

# A Perspective on Administrative Distance: Theoretical Development and Measurement

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## Abstract

The conceptualization of administrative distance exists for over 20 years. Despite its ubiquity, we found an unsatisfactory theoretical and practical depth when it comes to its operationalization, and studies that narrow onto its development are scarce. We have set, therefore, to improve both the theoretical scope and measurement of administrative distance. We achieved this using an inductive approach, which allowed us to infer from observed results, such observation suggesting the addition of the variables in the Doing Business Report, as they capture a previously omitted and relevant aspect of administrative distance: bureaucratic efficiency. We use a reference model, featuring a panel random-effects regression, as a benchmark for the study of our proposal. Our results showed an improved model with a significantly higher explanatory capacity while observing that the new measure is both significant and independent from the existing administrative distance measure, being complementary. This work opens several avenues for future research, having meaningful consequences for the development of better institutional distance models.

## Keywords

administrative distance, institutional distance, bureaucracies, transaction costs theory, multiple regression analysis

## Introduction

The usefulness of institutional distance models is undeniably high, them being particularly relevant in explaining several International Business (IB) phenomena, such as the selection of targets for foreign direct investment, entry mode choice, or multinational corporations and subsidiaries' performance, among others (Beugelsdijk et al., 2018; Kostova et al., 2019). Since institutional distance models are made of component distances, it is, then, crucial that each of these components are fully realized, under penalty of a worse performance of said model, or even wrong interpretations being made out of its results (Alves & Carvalho, 2020). Yet, little research has been done with a focus onto administrative distance, a component of institutional distance (Kostova et al., 2019), although this distance has existed for almost 20 years (Ghemawat, 2001), and is extensively used.

It's well established that administrative distance is particularly relevant both theoretically (Berry et al., 2010; Ghemawat, 2001; Kostova et al., 2019), and empirically (Belderbos et al., 2020; Liu et al., 2019). This topic of

investigation onto distances in IB, with a particular focus on administrative distance, has high relevance for the ubiquity in the usage of these constructs and measures. Distances, in IB, are the yardstick that aims at measuring the nature or hardship that certain international interactions, or interactions with the “other,” will have (Zaheer et al., 2012). So it is central in researching the field of IB (Kostova et al., 2019; Zaheer et al., 2012).

To merely speak of administrative distance, however, leaves open what we are speaking of, due to these concepts not being tied into a single particular construct, theory, or method (Beugelsdijk et al., 2018; Kostova et al., 2019). Meaning, the several conceptualizations of

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administrative distance are not homogenous such that we may talk of them interchangeably. So we narrow our focus onto Berry et al.'s (2010) administrative distance.

Administrative distance, as conceptualized by Berry et al. (2010), is constant, and is solely focused on the characterization of administrative systems through historical and societal variables, such as common religion or type of legal system, while not addressing how effectively administrative systems operate. Further, said variables, and consequently distance, are of hard or impossible independent calculation and replication, primarily due to undisclosed assumptions in variable formation. For example, it is never specified what constitutes the same religion, or how to treat missing data in the cited databases. Due to its constancy, the insights this measure offers are either merely informative or at best may allow policymakers to focus on softening, or enhancing, the impact said fixed distance produces, if that is possible. For such counter-intuitive properties regarding administrative systems, namely that they do not change and their efficiency does not matter, we found the amount of evidence insufficient.

While there are considerable developments that have been identified as having to be made both in distances in general, as well as in institutional distances (Beugelsdijk et al., 2018; Hutzschenreuter et al., 2016; Shenkar, 2001; Zaheer et al., 2012), we focus these toward administrative distance.

The variables used for administrative distance (AD) in Berry et al. (2010) focus primarily on historical and societal differences while lacking measurement of contemporaneous and efficiency aspects. Yet, not all administrative systems work equally well, and so have inbuilt into them hierarchical, or vertical, properties. It is reasonable that they are of importance, that is, that they create hardships if they are of significant difference. In this case we retain primarily a transaction cost perspective (Williamson, 1985).

We classify these two approaches as horizontal and vertical. Horizontal administrative distance (HAD) poses no hierarchical judgment between country pairs (e.g., religion, culture). Vertical administrative distance (VAD) does (e.g., ease of dealing with construction permits, or of starting a business). Essentially, horizontal and vertical differentiate between the calculus of a distance between variables that have a hierarchical relationship, and variables that do not (Ghemawat & Hout, 2017). To visualize this, we can think of a vertical axis where variables are ordered from better to worse and a horizontal axis where variables may stand further apart or closer together depending on their similarities. The distance calculation between these two sets of variables have difference implications in their interpretation. We expand further on HAD and VAD in the theoretical background section.

We explore the existing gap in addressing the effectiveness of administrative systems, as the current administrative distance addresses only the distance in the kind of administrative systems countries possess, in this manner providing an incomplete characterization of them, even though no such restriction exists in the supporting theoretical literature (Ghemawat, 2001; Henisz, 2000; La Porta et al., 1998; Whitley, 1992). Additionally, this yields a measure of administrative systems that depends on time, as efficiency measures of administrative systems are significantly changing in the short run, even if their kind/type/historical origins should only be subject to change in the very long run.

As such, in this article, we develop further the construct of AD to improve its efficacy in measuring what it attempts to and improve both its practical capacity and theoretical completeness. For that we use an inductive approach, with the following reasoning. Given an incomplete characterization of AD, and systems, as well as little research on this matter, we postulate that a complementary AD dimension improves its characterization. We propose that the variables present in the Doing Business Report (DBR) stand as a potentially good addition to a more complete and encompassing AD. Coming at this issue from an inductive approach, we set the theoretical backing, but no hypothesis, making observations aided by structuring key points and properties of our complementary proposal of AD after the empirical test.

As such, we call Berry et al.'s (2010) administrative distance (AD), horizontal administrative distance (HAD), and the administrative distance measured by the DBR variables, vertical administrative distance (VAD), from now on. Some other benefits of this measure are that it is not constant in time, has up to date data, is available for many countries, and may be calculated from the root variables by anyone who wishes to do so, properties HAD does not yet possess.

While discussing distances it is relevant, particularly when addressing horizontal measures of distance, due to their component variables, to make this distinction and clarify the underlying objective of distance-like metaphors. In HAD, presupposing a negative impact, with components variables such as the percentage of common religion, the possible policy-action interpretation generally shifts from a reduction of the distance itself, but rather into a reduction of the hardship that said distance entails. This distinction leaves more patently that the model does not have implicit in it a ranking of religions or languages.

To be clear, the association of AD with IB phenomena, such as FDI, has been clearly established, as we mentioned and cited previously. Our objective is not to reestablish that, but to evolve the construct of AD, ideally, allowing for broader and more effective policy action.

At the end of this work, we find indication of having achieved a better measurement of AD and a better understanding of the behavior of this construct and its limitations. This, in turn, has relevant consequences to the construct of AD, both in terms of its evolution and in terms of its deeper understanding. Therefore, this work closes the referred gaps regarding AD, as well as offering a possible improvement to it, while opening several avenues for further research.

The relevance of the contributions of this research is twofold. First, the theoretical relevance of the contribution comes from AD being a component of institutional distance, and institutional distance being a central tool in IB research. It having a proper development aids in avoiding the emergence of spurious relationships and/or erroneous interpretations. Second, for practitioners, its development aids managers, multinational enterprises, and policy makers in a better analysis of AD's effects, be it in policy action or enterprise's strategic planning, formulation, and execution. The next chapter delves into the theoretical background of what we address. After, we deal with the research methodology, in which we assess the improvements of our proposal in a comparative sense against a baseline study. We use a random-effects panel data regression, and our baseline has inward stocks of FDI in Portugal, between 2005 and 2010, of 29 different countries. Further, HAD is of particular relevance in explaining both FDI flows and hazard rates, having a negative impact, which makes this an interesting baseline to use (Duarte & Carvalho, 2018; Kang et al., 2017). We have to underline, again, FDI here is nothing but a benchmark toward the study of AD. After, we evaluate our findings, and induce where they lie within the relevant theories in question. Lastly, we discuss the results obtained and conclude this work.

## Theoretical Background

This chapter is broken down into two sections. The first addresses relevant technical and theoretical aspects that are useful for our discussion of AD, while the second addresses AD directly, within the institutional distance models of which it is an important part.

### *Relevant Technical and Theoretical Aspects for the Discussion of Administrative Distance*

We have touched upon vertical and horizontal distances (Ghemawat & Hout, 2017) before, as it was relevant vocabulary necessary to the introduction of this work. As we have stated, these concepts differentiate between distances that use variables that possess hierarchical attributes, meaning they can be ranked, constituting vertical distance, and distances that use variables that do

not, and so cannot be ranked, constituting horizontal distances (Ghemawat & Hout, 2017, p. 282).

This distinction has its origin at the core-level variables from which distances are calculated. For example, cultural distance is inherently horizontal. The idea of the possibility of ranking best to worse culture is dubious at the onset, but taking the KS Index (Hofstede, 1980; Kogut & Singh, 1988), we see that it is irrelevant which is the direction of the difference in each of the component variables. That is possible since there is no rank associated with each of the component variables the KS Index uses. As such, it is irrelevant if we flip the score of one of the dimensions (e.g., individualism/collectivism) upside down. If, for instance, we are looking at the Human Development Index (HDI) that does not happen, as it is inherently vertical.

In other words, since we have to have a high and low score to measure a variable, in vertical distances, the component variables scores from which they are calculated are related in the sense that the high score is representative of either a good or bad performance/outcome, or else variables have to be inverted to make it so. The HDI variables all have to be oriented in the way they are so that all high scores are representative of a situation of the same nature (i.e., good or bad). This need for common orientation is not present in horizontal distances' variables.

As another example of concept surrounding this issue, the core-level variables have to be concordant in terms of their horizontal or vertical nature, in order to be able to characterize adequately the distance as such. Let us take a hypothetical distance metric that uses both "percentage of common religion," and "number of workplace accidents" as component variables. In this case, one of the component variables has horizontal properties, while the other has vertical properties, and the distance cannot be characterized clearly.

We must contend, as well, with the reality that different datasets can have little correlation with each other while purporting to measure the same thing (Beugelsdijk et al., 2018). This, in turn, diminishes the ability to work with a construct instrumentally, requiring deep knowledge about how it is developed, as well as limiting the generality of conclusions that can be produced. Additionally, the assumptions, mechanisms, and boundary conditions that are used will adapt based on the purpose of the distance being measured, without a consistent framework guiding these decisions (Beugelsdijk et al., 2018). When choosing a more aggregated measure, it is desirable that, at least, the direction of all component variables generally be the same, or face the risk of contradictory effects that nullify each other (Shenkar, 2001), in this way producing loss of information.

The conceptual distinction between a formative and a reflective construct is also relevant in our work. In the

first, the components of the construct, each individually, built up to directly represent the underlying phenomenon. A reflective construct, on the other hand, has each of the components partially reflecting the underlying phenomenon, being that all of them put together will yield a better image of it (Beugelsdijk et al., 2018).

### *Administrative Distance Within Institutional Distance Models*

When it comes to distance in this context of research, an often-cited quote that highlights its relevant nature is: “Essentially, international management is management of distance” (Zaheer et al., 2012, p. 19).

We contend that distance, primarily, is a metaphor meant to capture the underlying hardship to traverse it. Shenkar (2001) alluded to this proposing a different metaphor, that of friction. Regardless of the merit which this new metaphor might very well have, the fundamental objective of a concept such as distance or friction, contextual or otherwise (Hutzschenreuter et al., 2016), in IB, is the same and can be captured with such a descriptor as the hardship to traverse, interact, deal with, or similar.

While learning effects can play an important role when it comes to discussions related to distance (Shenkar, 2001; Stahl & Tung, 2015), generally, the preponderant perspective, as well as dominant effects, seem to be one of transaction costs (Kostova et al., 2019). That is, more distance generally leads to higher transaction costs in the activity within which said distance exists (Williamson, 1985).

Institutional distance is commonly rooted within either North’s (1991) institutional economics strand, where institutions are the “rules of the game,” with formal and informal institutional arrangements, or with Scott’s (2014) organizational institutionalism, with its three-pillar approach. However, other conceptualizations of institutions exist, such as comparative institutionalism, which is the main theoretical support for Berry et al.’s (2010) AD. This view of institutions relies more heavily on comparison, being that it has its focus on the achievement of a holistic understanding of institutions (Whitley, 1992).

In the CAGE model, AD seems to not have such a clear cut definition, it being generally tied to issues surrounding bureaucratic matters (Berry et al., 2010; Ghemawat, 2001; Ghemawat & Hout, 2017), which leaves the boundaries of the conceptualization of this distance relatively open. Considering the effects on administrative systems and bureaucracy that come from historical events and situations (Berry et al., 2010; Whitley, 1992), the boundaries of AD become yet more open.

Berry et al. (2010) present the next notable inclusion of (horizontal) administrative distance (Guler & Guillén, 2010; Henisz, 2000; Henisz & Williamson, 1999; Lubatkin et al., 1998; Whitley, 1992) in their institutional distance model. Employing the Mahalanobis distance calculation (Mahalanobis et al., 1937), except for geographic distance, it utilizes the following distance dimensions: Economic, Financial, Political, Administrative, Cultural, Demographic, Knowledge, Connectedness, and Geographic.

The main reasons the choice of Berry et al. (2010) are of scope, given that the authors have a much narrower conceptualization of AD than Ghemawat (2001), and operationalization, given that the former authors do, in fact, publish many more technical details of implementation than the latter, even if our efforts have indicated that not enough for replication. This particular strand of AD sees use through the values provided by the authors for said measure (Ahrens et al., 2018; Brown et al., 2018; Duarte & Carvalho, 2018; Jung & Lee, 2018; Liu et al., 2019), which furthers the consistency in the way it is operationalized. Theoretically, it is primarily tied in, like the rest of the model, to comparative institutionalism (Berry et al., 2010; Whitley, 1992).

### **Research Methodology**

Regarding the use of inductive reasoning, aforementioned, the lack of an adequate body of literature creates an opportunity for the effective use of inductive reasoning since traditional deductive reasoning requires by its nature a body of literature from which to deduce a development (Gelman, 2011; Vakili & Zhang, 2018). That is, in order to create adequate hypothesis in deductive reasoning, an adequate body of literature to support said hypothesis would have to exist. Yet, not even the conceptualization of “administrative” is clear (Beugelsdijk et al., 2018; Kostova et al., 2019).

We could postulate that inefficient administrative systems, on the whole, generally have a negative effect on IB phenomena, taking FDI here as the concrete example (Malik & Jyoti, 2018; Shahadan et al., 2014). However, when it comes to postulating the specific relationship that the distance between the efficiency of administrative systems, and the relationship the efficiency of administrative systems has with the societal and historical nature of administrative systems becomes less clear and less supported by existing literature.

We proceed in our study using a forward causal inference approach (Gelman, 2011; Vakili & Zhang, 2018), a type of inductive reasoning where we observe and evaluate the effect of a specific independent variable in a dependent variable, as opposed to the more general reverse inference where we would inquire about what

causes or explains a dependent variable (Birhanu et al., 2016; Gelman & Imbens, 2013). This, in turn, makes it so that we will not argue for conclusive evidence, but rather for robust, or not, indication and characterization of the relationship in question.

We made this choice because of the little that is written about AD (Kostova et al., 2019), and about proper procedures regarding this type of contextual distance construct development. This methodological approach presents a complementary set of benefits and research insights that may be lacking, precisely in part due to its sparse use, and the nature of our inquiry. At its core, it is an inquiry that looks for indication of a given relationship, rather than confirmation of said relationship, since a confirmation would require a certain level of prior evidence. As such, we focus on the observation and interpretation of results (Birhanu et al., 2016; Gelman, 2011; Lyngsie & Foss, 2017; Vakili & Zhang, 2018).

Yet, the inference we make is grounded, as the theoretical backing of AD, as is, does not specify the single relevance of only historical and societal variables, but rather of administrative systems as a whole. Fundamentally, we are challenging that administrative systems are holistically characterized, before our addition.

While our study regards the distance model itself, specifically the development of AD, for such, we need a dependent variable, which we have chosen to be FDI, a variable of utmost importance for IB (Hejazi et al., 2021). For that, we have adapted the model used in Duarte and Carvalho (2018), for which AD showed particularly high importance. Other variables of common study in IB could have been chosen, yet, we elected FDI due to its data availability, above stated importance and because of that, a good fit for an initial study of this distance.

In our model, we consider both HAD and VAD as the independent variables, while the remaining distance variables of Berry et al. (2010) remain as controls, for the consistency of the distance model as a whole, as well as the exchange rate (Qi et al., 2021).

As can be seen in Table 1 our sample is composed of 29 countries, with values ranging from 2005 to 2010:

Our concerns with the choice of the proposed VAD variables were that they had the following properties, as if these were not met, the proposal would not make sense at the outset:

1. Prior fit and relation to the study of FDI;
2. Conceptual connection to Administration or Bureaucracies, that is, that are fit to be measured as Administrative Distance;
3. Fit for the lacking aspects of Berry et al.'s (2010) Administrative Distance;
4. Accessible data that is being kept up to date;
5. Granular access to said data.

**Table 1.** List of Countries.

Angola	Lithuania
Australia	Luxembourg
Austria	Morocco
Belgium	Mozambique
Canada	Netherlands
Cyprus	New Zealand
Czech Republic	Norway
Denmark	Saudi Arabia
Finland	South Africa
France	Spain
Germany	Sweden
Iceland	Switzerland
Ireland	United Kingdom
Italy	Venezuela
South Korea	

Source. Authors.

We start by presenting the dependent and independent variables, as well as controls. In the end of this section, we present the panel model itself and relevant tests, as well as surrounding decisions regarding it, such as the linear normalization of all the variables.

### Variables

**Dependent variable.** Our dependent variable is the Inward Stock of Foreign Direct Investment in Portugal. Specifically, the Bidirectional FDI data present in UNCTAD (as well as Banco de Portugal, and OECD). The values measured are the percentage of capital that foreign multinational enterprises have in Portuguese companies, as well as reserves including retained profits, plus the net debt these Portuguese subsidiaries owe to said foreign MNE (UNCTAD, 2017).

**Independent variables.** Our independent variables are HAD and VAD. The latter is our variable of study, while the former gains prominence by being the variable VAD is set to improve, or complement.

Horizontal administrative distance (Berry et al., 2010), as of the 2017 update, calculated through the Mahalanobis distance calculation, is measured through:

- Colonizer-colonized link: whether dyad shares a colonial tie
- Common religion: % population that share the same religion in the dyad
- Legal system: Whether dyad shares the same legal system

We must note that neither in Berry et al.'s (2010) article, the doctoral dissertation (Zhou, 2010) that originated it, or the reference material adjacent, it is discussed

explicitly why religion is relevant toward this matter, or to some extent, language as well. This being particularly relevant since both these variables have subtleties that must be considered or at least discussed.

VAD is measured through the DBR Database under “Historical Data Sets- Custom Query.” The variables included are ease of starting a business, dealing with construction permits, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvencies, under the 06-15 methodology.

We achieve the benefits of covariance control and scale control with the Mahalanobis distance calculation. We detail the said variables below, in Table 2:

For VAD, we firstly evaluated the threshold for country inclusion, and later for pillar variable inclusion, for the computation of VAD. If a country had less than 50% of observations counted through all of the pillar variables, we excluded it, those being Brazil, Japan, Malta, Mexico, and the United States of America. That was our threshold related to VAD, for the inclusion of a country in our study, although the most common scenario was one where almost all of the variables were present.

After that, we evaluated the inclusion of particular pillar variables. We did this after the previous step in order to ensure that we did not remove variables, due to lack of data availability, because of countries that almost did not have any observation within our timeframe. Therefore, the pillar variables that, in aggregate for the remaining countries of our study, had less than 90% observations present, being that only “Getting electricity” qualified for that, that being the reason we have not listed the variable previously.

In the few cases of still missing values, most often we had to do an inverted forecast to include 2005 to try to limit the time constraints of our study and no more.

Regarding the Mahalanobis distance calculation, used for the calculation of all distance variables by Berry et al. (2010), except geographic distance, and by ourselves for the calculation of VAD, it is calculated as follows (Berry et al., 2010; De Maesschalck et al., 2000; Mahalanobis et al., 1937):

$$(x, y)^2 = (x - y)A^{-1}(x - y)^T$$

- $x$  and  $y$  are the vectors of the variables of which we are calculating the distance, for a given year
- $A^{-1}$  is the inverse of the covariance matrix of  $M$  such that:
  - $M = n \times p$  such that:
    - $n$  represents the lines of each country in each year;
    - $p$  represents the columns for each of the variables.

**Table 2.** Vertical Administrative Distance Composition.

Pillar variables	Component variables
Ease of starting a business	Time, in days; Cost, in % of income per capita; Procedures, in number; Paid-in Minimum Capital, in % of income per capita.
Dealing with construction permits	Time, in days; Procedures, in number; Cost, in % of warehouse value.
Registering property	Time, in days; Procedures, in number; Cost, in % of property value.
Getting credit	Strength of legal rights, in 0 to 10 index; Depth of credit information, in 0 to 6 index; Credit registry coverage, in % of adults; Credit bureau coverage, in % of adults.
Protecting Minority Investors	Extent of disclosure, in 0 to 10 index; Extent of director liability, in 0 to 10 index; Ease of shareholder suits, in 0 to 10 index; Strength of investor protection, in 0 to 10 index.
Paying taxes	Payments, in number per year; Time, in hours per year; Total tax and contribution rate, in % of profit; Profit tax, in % of profit Labor tax and contributions, in % of profit; Other taxes, in % of profit.
Trading across borders	Documents to export, in number; Documents to import, in number; Cost to export, in US\$ per container (deflated); Cost to import, in US\$ per container (deflated); Time to export, in days; Time to import, in days.
Enforcing contracts	Procedures, in number; Time, in days; Cost, in % of claim.
Resolving insolvencies	Outcome, 0 as piecemeal sale and 1 as going concern; Time, in years; Cost, in % of estate; Recovery rate, in cents on the dollar; Strength of insolvency framework, in 0 to 16 index; Commencement of proceedings, in 0 to 3 index; Management of debtor's assets, in 0 to 6 index; Reorganization proceedings, in 0 to 3 index; Creditor participation, in 0 to 4 index.

Source. DBR.

Control variables. We used the remaining eight distance dimensions proposed by Berry et al. (2010)—

**Table 3.** Abbreviations of Variables.

Variable	Description	Source
FDI	Inward stock of foreign direct investment in Portugal	UNCTAD, Bank of Portugal, OECD
VAD	Vertical administrative distance	Doing business report
HAD	Horizontal administrative distance	Berry et al. (2010)
CultD	Cultural distance	Berry et al. (2010)
DemD	Demographic distance	Berry et al. (2010)
EconD	Economic distance	Berry et al. (2010)
FinD	Financial distance	Berry et al. (2010)
GeoD	Geographic distance	Berry et al. (2010)
ConnD	Connectedness distance	Berry et al. (2010)
KnowD	Knowledge distance	Berry et al. (2010)
PolD	Political distance	Berry et al. (2010)
XR	Exchange rate	World Bank

Source. Authors.

cultural, demographic, economic, financial, geographical, connectedness, knowledge, and political distance, as control variables, as provided by the authors, as of 2017. The addition of these controls is crucial to keep the integrity of the institutional distance model. Without them, the ability to extricate the effects of VAD and HAD, from effects that are being captured in them by the omission of relevant variables (Wooldridge, 2013) would greatly diminish the interpretability of our study onto AD.

The exchange rate is included as a control due to evidence of its relevance in explaining FDI (Buckley et al., 2007; Qi et al., 2021), as well as it being relevant in performing this role (Duarte & Carvalho, 2018). Without it, we would be liable to have biased estimators by the omission of a relevant variable.

### Model

In the development of the model at hand, it became apparent that we had a readability issue with the utilization of the Mahalanobis distance calculation. Said distance has no unit and thus the coefficients become of harder interpretation, and certainly of harder intuitive understanding. That leads us to look into how we might ease the interpretation of the model, hoping not to have to forgo part of its initial integrity. Unity-based normalization solves this problem, realized as follows for each variable:

$$X_{\text{norm}} = (X - X_{\text{min}}) / (X_{\text{max}} - X_{\text{min}})$$

While an initial concern was that this might bias the model in some way, as may be the case with unit-based normalization, the output is the same, such that there are no alterations in the model. As such, this alteration comes at no cost, yielding an easier to interpret model.

While dealing with model selection, we ran panel diagnostics on a pooled OLS regression. This yielded, effectively,  $p$ -values of 0 for both the  $F$ -Test and Breush-Pagan test, and .0925 for the Hausman test, if the VAD is not included, and .2938 if it is, indicating that the Random-Effects Model is the most adequate. This follows our expectation, as a pooled OLS model would assume homogeneity among countries, while a Fixed Effects model would forbid the existence of variables constant through time, one of the key characteristics of HAD, and geographic distance, as measured here.

If the  $F$ , Breush-Pagan, and Hausman tests are run in the Random-Effects model, we observe  $p$ -Values of effectively 0 again for the first two tests, and .0276 for the Hausman test, for the first time obtaining a value under .05. We chose to continue the use of the Random-Effects model, being the one that is more consistent with the theory underlying this model. VIF tests never show any evidence of possible collinearity.

We use two models, alike in every way except one has VAD, and the other does not. The abbreviations for the variables are as follows, in Table 3:

The model has the following form, with  $t$ —time, as  $i$ —country. Between the two models since the only difference is the existence, or not, of VAD, we present it merely once here:

$$\begin{aligned} \text{FDI}_{it} = & \beta_0 + \beta_1 \text{VAD}_{it} + \beta_2 \text{HAD}_i + \beta_3 \text{CultD}_{it} \\ & + \beta_4 \text{DemD}_{it} + \beta_5 \text{EconD}_{it} + \beta_6 \text{FinD}_{it} \\ & + \beta_7 \text{GeoD}_i + \beta_8 \text{ConnD}_{it} + \beta_9 \text{KnowD}_{it} \\ & + \beta_{10} \text{PolD}_{it} + \beta_{11} \text{XR}_{it} + \varepsilon_{it} \end{aligned}$$

We disaggregate VAD to demonstrate the measure's flexibility and capacity for deeper analysis. Due to our sample size, however, we did this by running an identical regression for each disaggregated component variable. This might lead to a measure of bias. However, it stands

**Table 4.** Baseline and New Model for the Study of Administrative Distance.

	Baseline model			New model		
	Coefficient	SE	p Value	Coefficient	SE	p Value
Const	0.209436	0.0956925	.0286	0.372674	0.116606	.0014
VAD				-0.229699	0.108385	.0341
HAD	-0.830784	0.299641	.0056	-0.783887	0.275858	.0045
CultD	0.134062	0.0857976	.1182	0.0919673	0.103811	.3757
DemD	-0.0637804	0.255633	.8030	-0.0760511	0.216837	.7258
EconD	-0.0208787	0.0765585	.7851	0.0248013	0.0701377	.7236
FinD	0.0285784	0.0377345	.4488	-0.00636123	0.0330085	.8472
GeoD	-0.691287	0.426298	.1049	-0.591483	0.360966	.1013
ConnD	0.245498	0.345050	.4768	0.0641200	0.338547	.8498
KnowD	-0.230734	0.136555	.0911	-0.286093	0.121102	.0182
PolD	0.481859	0.346992	.1649	0.416647	0.308214	.1764
XR	0.653678	0.340812	.0551	0.717036	0.326226	.0280

Source. Authors.

Note.  $n = 102$ ;  $R^2$  Baseline model = .3644;  $R^2$  New model = .4778.

primarily as an example of concept, as under more permissive circumstances it could be further disaggregated onto component variables.

## Results

The following models were realized with the parameters and information listed above. Model 1 stands as our baseline comparison, as it does not have the VAD variable. Model 2 stands as our proposal, with all equal to the first, except for the addition of VAD. We can see these models in Table 4:

The VAD variable, in model 2, has significance at the 5% level, and a negative impact on FDI. The statistical significance of the control of the exchange rate is improved to 5%, and the knowledge distance has its statistical significance improved to reach the 5% level as well. Other variables vary when it comes to increasing their statistical significance. Some, like geographical distance, being less affected. In the case of HAD, it retains its statistical significance of 1%, although it further improves the quality of the estimator, shifting the  $p$ -value from .0056 to .0045, which winds up being an improvement of about 30% of an already very significant estimator.

We can observe that HAD has a slightly lower coefficient, accompanied by a more significant, lower standard error. Specifically, the coefficient (its absolute value) is reduced by close to 6%, while the standard error is reduced by close to 8%. This, in an already very statistically significant estimator, leads to said improvement of the  $p$ -value.

The correlation between HAD and VAD is very low (-.0144). We realized a  $t$ -test, with the null hypothesis of no correlation, yielding a two-tailed  $p$ -value of .8070 as

to warrant our conclusion that they are quite independent of each other. Table 5 shows the correlation matrix and VIF tests:

$R^2$  increases to .4778, from .3644, an increase in the explanatory capacity of the model of about 31%.

The Table 6 shows only the disaggregated VAD pillar variables, as the rest of the regression retained its general form observed in Table 4.

We realize, here, that most of the effects had in the sample we used, regarding VAD, are due to the distance in dealing with construction permits. Although starting a business has a significance close to 10%, it does not quite reach it. These results being more focused toward exemplification, due to the limitations in this disaggregation.

In this specific example, if we wanted to see if policy action directly addressing the distance was possible, we would have to further disaggregate and address if the time, number of procedures, and cost in terms of warehouse value, of the process of dealing with construction permits, are variables that can be changed directly by policymaking. As it stands, they are, as the policymakers can change them with a redesign of the explicit administrative system. All other component variables of VAD also possess this property.

## Exploring the Benefits and Nature of Vertical Administrative Distance

As stated, the DBR variables, from the World Bank, seem to permit a fitting complementarity given that, being focused on administrative matters; they are solely concerned with the opposite of the horizontally oriented variables.

Two countries might have a very small HAD, meaning they have, for instance, a colonial linkage. However, they



**Table 5.** Correlation Matrix, and VIF Tests.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 FDI	—											
2 VAD	−.37	<b>1.80</b>										
3 HAD	−.40	.00	<b>3.94</b>									
4 CultD	−.10	.05	.35	<b>1.92</b>								
5 DemD	−.30	.26	.01	−.20	<b>1.52</b>							
6 EconD	.06	.07	.00	−.20	−.20	<b>2.37</b>						
7 FinD	.00	−.10	−.10	−.20	.24	.26	<b>1.53</b>					
8 GeoD	−.30	.26	.09	.00	.31	−.20	.04	<b>3.33</b>				
9 ConnD	−.20	−.10	.62	.37	.05	.09	.03	.08	<b>3.63</b>			
10 KnowD	−.20	.21	.42	.45	.00	.16	.02	.00	.19	<b>2.51</b>		
11 PolD	−.20	.09	.32	.16	.23	.04	.12	.43	.30	.33	<b>3.39</b>	
12 XR	−.10	.18	.51	.11	.16	−.10	−.20	.26	.05	.31	.22	<b>3.23</b>

Source. Authors.

Note. VIF values are in bold in the diagonal.

**Table 6.** Disaggregated Vertical Administrative Distance Pillar Variables, Goes About Here.

Variable	Coefficient	SE	z	p Value
Starting a business	−85.047	52.349	−1.625	.1042
Dealing w/construction permits	−193.906	72.617	−2.670	.0076
Registering property	−30.093	81.702	−0.3683	.7126
Getting credit	18.562	67.102	1.047	.2950
Protecting minority investors	−276.075	219.093	−1.043	.2968
Paying taxes	52.025	78.774	0.6604	.5090
Trading across borders	0.6964	60.120	0.0116	.9908
Enforcing contracts	−124.724	139.337	−0.8951	.3707
Resolving insolvency	−32.914	39.397	−0.8354	.4035

Source. Author.

might have a very high VAD, for instance, motivated by the ease to open a business, one of the pillar variables of VAD, meaning they possess processes that have very different levels of efficiency, which will cause hardship for a newcomer to adapt to them. Likewise opening a business might have the same hardship in both countries, as measured, however through very different processes, motivated by horizontal differences in administrative systems, which nevertheless might lead to, for instance, the same number of days to realize this particular operation, yet still cause hardships due to unfamiliarity.

This leads us onto the underlining that all of the VAD variables are as well reflective of a larger whole that we meant to capture. There is, to the best of our knowledge, not a way to measure all aspects of administrative systems directly.

We highlight our purpose of enhancing the utility of the AD measure highlighting three key points of our results and two properties to contextualize the inference we make regarding both comparative institutionalism and the issue of transaction costs that are still relevant within this framework. As such, the elaboration benefits

from the hindsight of knowing these fundamental aspects, of relevance to us.

Key point 1 (K1): Similarly to horizontal administrative distance, vertical administrative distance has a significant and negative relation with FDI.

Key point 2 (K2): The correlation between horizontal and vertical administrative distance is almost non-existent.

Key point 3 (K3): The model measuring the relationship between institutional distance and FDI improves significantly.

Property 1 (P1): Contrary to horizontal administrative distance, vertical administrative distance allows for the determination of what specifically causes its relation with FDI.

Property 2 (P1): The nature of vertical administrative distance variables allows for the extraction of measures to be undertaken by policymakers.

In regards to K1, generally, in the studies realized in level with the DBR variables, as their level increases the effect

is positive toward FDI (Malik & Jyoti, 2018), despite the existence of evidence where, in certain situations, pillar variables in level may have the opposite effect (Haliti et al., 2019). However, the positive effect in FDI associated with an increase in the level of DBR variables is likely to decrease as the country becomes highly rated (Malik & Jyoti, 2018), due either to marginal returns, or, in a certain sense, due to a hygienic nature of these variables. Meaning they seem more likely to cause impediments that stimulus.

However, we do not use these variables in level-form, but rather distance form. Our primary positioning of VAD, and the DBR variables to measure it, is one of transaction costs (Papageorgiadis et al., 2020; Williamson, 1985), where the lack of knowledge, additional work required, and expectations unmatched with reality, create a meaningful hardship that has to be traversed within this distance in efficiency within administrative systems. In that sense, while the increase of the levels of these variables might have either positive or mixed outcomes, the effects of the distance itself are negative. While it seems possible that we would find a positive relationship, that would raise meaningful questions that would not easily make sense in the theoretical model we are considering. If we might find in further studies asymmetrical effects, the negative effect should still be preponderant. However, we did not undertake a directional approach in this study.

In regards to K2, the lack of fit for the lacking aspects of HAD is the reason we did not choose broader possible measures of AD, such as Quality of Governance. The DBR variables seem better to pinpoint the lacking practical bureaucratic aspect we were looking for and found lacking in HAD. Regarding general fit for the study of FDI, and particularly inward FDI, the DBR does not lack examples of previous application (Corcoran & Gillanders, 2014; Haliti et al., 2019; Hossain et al., 2018; Shahadan et al., 2014), although its distance calculation, as opposed to using the variables in level, seems relatively less common.

As HAD is developed in an institutional distance model within the theoretical background of comparative institutionalism (Kostova et al., 2019), it is more reasonable that this is not measured in the initial model since one of the tenets of comparative institutionalism is that different countries may achieve similarly efficient institutional outcomes, even with heterogeneous institutional arrangements (Whitley, 1992). That said, comparative institutionalism does not with that demand that all institutional arrangements are equally efficient in their current form, something that becomes relevant if we are using this framework to measure the impacts of distance in IB phenomena.

Regardless of the complementarity of our variables, a higher correlation between AD, as measured through the VAD variables and HAD variables, would cast doubts over the usefulness of the addition, at some point, but be nevertheless expected. The almost perfect non-existence of correlation was at first sight surprising. However, one of the central tenets of comparative institutionalism is precisely that two countries, with two very different institutional arrangements, may have similarly efficient outcomes (Whitley, 1992). Said tenet, in turn, leaves implicit to some extent the inverse formulation that two countries with quite similar, even if not identical, institutional arrangements might yet have very different performances.

HAD variables, like the type of legal system, or religion, do not address the effectiveness that administrative systems have, but only them being of a different type. The VAD variables function in the opposite sense, giving no heed to how a bureaucratic system works, but looking at the effectiveness of its results. In this sense the difference in the effectiveness of said administrative arrangements, as measured through VAD, is not correlated with the difference in historical aspects that shaped the nature of said administrative arrangements, as measured through HAD.

We are, after all, measuring two facets of administrative systems, because these are highly reflective variables, given that the nature of administrative or bureaucratic processes is not one directly observable. A low correlation indicates simply that we are achieving a “reflection” from quite a different angle to the one we had before. We can be observing the same thing (Beugelsdijk et al., 2018; Kostova et al., 2019), only a different aspect of it. The worse scenario for the fit of the VAD variables would be one of too high correlation, meaning that they capture not much else.

In this sense a primary surprise is substituted by a stronger positioning of comparative institutionalism, as well as transaction costs. Measures of efficiency, after all, generally fail in capturing the nature within which said efficiency takes place, and in this manner are of less interest toward comparative institutionalism, except as a benchmark toward the more extensive characterization of the nature of the respective institutional arrangement. However, the tenet of comparative institutionalism is not that all institutional arrangements are equally efficient. Additionally, the use of this theoretical framework onto the study of IB phenomena seems to not have a good reason for not addressing important issues that would create transaction costs, even if they were not central toward the comparative characterization of institutional arrangements. As our results show, they complement each other.

In regards to K3, this point fundamentally addresses the benefits of the inclusion of a previously omitted relevant variable. It furthers, as well, the clarity of the benefits of said variable's inclusion. If we only had K1 and K2, then, while technically, and theoretically, VAD is a consistent addition, we failed in creating a meaningful addition. In the end, for the addition to matter, and for researchers to be able to justify the added work of processing, obtaining, and developing further this additional dimension, some expectation that it is relevant in a model-wide sense needs to exist, and so the variable should not only be significant (K1) but also meaningful toward the overall model. It also accounts for K1 existing at the expense of other variables. Fundamentally, as well, K2 accounts for the issue of VAD simply capturing the same effects of HAD, while K3 accounts for VAD simply capturing the same effects captured elsewhere in the model.

K1, K2, and K3 have a different nature than P1 and P2. The three key points are concerned with the performance the proposed addition had in the model, while the properties are concerned with its performance in terms of usefulness for policy implementation. Additionally, the properties exist by design, due to the selection process of the variables used to measure VAD.

The last two properties ensure the usefulness of the VAD measure. Both that it can be scrutinized, and that policy action can be taken based on it. Otherwise, the benefits of its addition become unclear and would need stronger backing, as they would remain purely in the theoretical domain, with hindered hopes of being transferred into a practical application capable of adding value to actual policies. P1 takes precedence to P2, even in this domain, as it chiefly ensured the inner-working analysis of the results produced by the vertical distance measure. P2 is chiefly concerned with translation from the theoretical model into policy action. As such, their cumulative existence creates the strongest case for the addition of this measure.

The major inference from our results is the positioning regarding comparative institutionalism. If under comparative institutionalism, efficient outcomes have a measure of independence from particular forms of institutional arrangements, which we confirm to an extent, at least regarding administrative systems, then that does not with it imply that the discounting of the efficiency of said administrative systems comes at no cost, or that it cannot offer meaningful information. Additionally, even if such a measure of efficiency would not have a place under comparative institutionalism, the adaptation of such a theoretical model onto the study of several IB phenomena, may justify an integration of efficiency measures onto the said model, due to the hardship in traversing the distance associated with them.

## Discussion and Conclusion

In this study, we have contributed to the literature by addressing the gap related to the development of AD. Furthermore, we have offered preliminary evidence to the ability of increasing its quality and improving its ability to measure what it attempts to, through a more complete conceptualization and measurement of administrative aspects within countries. This, through the addition of VAD, as measured by the DBR, and aggregated through the Mahalanobis distance calculation, separately from HAD.

Under this study, the differentiation between HAD and VAD not only makes theoretical sense but may also be particularly useful in increasing the explanatory capacity of institutional distance models. Meaning, a VAD variable, that takes into account the distance between variables that have hierarchical attributes, and measure the efficiency of administrative systems, in several ways greatly benefit the institutional distance model, while having a comfortable theoretical integration. Relevant as well are the policy implications that can be extracted out of the insights produced by said increased explanatory capacity.

As stated in the introduction, a big limiting aspect of HAD is that any policy action may only be set upon diminishing the effects of the existing distance. The conceptualization of VAD aids us in understanding that, beyond grand and impractical changes, such as overhauling a legal system to another of a different kind, there is indeed a policy space in which countries may decrease the AD itself. Indeed, this is not unheard of, even if without this theoretical backing, as we can attest by looking at EU policy actions that increase administrative integration in its member state's financial operations (Abad-Segura & González-Zamar, 2020).

Given the centrality of distance in IB as a conceptual tool, and of institutional distance within the aggregated distance constructs (Beugelsdijk et al., 2018; Kostova et al., 2019), it is crucial that each and every component is well developed and allows for deep interpretation and understanding. This research is key for enhancing the capability of analysis and explanatory capacity of institutional distance and, more particularly, AD.

As there is almost no correlation between the two measures of AD, the interpretation we make of this is that while both variables are related to AD as a concept, they come however from two very different origins regarding its study. HAD focusses much more on the contextual and historical, while VAD focusses much more on the practical consequences of existing administrative systems in place. They seem, through the results obtained, to complement and contextualize each other. Our results point to some effects of VAD being purged from HAD. The inclusion of VAD in the model seems to

de-interlace this spurious capture, creating higher precision in the estimators of the effects of this contextual, historical AD. These findings are in line with the theory of comparative institutionalism (Whitley, 1992), as well as transaction cost theory (Williamson, 1985).

The addition of variables in regressions frequently has the opposite effect, that is, lower statistical significance for the previous variables. Given that a variable is significant, that effect comes particularly to the fore with the addition of variables that operate on the same phenomena while adding little to the explanatory capacity, thus splitting the explanatory capacity of the variable already included (Wooldridge, 2013). The new scope, as well as little correlation, of the VAD variable, seems to make none of this, instead de-interlacing noise from existing variables, in this manner not only providing an adequate explanation but also freeing variables already present to do so better, as they are now contextualized in light of this new addition.

Companies, when investing in other countries, or performing other activities, seem, in light of these results, to be impacted not only by a difference in the form of administrative systems but also by differences in their quality, in the sense of efficiency. The variables in HAD do not say anything about whether a particular administrative system works as well as another. Rather, only that they are likely to be of the same general form, as influenced by these factors, and that because of this understanding should be easier. VAD is one the other hand entirely focused on the results of the administrative apparatus within any given country, giving no importance as to how these results are obtained.

The results we obtained point to this difference in the effectiveness of the administrative apparatus being relevant for the understanding of FDI. Our results, in this way, point to effects that go beyond level effects, such as are usually studied when it comes to utilizing the DBR, but also distance effects, which we identified using VAD.

If we want to be ambitious with our claim, then we might say that VAD should be included within the overall framework. Either aggregated in a single AD, or not, and with future appropriate treatment of the component variables constituting HAD, such as the percentage of a common religion, so that anyone thereafter might do the aggregation themselves. If we want to be more cautious, in what is probably a more correct formulation, then we can say that we have found solid evidence pointing toward the existence of possible benefits regarding this addition, and further research regarding this issue is warranted, for the benefits, as we have shown, might be quite substantial.

One limitation of our study is that it points to narrow evidence. It focusses in one country, on a narrow

timeframe, on one subject. For the solidification of the argument that VAD should be included in the overall model, then, we need studies from different countries, on different timeframes, and different topics. We need as well other more in-depth research that reinforces that there is an appropriate match between the variables used in the DBR and their intended theoretical purposes, and further that these theoretical purposes are solid. We believe that this study takes the first steps in this direction, but it would perhaps be too cavalier to take the work as finished in the theoretical implications of this new proposal.

At the very least, we can say with relatively more certainty that inbound Foreign Direct Investment, in Portugal, within our timeframe, despite us not thinking that it would be different in others, is better understood by Berry et al.'s (2010) model with an additional, complementary, measure of AD, as measured by the DBR, and under this methodology.

Further research seems in ample need regarding both directionality, as well as divergent constructs from distance, such as friction. Distance is hardly a stable construct, and at times seems to not be quite internally consistent. In some cases, the metaphor that it is intending to be breaks down on closer inspection. It seems several authors have already taken note of it, as some proposals have surfaced to evolve it. Nevertheless, it seems the study of the hardship of interactions within IB will become much more stable once firmer ground is had on what it is, and the underlying concepts it utilizes.

Additionally, future empirical studies, following a deductive reasoning, need to include VAD on models explaining other important IB dimensions, in different contexts. Finally, in a broader view, it seems that much of the way forward in this area of distances within IB is highly dependent on a holistic view of it. From the clarity of concepts and constructs that are underlying it to the limitation and applicability of metaphors employed, moving onto theoretical model formation and refinement, and moving further toward data selection, treatment, and finally fit, aggregation, finalizing in interpretation. While certain studies might rely more strongly on some points than others, it seems relevant that none of these areas are completely left out. As well, that research focusses more on some previously neglected, less appealing, parts, so that further research that intends to use these "hardship to traverse" models as tools, with the objective to provide useful interpretations of international phenomena, has solid ground on which to stand.

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