* (0.020)	0.024 (0.044)	0.048 (0.049)	0.047** (0.023)
F1000(t-3)	0.086*** (0.032)	0.006 (0.072)	0.014 (0.098)	0.002 (0.032)	-0.005 (0.031)	-0.022 (0.066)	0.022 (0.095)	-0.002 (0.034)
Observations	4,088	4,088	4,088	4,088	4,088	4,088	4,088	2,626
Fixed Effects								
<i>Country-Sector</i>	No	Yes	Yes	No	No	No	No	No
<i>Country-Year</i>	No	Yes	No	No	No	Yes	No	No
<i>Sector-Year</i>	No	Yes	No	No	No	Yes	No	No
<i>Country-Sector-Year</i>	No	No	Yes	No	No	No	Yes	No
<i>Firm</i>	No	No	No	Yes	Yes	Yes	Yes	Yes
<i>Year</i>	No	No	No	Yes	Yes	No	No	Yes
Time-Varying Covariates								
<i>Firm Size</i>	No	No	No	No	Yes	Yes	Yes	Yes
<i>Firm Network</i>	No	No	No	No	Yes	Yes	Yes	Yes
<i>Firm Revenue</i>	No	No	No	No	No	No	No	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, C&P Capital IQ, and CINDE.

The table reports OLS estimates of alternative specifications of Equation (2). The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 (in Column 8 only those firms with global revenue data). In the first panel (*First Establishment*) the sample is restricted to those firms that did not have an affiliate in Costa Rica in the previous year. In the second panel (*Reinvestment*) the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. The main explanatory variables are a set of binary indicators that take the value of 1 if the firm was part of the Fortune 1000 list in the respective year and zero otherwise along with three lags of that variable. No fixed effects or alternative sets of fixed effects and time-varying firm controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A7
Impact of Investment Promotion on Multinational Firms' Location Decisions
Alternative Set of Indicators and Correlations between F1000 Membership Indicators over Time

		(1)	(2)	(3)	(4)	(5)	(7)	(8)
First Establishment								
F1000		C	L1	L2	L3	C,L1	C,L1, L2	C,L1,L2,L3
II(IPA)	IV	0.349** (0.138)	0.346*** (0.130)	0.297** (0.131)	0.199 (0.129)	0.347*** (0.131)	0.337*** (0.128)	0.318** (0.124)
	<i>F-Statistics</i>	10.214	11.763	9.852	8.024	11.944	12.423	12.333
Fixed Effects								
	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates								
	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		1,952,354	1,952,354	1,881,736	1,830,856	1,952,354	1,881,736	1,830,856
Reinvestment								
F1000		C	L1	L2	L3	C,L1	C,L1, L2	C,L1,L2,L3
II(IPA)	IV	1.456 (12.288)	0.174 (0.413)	0.013 (0.283)	0.053 (0.317)	0.039 (0.199)	-0.040 (0.186)	-0.044 (0.189)
	<i>F-Statistics</i>	0.013	0.700	1.213	0.777	5.319	5.380	6.725
Fixed Effects								
	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates								
	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		4,104	4,104	4,093	4,088	4,104	4,093	4,088

Correlations between F1000 Membership Indicators over Time				
	C	L1	L2	L3
C	1.000	0.842	0.765	0.695
L1	0.842	1.000	0.887	0.809
L2	0.765	0.887	1.000	0.881
L3	0.695	0.809	0.881	1.000

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The top table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with binary indicators of membership to the F1000 lists in specific years and combinations thereof. Column 1 (C): The instrument is a binary indicator that takes the value of 1 if the firm was part of the F1000 list in the same year and 0 otherwise. Column 2 (L1): The instrument is a binary indicator that takes the value of 1 if the firm was part of the F1000 list the year before and 0 otherwise. Column 3 (L2): The instrument is a binary indicator that takes the value of 1 if the firm was part of the F1000 list two year ago and 0 otherwise. Column 4 (L3): The instrument is a binary indicator that takes the value of 1 if the firm was part of the F1000 three year ago and 0 otherwise. Column 8 corresponds to our baseline. The instrument are the contemporaneous F1000 indicator along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level. The bottom panel presents the correlations between the F1000 membership indicators over time.

Table A8
Impact of Investment Promotion on Multinational Firms' Location Decisions
Three Lags of Time-Varying Firm-Level Controls

		(1)	(2)	(3)	(4)
First Establishment					
II(IPA)					
	IV	0.320** (0.127)	0.298** (0.131)	0.277** (0.128)	0.396** (0.193)
	<i>F-Statistics</i>	12.064	11.430	11.908	8.858
	OLS	0.153*** (0.023)	0.150*** (0.023)	0.149*** (0.024)	0.221*** (0.049)
Observations		1,830,856	1,830,856	1,830,856	200,665
Reinvestment					
II(IPA)					
	IV	-0.137 (0.267)	0.160 (0.631)	0.068 (0.764)	0.520 (0.718)
	<i>F-Statistics</i>	5.129	3.625	3.215	3.691
	OLS	0.036* (0.019)	0.032 (0.027)	0.014 (0.038)	0.006 (0.058)
Observations		4,088	4,088	4,088	2,626
Fixed Effects					
	<i>Country-Sector</i>	No	No	No	No
	<i>Country-Year</i>	No	Yes	No	No
	<i>Sector-Year</i>	No	Yes	No	No
	<i>Country-Sector-Year</i>	No	No	Yes	No
	<i>Firm</i>	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	No	No	Yes
Time-Varying Covariates (3 Lags)					
	<i>Firm Size</i>	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes
	<i>Firm Revenue</i>	No	No	No	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 (in Column 4 only those firms with global revenue data). In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, and three lags of the time-varying firm size controls and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A9
Impact of Investment Promotion on Multinational Firms' Location Decisions
Controlling for the Presence of Other Multinational Firms from the Same Home Country and in the Same Sector
First Establishment

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		First Establishment							
IV									
	‡(IPA)	0.296** (0.128)	0.320** (0.125)	0.314** (0.124)	0.303** (0.129)	0.295** (0.128)	0.320** (0.125)	0.310** (0.123)	0.305** (0.129)
	Number of Firms/Affiliates	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	
	<i>Same Home Country and Same Sector</i>				0.000*** (0.000)				0.000*** (0.000)
	<i>Same Sector but Other Home Country</i>				0.000 (0.000)				0.000 (0.000)
	<i>Same Home Country but Other Sector</i>				0.000 (0.000)				0.000 (0.000)
	<i>F-Statistics</i>	11.457	12.323	12.322	11.476	11.444	12.323	12.297	11.444
OLS									
	‡(IPA)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)	0.159*** (0.024)
	Number of Firms/Affiliates	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)		0.000*** (0.000)	0.000* (0.000)	0.000*** (0.000)	
	<i>Same Home Country and Same Sector</i>				0.000*** (0.000)				0.000*** (0.000)
	<i>Same Sector but Other Home Country</i>				0.000 (0.000)				0.000 (0.000)
	<i>Same Home Country but Other Sector</i>				0.000 (0.000)				0.000 (0.000)
Observations		1,835,627	1,835,627	1,835,627	1,835,627	1,835,627	1,835,627	1,835,627	1,835,627
Fixed Effects									
	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates									
	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	<i>Number of</i>	<i>Multinational Firms</i>				<i>Foreign Affiliates</i>			
	<i>Home Country</i>	Yes	No	No	Yes	Yes	No	No	Yes
	<i>Sector</i>	No	Yes	No	Yes	No	Yes	No	Yes
	<i>Home Country-Sector</i>	No	No	Yes	Yes	No	No	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former obtained on the sample restricted to those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. The main explanatory variable, IPA Assistance, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, firm network controls, and alternative sets of covariates accounting for the presence of other multinational firms are included (not reported). The latter include the number of multinational firms/foreign affiliates from the same home country (Columns 1 and 4), in the same sector (Columns 2 and 5), from the same home country and in the same sector (Columns 3 and 6), and from the same home country but in other sector, in the same sector but from other home country, and from the same home country and in the same sector (Columns 4 and 8). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A9 (Continued)
Impact of Investment Promotion on Multinational Firms' Location Decisions
Controlling for the Presence of Other Multinational Firms from the Same Home Country and in the Same Sector
Reinvestment

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Reinvestment							
IV									
	II(IPA)	-0.088 (0.218)	-0.097 (0.219)	-0.061 (0.196)	-0.061 (0.196)	-0.065 (0.195)	-0.059 (0.195)	-0.061 (0.188)	-0.062 (0.076)
	Number of Firms/Affiliates	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)		-0.000 (0.000)	-0.003 (0.003)	-0.008*** (0.002)	
	Same Home Country and Same Sector				0.002 (0.002)				0.005*** (0.002)
	Same Sector but Other Home Country				0.000 (0.000)				0.000 (0.000)
	Same Home Country but Other Sector				0.000 (0.000)				0.000 (0.000)
	F-Statistics	8.449	8.450	6.886	6.886	6.875	6.514	6.731	9.594
OLS									
	II(IPA)	0.037* (0.019)	0.037* (0.019)	0.037* (0.019)	0.037* (0.019)	0.037* (0.020)	0.037* (0.020)	0.036* (0.019)	0.036* (0.019)
	Number of Firms/Affiliates	0.000 (0.000)	0.000 (0.000)	0.002 (0.002)		0.000 (0.000)	0.000 (0.000)	0.005*** (0.002)	
	Same Home Country and Same Sector				0.002 (0.002)				0.005*** (0.002)
	Same Sector but Other Home Country				0.000 (0.000)				0.000 (0.000)
	Same Home Country but Other Sector				0.000 (0.000)				0.000 (0.000)
Observations		4,088	4,088	4,088	4,088	4,088	4,088	4,088	4,088
Fixed Effects									
	Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates									
	Firm Size	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Firm Network	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Number of	Multinational Firms				Foreign Affiliates			
	Home Country	Yes	No	No	Yes	Yes	No	No	Yes
	Sector	No	Yes	No	Yes	No	Yes	No	Yes
	Home Country-Sector	No	No	Yes	Yes	No	No	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former obtained on the sample restricted to those multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, IPA Assistance, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, firm network controls, and alternative sets of covariates accounting for the presence of other multinational firms are included (not reported). The latter include the number of multinational firms/foreign affiliates from the same home country (Columns 1 and 4), in the same sector (Columns 2 and 5), from the same home country and in the same sector (Columns 3 and 6), and from the same home country but in other sector, in the same sector but from other home country, and from the same home country and in the same sector (Columns 4 and 8). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A10
Impact of Investment Promotion on Multinational Firms' Location Decisions
Alternative Instruments including Firms' Type and Statement Release Timing

		(1)	(2)	(3)	(4)
		All Countries	United States	All Countries	United States
		First Establishment		Reinvestment	
IV					
	‡(IPA)	0.263** (0.132)	0.305** (0.152)	0.101 (0.125)	0.483* (0.282)
	<i>F-Statistics</i>	15.77	14.33	9.830	7.772
First Stage					
	F1000 (t) x (PF and SSR)	0.005* (0.003)	0.005 (0.003)	-0.039 (0.031)	-0.022 (0.046)
	F1000 (t-1) x (PF and SSR)	0.005** (0.003)	0.006* (0.003)	0.008 (0.026)	0.001 (0.011)
	F1000 (t-2) x (PF and SSR)	0.001 (0.002)	0.001 (0.002)	0.037 (0.025)	0.072 (0.055)
	F1000 (t-3) x (PF and SSR)	0.003 (0.003)	-0.000 (0.003)	0.016 (0.031)	-0.039 (0.054)
	F1000 (t) x (not PF or SSR)	-0.002 (0.002)	-0.001 (0.001)	-0.144* (0.079)	-0.129 (0.088)
	F1000 (t) x (not PF or SSR)	0.004 (0.003)	0.004 (0.003)	0.116 (0.079)	0.141 (0.135)
	F1000 (t) x (not PF or SSR)	0.001 (0.003)	0.001 (0.004)	0.112* (0.062)	0.150 (0.116)
	F1000 (t) x (not PF or SSR)	-0.001 (0.003)	-0.008** (0.003)	0.014 (0.131)	-0.218 (0.213)
Observations		200,665	21,087	2,626	1,107
Fixed Effects					
	<i>Firm</i>	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates					
	<i>Firm Size</i>	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The table reports IV estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms (headquarters in the United States) that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. The main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable, interacted with a binary indicator that takes the value of one if the firm is public and releases its financial statement during the second half of the year and zero otherwise and a binary indicator that takes the value of one if the firm is not public or does not release its financial statement during the second half of the year and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A11
Impact of Investment Promotion on Multinational Firms' Intensive Margin Outcomes

		(1)	(2)	(3)	(4)	(5)
		Total Domestic Purchases	Number of Domestic Suppliers	Total Domestic Sales	Number of Domestic Buyers	Number of Employees
Intensive Margin						
IV	$\mathbb{I}(\text{IPA})(t)$	1.078 (1.078)	1.059 (0.741)	0.660 (1.662)	0.330 (0.919)	0.225 (0.919)
	<i>F-Statistics</i>	9.047	9.047	9.047	9.047	9.047
OLS	$\mathbb{I}(\text{IPA})(t)$	-0.142* (0.081)	-0.096 (0.062)	-0.287** (0.139)	-0.102 (0.062)	-0.185** (0.088)
Observations		3,208	3,208	3,208	3,208	3,208
IV	$\mathbb{I}(\text{IPA})(t-1)$	-1.017 (0.958)	0.072 (0.521)	-0.988 (1.373)	-0.692 (1.421)	-0.135 (0.824)
	<i>F-Statistics</i>	6.963	6.963	6.963	6.963	6.963
OLS	$\mathbb{I}(\text{IPA})(t-1)$	0.349*** (0.110)	0.248*** (0.079)	-0.311** (0.134)	-0.077 (0.075)	0.448*** (0.121)
		3,684	3,684	3,684	3,684	3,684
Fixed Effects	<i>Firm</i>	Yes	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes	Yes
Time-Varying Covariates	<i>Firm Size</i>	Yes	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, CINDE, and Costa Rica's Central Bank.

The table reports IV and OLS estimates of alternative versions of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The sample only includes multinational firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The dependent variables are: (the natural logarithm of) total domestic purchases, (the natural logarithm of the) number of domestic suppliers, (the natural logarithm of) total domestic sales, (the natural logarithm of the) number of domestic buyers, and (the natural logarithm of the) number of employees. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question (the previous year) and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A12
Impact of Investment Promotion on Multinational Firms' Location Decisions
Alternative Specifications and Samples

		(1)	(2)	(3)	(4)
		Control for Other Assistance	No Financial Sector	No Tax Haven	No Change in Ownership
First Establishment					
II(IPA)					
	IV	0.318** (0.124)	0.243** (0.108)	0.360*** (0.124)	0.229** (0.110)
	<i>F-Statistics</i>	12.333	10.567	12.477	8.383
	OLS	0.159*** (0.024)	0.161*** (0.027)	0.166*** (0.027)	0.153*** (0.026)
Observations		1,835,477	1,518,759	1,050,297	1,694,124
Reinvestment					
II(IPA)					
	IV	-0.148 (0.250)	-0.066 (0.320)	-0.063 (0.266)	-0.594 (0.544)
	<i>F-Statistics</i>	6.425	6.434	6.629	3.128
	OLS	0.037* (0.020)	0.050** (0.021)	0.044* (0.023)	0.023 (0.022)
Observations		4,088	3,148	3,240	2,329
Fixed Effects					
	<i>Firm</i>	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates					
	<i>Firm Size</i>	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase, F1000 lists, and CINDE.

The table reports IV and OLS estimates of Equation (1) along with the respective F-test statistics for the former and the p-value of the Hausman test statistics for the difference between IV and OLS estimates. The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the first panel (*First Establishment*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In the second panel (*Reinvestment*), the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. *Control for Other (IPA) Assistance* (Column 1): control for assistance by Mexico's IPA is included (Mexico is the main competing location for Costa Rica). *No Financial Sector* (Column 2): the sample is restricted to firms that do not belong to the "Financial service activities, except insurance and pension funding" sector (Division 64 according to the ISIC Rev 4. 2-digit classification). *No Tax Heaven* (Column 3): the sample is restricted to firms that are not headquartered in countries that can be considered tax heavens according to Hines (2010). *No Change in Ownership* (Column 4): the sample is restricted to firms that did not experience ownership changes over the sample period. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise. In the IV estimations, the main explanatory variable is instrumented with a variable that takes the value of 1 if the firm was part of the Fortune 1000 list and 0 otherwise, along with three lags of such variable. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

Table A13
Impact of Investment Promotion on Multinational Firms' Location Decisions
Assistance Type and Countries and Sectors Facing Different Information Friction

	(1)	(2)	(3)	(4)
	First Establishment		Reinvestment	
	All	All	Previous Opening	
			Recent	Non-Recent
ℙ(IPA)	0.159*** (0.024)	0.037* (0.019)	0.036 (0.040)	0.058* (0.030)
ℙ(Information Services)	0.214*** (0.033)	0.070*** (0.025)	0.044 (0.040)	0.113** (0.054)
ℙ(Other Services)	0.060*** (0.018)	-0.002 (0.015)	0.007 (0.033)	0.003 (0.021)
Difference	[0.001]	[0.012]	[0.801]	[0.079]
Observations	1,830,856	4,088	4,088	4,088
Fixed Effects				
<i>Firm</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates				
<i>Firm Size</i>	Yes	Yes	Yes	Yes
<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase and CINDE.

The table reports OLS estimates of alternative specifications of Equation (1). The starting sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In Column 1 (*First Establishment*) the sample is restricted to those firms that did not have an affiliate in Costa Rica in the previous year. The dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise. In Column 2 (*Reinvestment*) the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. In Column 3 (*Reinvestment Recent Last Opening*), the sample is restricted to firms that had opened at least another affiliate in the previous five years. In Column 4 (*Reinvestment Non-Recent Last Opening*) the sample is restricted to firms that were already present in the country but did not open an affiliate in the previous five years. The dependent variable in Columns 2-4 is a binary indicator that takes the value of one if the multinational opened a new (additional) affiliate in Costa Rica in that year and zero otherwise. The main explanatory variables are: *IPA Assistance*, which is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question and zero otherwise; *Information Services* and *Other Services*, which are binary indicators that take the value of one if the multinational firm was assisted by the national IPA with the respective service in the year in question and zero otherwise. These variables are interacted with two binary variables that take the value of one if the country of origin of the multinational firm shares a language (*Common Language*) or if it doesn't (*Different Language*) and with binary variables that take the value of one if the majority of affiliates of the multinational companies operate in differentiated sectors (*Differentiated*) or if they don't (*Non-Differentiated*), respectively. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

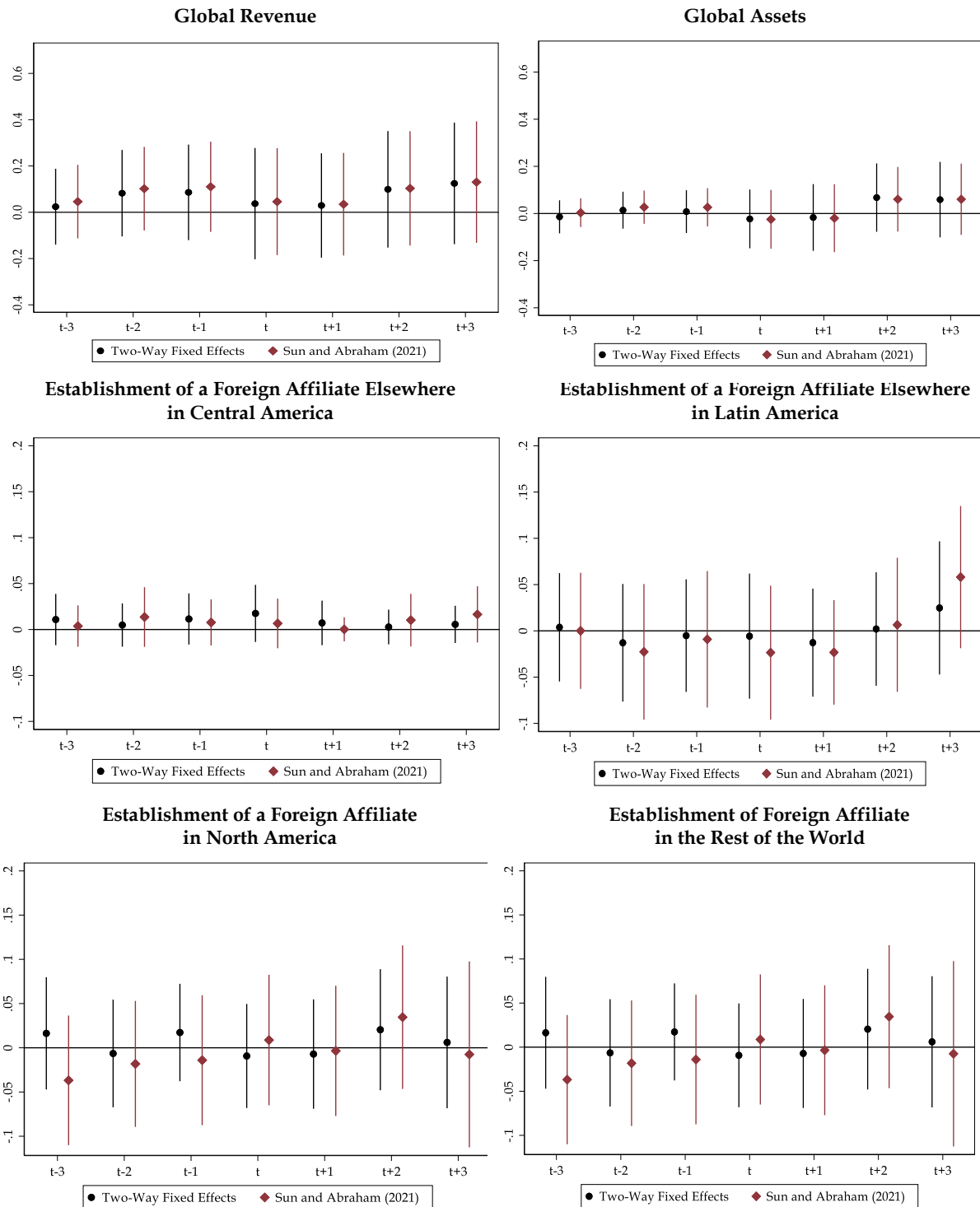
Table A14
Impact of Investment Promotion on Multinational Firms' Location Decisions
Balanced Sample and First Assistance

		(1)	(2)	(3)	(4)
		Baseline	Balanced Sample	First Assistance	Balanced Sample and First Assistance
First Establishment					
I(IPA)	OLS	0.159*** (0.024)	0.168*** (0.027)	0.225*** (0.040)	0.248*** (0.042)
Observations		1,830,856	1,350,179	1,830,856	1,350,179
Reinvestment					
I(IPA)	OLS	0.037* (0.019)	0.038* (0.020)	0.061* (0.036)	0.062* (0.036)
Observations		4,088	3,949	4,088	3,949
Fixed Effects					
	<i>Firm</i>	Yes	Yes	Yes	Yes
	<i>Year</i>	Yes	Yes	Yes	Yes
Time-Varying Covariates					
	<i>Firm Size</i>	Yes	Yes	Yes	Yes
	<i>Firm Network</i>	Yes	Yes	Yes	Yes

Source: Authors' calculations based on data from Worldbase and CINDE.

The table reports OLS estimates of alternative specifications of Equation (1). Top Panel-- *Column 1 (Baseline)*: The sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and did not have an affiliate in Costa Rica in previous years. *Column 2 (Balanced Sample)*: The sample is restricted to multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016, were active all years over this period, and did not have an affiliate in Costa Rica in previous years. In these columns, the dependent variable is a binary indicator that takes the value of one if the multinational firm established its first affiliate in Costa Rica in the year in question and zero otherwise, whereas the main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question. In *Columns 3 (First Assistance)* and *Columns 4 (Balanced Samples and First Assistance)*, the dependent variable is a binary indicator that takes the value of one from the first year the multinational firm established its first affiliate in Costa Rica onwards and zero otherwise, whereas the main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the first year the multinational firm was first assisted by the national IPA and zero otherwise. Bottom Panel -- *Column 1 (Baseline)*: The sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016 and had at least one affiliate in Costa Rica in the year in question. *Column 2 (Balanced Sample)*: The sample only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016, were active all years over this period, and had at least one affiliate in Costa Rica in the year in question. In these columns, the dependent variable is a binary indicator that takes the value of one if the multinational firm established a new affiliate in Costa Rica in the year in question and zero otherwise, whereas the main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one if the multinational firm was assisted by the national IPA in the year in question. In *Columns 3 (First Assistance)* and *Columns 4 (Balanced Samples and First Assistance)*, the dependent variable is a binary indicator that takes the value of one from the first year the multinational firm established its new affiliate in Costa Rica onwards and zero otherwise, whereas the main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the multinational firm was first assisted for reinvestment by the national IPA and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm are reported below the estimated coefficients. *** denotes significant at the 1% level, ** denotes significant at the 5% level, * denotes significant at the 10% level.

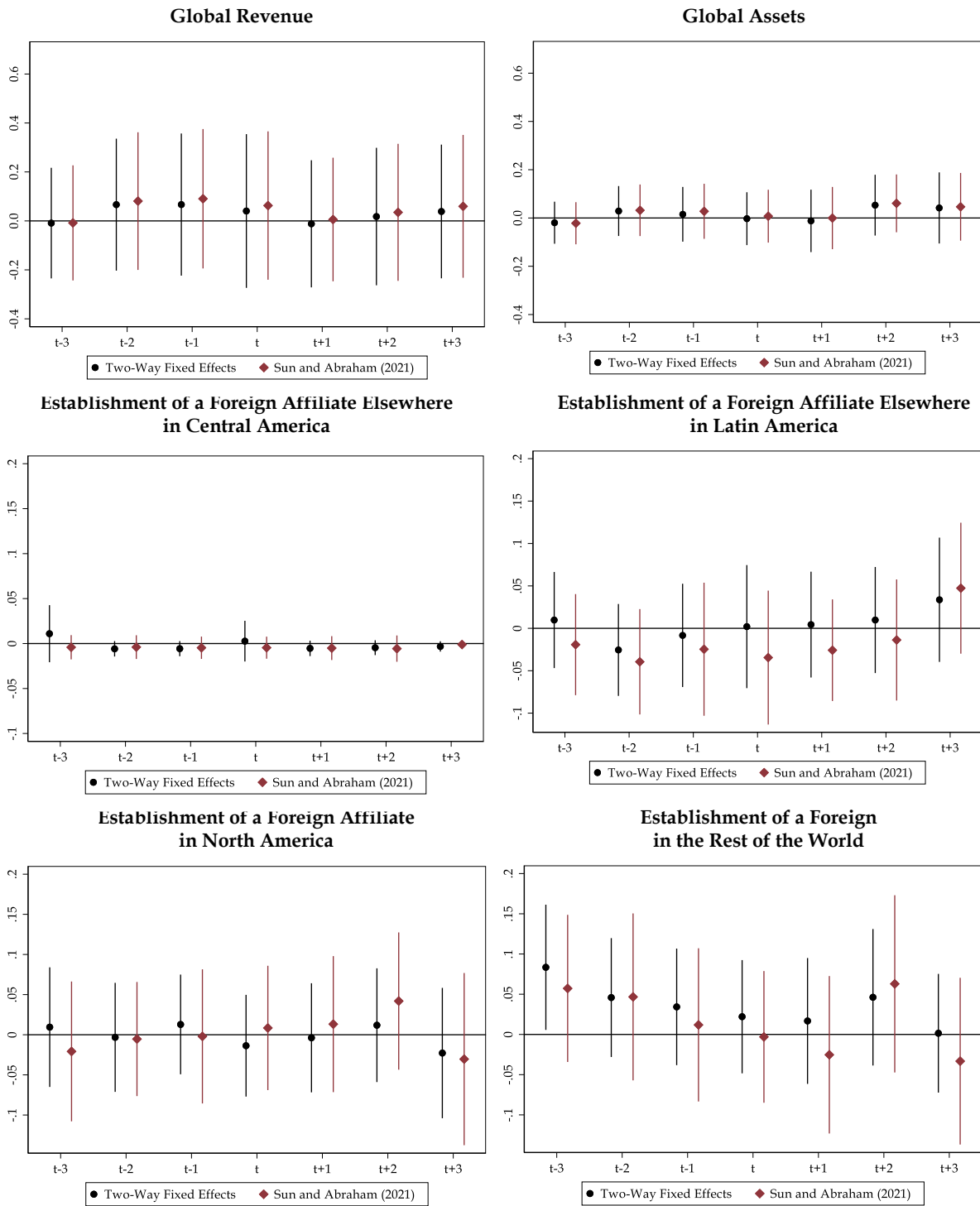
Figure A1
The Impact of Assistance on Assisted Multinational Firms’
Global Revenues and Assets and Location Decisions in Other Regions
Event Studies



Source: Authors’ calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The figure presents estimates of Equation (3) obtained with the standard two-way fixed effects estimator and the estimator proposed by Sun and Abraham (2021) along with the respective 95% confidence intervals. The sample only includes all assisted multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. The dependent variables are: (the natural logarithm of) firm’s global revenue; (the natural logarithm of) firm’s global assets; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Central American country other than Costa Rica and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Latin American country other than Costa Rica (and its Central American neighbors) and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in North America and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in the Rest of the World and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one in the first year the multinational firm was assisted by the national IPA and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm.

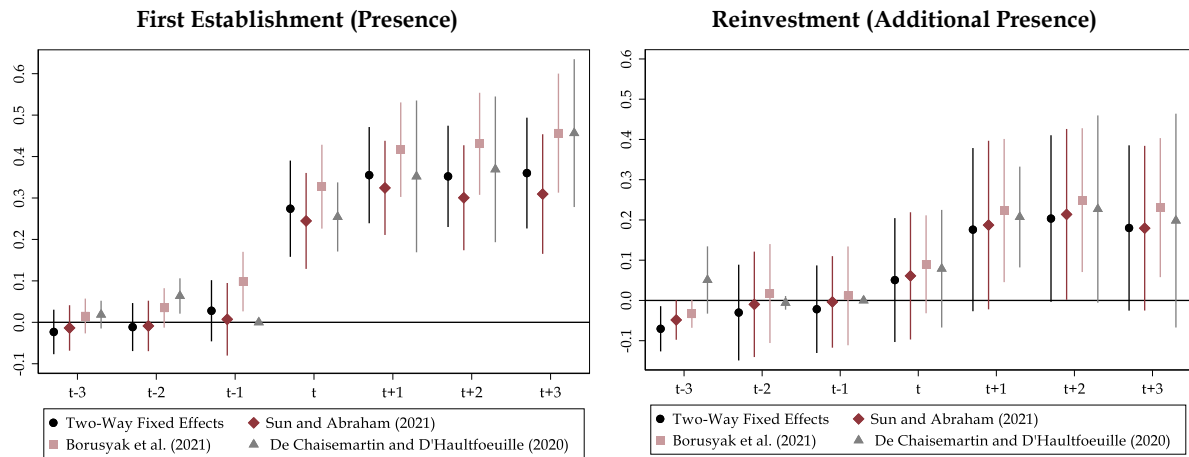
Figure A1 (continued)
The Impact of Assistance on non-F1000 Multinational Firms’
Global Revenues and Assets and Location Decisions in Other Regions
Event Studies



Source: Authors’ calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDA.

The figure presents estimates of Equation (3) obtained with the standard two-way fixed effects estimator and the estimator proposed by Sun and Abraham (2021) along with the respective 95% confidence intervals. The sample only includes all non-assisted multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. The dependent variables are: (the natural logarithm of) firm’s global revenue; (the natural logarithm of) firm’s global assets; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Central American country other than Costa Rica and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in a Latin American country other than Costa Rica (and its Central American neighbors) and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in North America and zero otherwise; a binary indicator that takes the value of one if the firm established a foreign affiliate in the Rest of the World and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one in the first year the multinational firm was assisted by the national IPA and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm.

Figure A2
The Impact of Investment Promotion Assistance on Multinational Firms' Location Decisions
First Establishment and Reinvestment
Event Study
Baseline, Alternative Methods



Source: Authors' calculations based on data from Worldbase, F1000 lists, S&P Capital IQ, and CINDE.

The figure presents estimates of Equation (5) obtained with the standard two-way fixed effects estimator and the estimators proposed by Sun and Abraham (2021), Borusyak et al. (2022), and Chaisemartin and D'Haultfoeulle (2022), along with the respective 95% confidence intervals. The starting sample is balanced and only includes multinational firms that established at least one new foreign affiliate anywhere in the world between 2000 and 2016. In the left panel (*First Establishment--Presence*), the sample is restricted to those firms that did not have an affiliate in Costa Rica in previous years. The dependent variable is a binary indicator that takes the value of one from the first year the multinational firm establishes its first affiliate in Costa Rica and zero otherwise. In the right panel (*Reinvestment - Additional Presence*) the sample is restricted to those firms that had at least one affiliate in Costa Rica in the year in question. The dependent variable is a binary indicator that takes the value of one in the first year the multinational opens a new (additional) affiliate in Costa Rica and zero otherwise. The main explanatory variable, *IPA Assistance*, is a binary indicator that takes the value of one from the first year the multinational firm was assisted by the national IPA and zero otherwise. Firm fixed effects, year fixed effects, time-varying firm size controls, and firm network controls are included (not reported). Standard errors clustered by firm.