Potential Determinants of Research Output: Comparing Economics and Business

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Abstract. This paper uses cross-country unbalanced panel data of up to 146 countries from 1996-2015 to be the first study to identify potential determinants of a country's relative research output in Economics versus Business. This identification is important for students, professionals, universities, university departments, and research-funding agencies facing choices between profiles oriented toward economics and business. Consider the following concrete example. The finding that some distinct countries' characteristics hinder Economics relative to Business research is valuable information for a prospective professional when choosing her career path.

We do a thorough literature review to single out country characteristics having the potential to determine the flourishing of economics research vis-à-vis business research and come out with the following three hypotheses: higher policy-related data availability, higher income inequality, and lower ethnic fractionalization relatively favor economics.

The regressions' results confirm these hypotheses, and the findings are robust to two alternative fixed effects specifications, three alternative definitions of economics and business, two alternative measures of research output (publications and citations), the inclusion of meaningful control variables, and the consideration of developed and developing countries. Yet, the association between ethnic fractionalization and relative research output is limited to developing countries.

***Keywords**:* research output, publication performance, bibliometrics, economics, business, policy-related data.

JEL classification: A11, A12, A22, I23, J44.

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1. Introduction

The importance of research output is undeniable in many dimensions but particularly in terms of economic growth. The potential of research output affecting economic growth has called the attention of abundant research. For instance, for a set of 169 countries for the period 1996–2013, Solarin et at. (2016) find an overall positive impact of research output on economic growth when using a variety of indicators to proxy for the former. Similarly, by looking at a sample of 65 countries for the period 1980–2016 Pinto et at. (2020) also find support for the hypothesis, but they stress that the impact is particularly high for the fields of engineering and technology, social sciences, and physics. These general results have also been confirmed by research done on more homogeneous sets of countries. See Ntuli et at. (2015) for a study focused on the OECD countries and Azmeh (2022) for one looking at the MINA region.

Having highlighted the importance of research output we can move now to the particular topic of our research, which is focused on the comparison of two seemingly related fields (economics and business) and what might determine the predominance of one over the other. They are clearly related disciplines whose practice sometimes overlaps in universities, business schools, journals, and job markets. The need to choose between the two fields presents itself on many levels: when prospective professionals must choose career paths within the broader field, when universities or university departments must decide whether to offer more economics- or business-oriented programs, or when funding agencies must determine how to allocate scarce resources among research projects, or when academic journals define their "aim and scope," and in so doing, attract more economics- or more business-oriented research.

The existence of so many circumstances in which such choices arise means that identifying scenarios that relatively favor one or the other field is of practical importance. In an innovative way and as a contribution to this line of effort, our paper uses country-level data to uncover potential determinants of the relative research output of the two fields, alternatively measured as the number of publications and citations coded for one versus the other. Clearly, this is just one approach. Among alternatives, one could also look at salaries or employment levels for professionals specializing in economics and business.

The most distinctive difference between economics and business pertinent to this study's context is that the former is more involved with policy research while the latter is more related to private business research. The significant engagement of economics with policy research and advice is well-known (British Academy, 2008; Hirschman and Berman, 2014; Horowitz, 1967). A British Academy (2008) report reads, "... certain social science disciplines seem to be well established across government, notably economics, where it has been argued that the status and influence of economists is significantly stronger than that of scientists in other professions." Indeed, Hirschman and Berman (2014) state that "Every sociologist, anthropologist and political scientist knows that economics is the most politically influential social science."

We identify three country-level variables potentially affecting policy research: policy-related data availability, income inequality, and ethnic fractionalization. Before positing hypotheses related to each of these variables, it is worth clarifying why country-level variables are relevant. The reason is that a country's underlying conditions may influence policy-research output, and hence relatively affect economic research. To some degree, a scholar's research may involve studying or is motivated by issues present in his/her own country.

Hypothesis 1: The greater the availability of policy-related data in a given country, the more likely that economics will flourish there (in relative terms to business).

Hypothesis 1 is a direct consequence of economics being intertwined with policy research – business research would be much less affected by the lack of policy-related data. There is also the fact that surveys and case studies designed by researchers themselves are standard tools in business research, while they are much less welcomed in economics (Storr, 2013; Storr and John, 2018; Thornhill et al., 2019). The wide use of self-designed surveys in business results from the business research community's willingness to accept qualitative and pure cross-section types of data (Eriksson and Kovalainen, 2015). On the contrary, economists emphasize causality, making them more likely than business researchers to rely on panel data (Hoover, 2008; Morck and Yeung, 2011).

Hypothesis 2: The more unequal a country's income distribution is, the more likely that economics will flourish there (in relative terms to business).

High Inequality is fertile ground for the appearance of groups with antagonistic views about how to handle it. Since economics is the primary discipline dealing with income inequality (Korom, 2019), economists are sought after for their expertise in countries with Inequality. This has been particularly so since the 1980s when economists began to focus more on Inequality (Miles, 2003). In contrast, there is no reason to believe that income inequality should have any particular effect on business research.

Hypothesis 3: The more ethnic-fractionalized a country is, the less likely that economics will flourish there (in relative terms to business)

There are several interrelated reasons for this. First, an ethnic-fractionalized society is more prone to clientelism, under which policy implementation is guided more by ethnic considerations than economic rationality relative to a less fractionalized one. Thus, economic thinking and research may be hindered. The positive relationship between clientelism and ethnic fractionalization has been documented in Hale (2007), Kramon (2019), and Wantchekon (2003). Indeed, empirical studies have consistently found that ethnic fractionalization is associated with costly delays in the implementation of stabilization policies (Alesina and Drazen, 1991) and a lack of growth-enhancing policies (Easterly and Levine, 1997; Collier and Gunning, 1999). These manifestations may be a consequence of the difficulty of achieving consensus. In this regard, Alesina et al. (2003) claim that the lack of consensus in fractionalized societies is particularly noteworthy concerning redistributive policies. They also emphasize that the lack of consensus in highly fractionalized Guyana may have been the reason for its slow development. Alesina and Ferrara (2005) offer a comprehensive literature review on ethnic diversity and economic policies and outcomes.

The second motivation for hypothesis 3 is that economists have relatively more to say about public goods, whereas business scholars have rather more to say about private goods. Thus, economic research is somewhat less likely to flourish in an economy where public goods are less common. Theoretical and empirical work shows that low provision of public goods characterizes ethnic-fractionalized societies/communities – see Alesina et al. (1999) for a piece of research that focuses on cities, metropolitan areas, and urban counties in the United States, and Easterly and Levine (1997) for a seminal cross-country study. In the same vein, Alesina and La Ferrara (2000) and other researchers find that ethnic-fractionalized communities also experience low participation in civic activities (a type of public good). On the contrary,

in a cross-country study, Alesina et al. (2003) do not find that fractionalization affects the business climate when proxied by the *Property Rights Index* and the *Business Regulation Index*.

Third, a higher level of ethnic fractionalization makes contextualized research more relevant. Thus, it relatively favors business research where this approach is much more accepted, especially in research on organizational behavior, international business, and entrepreneurship (Härtel and O'Connor, 2014; Michailova, 2011; Zahra et al., 2014). Economics is typically considered a more universal discipline (Venter, 2002; Hodgson, 2001). That said, we are far from claiming the nonexistence of contextualized research in economics. In fact, this type of research is favored by the relative availability of policy-related data in a given country, our first hypothesis.

Our paper is organized as follows. Section 2 reviews some of the most relevant literature for our question. Section 3 describes the data and presents the results. Section 4 concludes.

2. Literature review

This paper is related to a broad literature on research output productivity, and in particular to two strands of that literature. The first involves international research output comparison; we oversimplify by mentioning just three papers. In a seminal study, Irvine and Martin (1989) compare scientific publications and citations across seven leading scientific countries over 1973-84, covering all the fields of science and engineering. Glänzel (1996) is an early application of bibliometric methods to six selected social science areas for all countries that produced at least 20 papers from 1990 to 1992. Confraria et al. (2017) update and extend this work, applying bibliometric and econometric analysis to identify citation determinants across 132 countries and 21 subject areas. They find that the previous citation's impact, the level of international collaboration, and the total number of publications in a specific scientific field are important country-level determinants of citations received.

The second strand of literature relevant to our work examines cross-field differences. In a precursory paper on this narrower literature, Wanner et al. (1981) use cross-sectional regression analysis with researchers' level data to identify the determinants of the research productivity of physical, biological, and social scientists and humanists at US higher education institutions from 1972 to 1973. They find higher productivity in articles published by physical and biological scientists relative to social scientists and humanists. Sabharwal (2013) also uses researchers' level data to look at the determinants of productivity in the fields of biology, computer sciences, mathematics/statistics, physical sciences, psychology, social sciences, engineering, and health. However, as a consequence of using researchers' level data, Wanner et al. (1981) and Sabharwal (2013) conclusions are based on separate regressions for each field, so they neither test whether these differences are significant nor identify determinants of cross-field differences.

Piro et al. (2013) find that when article counts are fractionalized according to the number of authors, researchers from the humanities and social sciences are more productive than their counterparts in medicine, natural sciences, and technology. This result is the opposite of Wanner et al. (1981) findings and a consequence of their use of fractionalized article counts. However, Piro et al. (2013) do not use regression analysis and instead compare three alternative counts of publications. Indeed, they do not test whether the inter-field differences are statistically significant.

Closer to the current study, Fourcade et al. (2015) compare economics with sociology and, to a lesser extent, business, Finance, law, life science, mathematics, political science, physical science, psychology, and statistics. They do not use regression analysis but tables and figures. They compare the percentage of citations from one field's flagship journal to articles published in the top 25 journals of another discipline. They also look at answers to survey questions and median wages. Their main conclusion is that economics is the most hierarchical, insular, and influential field, particularly in guiding public policy.

Finally, three additional papers are worth mentioning. First, Contreras et al. (2006) compare the productivity of economics and business relative to other fields in the case of Chile from 1984 to 2003. They aim to assess the appropriateness of research funding allocations by analyzing tables and graphs showing the number of publications and citations in absolute and relative terms. Among other findings, they show that Chilean economic and business research is above the world average.

Second, Lockett and McWilliams (2005) provide a critical view of the relative performance of management research. They do not use regression analysis and mainly look at the pairwise fields' balance of trade. They define the balance of trade of field A relative to field B as the total number of citations field B does to field A divided by the total number of citations field A does to field B. They find that management research cites the fields of economics, psychology, and sociology more than the reverse. They interpret this to mean that management imports significant knowledge from the three other fields. In contrast, management only exports a significant (but small) amount of knowledge to psychology.

Third, Fontana et al. (2009) make an evolutionary comparison of topics inside economics and their geographical specialization. They analyzed 13,233 papers from seven top journals between 1985 and 2012 and their forward citations. Among other results, they found that the share of US publications declined from 75% to 64%, with a corresponding increase in the European share from 12% to 24%.

3. Data and results

3.1 Data description and definition of variables

As explained below, we gather data from multiple sources and combine them into an unbalanced panel of 146 countries (see Table A1 in the Appendix), in which the dependent variable data is from 1996 to 2015. We lag all independent variables by two years to account for the time between a paper's conceptualization and publication; hence, our independent variables are from 1994 to 2013.[1] In the following paragraphs, we describe each variable and its sources.

The data and Table 1's subject categories and subject areas come from SCImago Journal & Country Rank (SCImago, n.d.). The SCImago Journal & Country Rank database includes all the journal and country scientific indicators from the Scopus® database (Elsevier BV, http://scopus.com/). This database covers all journals indexed in Scopus and includes over 5000 international publishers and 239 countries since 1996. According to the Scopus Content Coverage Guide (2020), the resource "delivers the most comprehensive

[1] Hereafter and for the sake of readability, the fact that the variables are lagged will neither be indicated in the variables' names nor in the text. Notice that qualitative results are unaffected when lags of one and three years are used instead of two.

overview of the world's research output in the fields of science, technology, medicine, social science, and arts and humanities." Table 1 presents the relevant categories and areas for this paper.

The dependent variable in this study must reflect the relative strength of economics research vis-à-vis research in business, which we proxy by the number of published documents. Thus, the dependent variable is the number of economics publications per country year divided by economics and business publications per country year. The country-year publications are from the SCImago Journal & Country Rank database, consisting of citable documents from journals and trade journals (articles, reviews of scientific relevance, and conference papers published in journals). We do not include book series or book reviews, letters, conference meeting abstracts, or non-serial sources. In addition, two other aspects are worth mentioning regarding the classification of the data by SCImago. On the one hand, if authors with different country affiliations produce a paper, it counts for each country. On the other hand, a paper may appear classified as a business and an economics paper, in which case it counts towards both areas.

In our estimations, economics and business subject areas are broadly defined as they vary slightly in the three specifications used. In the first specification, *Sh_pub_1*, economics includes subject categories in rows 1 to 3 of Table 1 (i.e., all categories under the subject area *Economics, Econometrics, and Finance*). Business consists of subject categories in rows 4 to 13 (the entire subject area *Business, Management, and Accounting*).

Table 1. SCImago subject areas of "Economics, Econometrics and Finance" and "Business, Management and Accounting" and their respective subject categories

	Subject category	Subject area
1	Economics, Econometrics, and Finance (miscellaneous)	Economics, Econometrics, and Finance
2	Economics and Econometrics	
3	Finance	
4	Accounting	Business, Management, and Accounting
5	Business and International Management	
6	Business, Management, and Accounting (miscellaneous)	
7	Industrial relations	
8	Management Information Systems	
9	Management of Technology and Innovation	
10	Marketing	
11	Organizational Behavior and Human Resource Management	
12	Strategy and Management	
13	Tourism, Leisure, and Hospitality Management	

The second and third specifications below are robustness checks. In the second specification, we slightly change the dependent variable by moving the subject category Finance (row 3 of Table 1) from economics to business and rename it *Sh_pub_2*. This move is motivated by the fact that finance faculty are frequently part of business schools instead of or in addition to holding appointments in economics departments. Moreover, some studies include Finance as part of business research (Pieters and Baumgartner, 2002).

However, this is not a complete move of Finance from economics to business because there is still a component of it in row 1 of Table 1. In the third specification, the dependent variable is *Sh_pub_3;* it only considers row 2 of Table 1 as part of economics, while business is defined as in *Sh_pub_1*. This last specification takes Finance entirely out of either economics or business; hence, it frees the analysis from misclassification issues. *Sh_cit_1*, *Sh_cit_2*, and *Sh_cit_3* are similarly defined variables using citations instead of publications as a measure of research output. Table 2 shows descriptive statistics for all the variables.

Table 2. Descriptive statistics

	Observ.	Mean (overall)	Std. Dev. (overall)	Std. Dev. (within)[(1)]	Min (overall)	Max (overall)
			Dependent variables			
Sh_pub_1	2,257	0.48	0.25	0.20	0	1
Sh_pub_2	2,257	0.40	0.26	0.21	0	1
Sh_pub_3	2,230	0.40	0.26	0.20	0	1
Sh_cit_1	2,204	0.49	0.28	0.19	0	1
Sh_cit_2	2,204	0.42	0.30	0.20	0	1
Sh_cit_3	2,177	0.44	0.30	0.19	0	1
			Independent variables (lagged 2 years)			
Data reporting index	2,257	1.17	0.19	0.14	0.44	1.69
Inequality	2,257	0.38	0.09	0.01	0.21	0.67
Fractionalization	2,257	0.42	0.25	0.01	0.01	0.89
GDP	2,257	0.59	1.73	0.11	0.001	17.81
GDP per capita	2,257	0.01	0.02	0.00	0.001	0.10
Polity2	2,182	4.95	5.87	1.07	-10	10
Freedom of press	2,245	44.40	22.58	4.79	5.00	99.00
Openness	2,213	80.71	45.44	12.02	0.02	43.73
D	2,257	0.43	0.50	0	0	1

Note i: The within standard deviation is the cross-country mean of all the individual countries' through-time standard deviations. We later use this figure to calculate the practical effects of each variable (see footnote 5 below).

Note ii: All dependent variables are shares of economics' scientific production on the sum of economics and business' scientific production. Scientific production is measured by the number of publications (in variables *Sh_pub_1*, *Sh_pub_2*, and *Sh_pub_3*) and by citations (in variables *Sh_cit_1*, *Sh_cit_2*, and *Sh_cit_3*). All independent variables are two-year lags. The *Data reporting index* is our own elaboration based on Parcero and Papyrakis (2016). *Inequality* is a Gini Coefficient (Solt, 2020). *Fractionalization* and *Polity2* are indices taken from Drazanova (2019) and the Polity IV dataset (Marshall et al., 2016), respectively. The variable *Freedom of press* equals 100 minus the *Press Freedom Index* (Freedom House). *GDP* is measured in billions of dollars of 2017, World Development Indicators (World Bank, 2020), hereafter WDI. *GDP per capita* is expressed in billions of dollars of 2017 per million people (WDI, 2020). Openness is the ratio between the sum of exports and imports over GDP*10 (WDI, 2020). The dummy variable *D* takes the value of 1 if the country is classified as developed in 2005 and 0 otherwise (WDI, 2005).

As posited in the introduction, our first hypothesis is that the greater availability of policy-related data favors economics relative to business in a given country. To test *Hypothesis 1,* we construct a *Data reporting index* that indicates the availability of policy-related data in a country. The index uses all the data

available at the World Development Indicators (World Bank, 2020), hereafter WDI. The fact that a piece of data is reported in the WDI indicates its quality and reliability.[2]

The WDI provides macro data, which qualifies as macro policy-related data. Moreover, the existence of such data in a particular country may also be an indication of how much micro-policy-related data is available. This is because the WDI data is generated by national agencies and other officially-recognized international sources whose main aim is to aid policy research. For instance, a typical national statistics agency provides not only macro data appearing in the WDI but also microdata from household surveys absent from the WDI.

The proposed index is an improvement on the one adopted by Parcero and Papyrakis (2016). Our index relies on the idea that having data for just the most recent year is of little value to carry out meaningful research. The following four-year moving averages index aims to partially address the single-year data problem.

$$Data\ Reporting\ Index_{i,t} = \frac{(NDE\_WDI_{i,t}+NDE\_WDI_{i,t-1}+NDE\_WDI_{i,t-2}+NDE\_WDI_{i,t-3})}{ANDE\_WDI},$$

where $NDE\_WDI_{i,t-\tau}$, for $\tau \in (0,3)$, is the number of data entries reported by the WDI (2020) for country i in year $t-\tau$. A data entry is considered as reported if its value is not missing. $ANDE\_WDI$ is the average number of data entries reported by the WDI for the countries in the sample from 1991 to 2013. Table A2 in the Appendix explains further minor refinements done to the index.

The variable Inequality is the Gini coefficient of income inequality put together by Solt (2020), and its purpose is to test Hypothesis 2. Its scale is from 0 to 1, with a higher value indicating more Inequality. A Gini coefficient of zero expresses perfect equality (e.g. when everyone has the same income). A Gini coefficient of one (or 100%) expresses maximal Inequality (e.g. when only one person has all the income and all others have none). The variable Fractionalization is an index that calculates the degree of ethnic fractionalization. The index is taken from Drazanova (2019) and is used to test Hypothesis 3. The index corresponds to the probability that two randomly drawn individuals within a country are not from the same ethnic group. It ranges from 0, when all individuals are from the same ethnic group (i.e., no fractionalization), to 1, when each individual is from a different ethnic group (i.e., extremely high fractionalization). Hence, a higher value indicates a higher fractionalization in a country.

The variables *GDP* and *GDP per capita* are the two-year lagged real GDP in billions of dollars for 2017 and the two-year lagged real GDP per capita in billions of dollars per million people. Both variables are from the WDI (2020). The variable *GDP* is added to our regressions to control for the potential existence of stronger economies of scale in economics relative to business research. The possible presence of these stronger economies of scale may stem from the fact that economists' tasks are often closely related to policy, which is more likely to be needed the larger an economy's size.

[2] The World Bank adheres to the General Data Dissemination System (GDDS) and the Data Quality Assessment Framework (DQAF). The GDDS is a framework for assessing national statistical systems and promoting improved dissemination and effectiveness. The DQAF is a methodology for assessing data quality that brings together best practices and internationally accepted concepts and definitions in statistics (http://data.worldbank.org/about/data-overview/data-quality-and-effectiveness, accessed May 7, 2021).

The variable *GDP per capita* is recurrently used in cross-country studies as a general control. In our context, it additionally aims to control for the more hierarchical structure in economics relative to business research. For instance, Fourcade et al. (2015, pp. 96) assert that "[...] economics more than the other fields looks both inward and toward the top of its internal hierarchy." Similar recent views can be found in Heckman and Moktan (2020). The latter highlights the exceptional importance of the top five journals in economics. The hierarchical nature of economics is also visible in the international arena, as evidenced by the large concentration of economics journal editors and publications in a few wealthy countries (Angus et al., 2020; Ek and Henrekson, 2019; Glötzl and Aigner, 2019; Rossier and Bühlmann, 2018). The remaining variables will be introduced when further robustness checks are presented.

3.2 Base regressions

Notice that the dependent variable is a proportion, so its values lie between zero and one, including the limits, which make up a substantial share of our observations (20%). The histogram clearly shows this in Figure A1 in the Appendix. The primary suggested regression approach in cases with a fractionalized dependent variable is known as Fractional Logit. This approach was initially proposed by Papke and Wooldridge (1996) and first implemented for panel data by Wagner (2003) by adding individual-specific dummy variables. Papke and Wooldridge (2008) and Gallani et al. (2015) promote the approach as preferred. A textbook treatment of it can be found in Wooldridge (2010: 751pp.).

As a robustness check, we also report the results of Linear Fixed Effects only in the last three columns of Table 3. The choice of the linear fixed effect for the robustness check in our as well as Papke and Wooldridge (2008)'s studies, is based on the fact that the marginal effects that are derived from it have precisely the same interpretation as the marginal effects derived from the fractional logit model. However, linear models like the linear fixed effect or the system GMM for that matter, ignore the bounded nature of a proportion's dependent variable, which a fractional logit model appropriately contemplates. Having said that and as we will shortly see, it is good news that the results of columns (4) to (6) of Table 3 are not substantially different from the results of columns (1) to (3). The package used for the regression analysis was Stata/MP 14.2 (StataCorp LLC).

Table 3. Potential determinants of the relative output of economics under three alternative specifications and two fixed effects approaches

	Fixed Effects Fractional Logit[i]			Linear Fixed Effects		
Dependent variable	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*
	(1)	(2)	(3)	(4)	(5)	(6)
Data reporting index	0.311***	0.253***	0.271***	0.305***	0.247**	0.256***
	(0.074)	(0.078)	(0.077)	(0.097)	(0.099)	(0.098)
Inequality	1.900***	1.655***	1.721***	1.831***	1.619***	1.674***
	(0.378)	(0.379)	(0.389)	(0.599)	(0.543)	(0.592)
Fractionalization	-0.603***	-0.626***	-0.506**	-0.599*	-0.589*	-0.487
	(0.223)	(0.230)	(0.228)	(0.333)	(0.298)	(0.316)
GDP	0.025***	0.021***	0.026***	0.021**	0.016**	0.021***
	(0.005)	(0.005)	(0.005)	(0.009)	(0.008)	(0.007)
GDP per capita	7.625***	9.041***	10.386***	7.613***	8.797***	10.463***
	(1.689)	(1.741)	(1.688)	(2.623)	(2.643)	(2.588)
Country's fixed effects	YES	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES	YES
Observations	2,257	2,257	2,230	2,257	2,257	2,230
No. of countries	146	146	146	146	146	146
R-squared (within)	n/a	n/a	n/a	0.037	0.035	0.060

Note i: Average marginal effects are reported for the Fixed Effects Fractional Logit.
Note ii: Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.

The first three columns of Table 3 show Fixed Effects Fractional Logit regressions for the alternative dependent variables. In comparison, the last three columns do the same but for Linear Fixed Effects. For the Fixed Effects Fractional Logit, the *average marginal effects* are reported instead of coefficients so that they can be straightforwardly contrasted with Linear Fixed Effects results.[3] Also, notice that the final year for the dependent variable of our regressions is 2015 because data for the independent variable *Fractionalization* is available only until 2013.

The first three rows of Table 3 confirm that the three hypothesized potential determinants of difference in publication quantity between economics and business have the expected effect and are also statistically significant. The availability of policy-related data (*Data reporting index*) and the level of Inequality are positively correlated with the share of economics research. And the degree of ethnic fractionalization is negatively correlated. Results are significant at standard statistical levels.

[3] The *average marginal effect* (also known as *average partial effect*) calculates the marginal effect for each individual separately, and then takes the mean of the marginal effects. The *average marginal effect* is generally considered preferred to the *marginal effect of a representative* and the *marginal effect at the mean* (Papke and Wooldridge, 2008; Williams, 2012; Huntington-Klein, 2021).

The point estimates are quite similar under the two alternative fixed effects estimations (compare columns (1) to (3) against columns (4) to (6), respectively), though slightly higher under the Fixed Effects Fractional Logit. In terms of significance, this is also true for the *Data reporting index* and *Inequality*, but less so for ethnic fractionalization. For the latter, Linear Fixed Effects shows only marginal statistical significance in two of the three share measures. Thus, the three main hypotheses are confirmed more strongly by the econometric specification that the specialized literature suggests is the most pertinent.

The first three rows also show that the results are robust to the alternative definitions of economics and business. That is, the results still apply when Finance (subject category 3 in Table 1) is moved from economics to business (column (5)) and also when just econometrics and economics (subject category 2 in Table 1) are considered to define economics (column (6)).

Notably, these estimates suggest not only statistical significance but also a practical one. For simplicity, the following calculations are for the results in column (1). A one within standard deviation increase in the *Data reporting index*, 0.14, is associated with a rise in the share of economic papers of 0.044, equivalent to a 9.07% rise when *Sh_pub_1* is measured at its mean, 0.48.[4] Similarly, a one within standard deviation increase, 0.01, (decrease, 0.01) in income inequality (ethnic fractionalization) is associated with a rise in the share of economic papers of 0.019 (0.006), equivalent to a 3.96% (1.26%) rise when *Sh_pub_1* is measured at its mean, 0.48.

Moreover, we conjecture this practical significance would be more considerable if calculated from column (3). Two of the hypothesized variables are expected to have a weaker effect on finance subject categories. First, finance research is relatively more dependent on private business data than on policy-related data. Second, finance research is not likely to be particularly affected by income inequality – distributional issues are not so important in finance research. On the other hand, trying to ascertain the relative effect of ethnic fractionalization on Finance versus non-finance economic research may be quite intricate. Perhaps finance research is as much hindered by ethnic fractionalization as economics is. The creation of stock markets and well-developed financial systems is a kind of public good and so is hindered in a fractionalized society.

The data confirms these expectations. A one within standard deviation increase in the *Data reporting index*, 0.14, (income inequality, 0.01) [ethnic fractionalization, 0.01] is associated with an increase in the share of economic papers of 0.038 (0.017) [0.005], equivalent to a 9.49% (4.30%) [1.27%] rise when *Sh_pub_3* is measured at its mean, 0.40. The three percentage changes are larger than the respective ones calculated for column (1) by 4.57% [(9.49%-9.07%)/9.07%], 8.69%, and 0.70%, respectively.

[4] Using the within rather than the overall standard deviation is more appropriate at the time of calculating the practical effect of each variable because in the fixed effects approach, the effects are calculated over time (refer to the note under Table 2 for an explanation of how the within standard deviation is calculated). This is particularly important for income inequality and ethnic fractionalization, which show a substantial difference between the two standard deviation measures. Regardless, the results still apply when using the overall standard deviation, though the magnitudes are different.

The last discussion shows that the *Data reporting index* is the single most important variable associated with the prevalence of economics over business research. This is the case whether economics and business are defined as in specification 1 or 3.[5]

A final comment on the last three regressions in Table 3 is related to the low R-square, which shows that the independent variables explain a low variation of the dependent variable. However, it is well known that the magnitude of the R-square value depends on the study area and, more precisely, the specific research question. Thus, to make a meaningful comparison, let´s look at the seven papers mentioned in the above literature review that focuses on cross-field differences (starting in the second paragraph of section 2).

As we made it clear there, four of these papers look at comparisons of mainly means and percentages of indicators and use tables and graphs to show the results. As such, we cannot use these studies to contrast the R-square of our regressions. Moreover, it is immediately evident that our use of regression analysis is an improvement relative to these studies.

Thus, of the above-mentioned part of the literature, only three studies apply regression analysis. On the one hand, Wanner et al. (1981) and Sabharwal (2013) use researchers' level data to look at the determinants of productivity in terms of articles published in different fields. In particular, Sabharwal (2013) Table 4 reports an R-square of 0.18 for Social Science and 0.26 for Physical Sciences. Similarly, Wanner et al. (1981) Table 1 reports an R-square of 0.45 for Social Science and 0.56 for Physical Sciences.

These R-squares are higher than the ones shown in the last three regressions of Table 3. However, explaining the productivity difference between two fields of research, as we do, is a much harder endeavor than separately explaining the productivity of each field. The problem gets magnified when the two contrasting fields are narrowly defined and closely related, as in our case. In other words, the difference between Economics and Business is much less pronounced than the difference between Social Science and Natural Science, as is the case in Wanner et al. (1981) and Sabharwal (2013) studies.

On the other hand, the regression done by Fontana et al. (2009) is of a different kind to the ones used in Wanner et al. (1981), Sabharwal (2013) as well as in our research but in any case, they do not report R-square under the argument that it is a poor measure of the goodness of fit in their non-linear regression.

3.3 Robustness checks

In this section, we run a set of robustness checks and focus on the Fixed Effects Fractional Logit, which, as argued, is the most appropriate. In the first three regressions of Table 4, we adopt the first specification of Table 3 but sequentially add three variables. In particular, regressions (1) and (2) add a control variable indicating how democratic a country is (*Polity2*) and how much freedom of the press it has (*Freedom of press*). The variable *Polity2* indicates the "effectiveness of democratic institutions − Polity 2" and comes from the Polity IV dataset (Marshall et al., 2016). This variable goes from -10 to 10, with a higher value indicating a higher level of democracy. The variable *Freedom of press* is a slight modification of the *Press Freedom Index* (Freedom House). It equals 100 minus the *Press Freedom Index*; hence, a higher value

[5] This is also true if economics and business are defined as in specification 2, a calculation not reported but available from the authors upon request.

indicates higher press freedom. As before, we lag the independent variables for two years to allow for a delayed impact on research output.

Table 4. Robustness checks to the inclusion of other controls (columns 1 to 3) and to the use of shares of citations as the pendent variables (columns 4 to 6).

	Fixed Effects Fractional Logit					
	Share of publications			Share of citations		
Dependent variable	*Sh_pub_1*	*Sh_pub_1*	*Sh_pub_1*	*Sh_cit_1*	*Sh_cit_2*	*Sh_cit_3*
	(1)	(2)	(3)	(4)	(5)	(6)
Data reporting index	0.315***	0.303***	0.327***	0.206**	0.177*	0.184*
	(0.082)	(0.082)	(0.073)	(0.024)	(0.057)	(0.050)
Inequality	1.695***	1.928***	1.808***	1.811***	1.518***	1.897***
	(0.382)	(0.387)	(0.378)	(0.000)	(0.001)	(0.000)
Fractionalization	-0.459**	-0.594***	-0.560**	-0.727***	-0.650**	-0.713***
	(0.223)	(0.226)	(0.222)	(0.004)	(0.011)	(0.006)
GDP	0.025***	0.024***	0.024***	0.001	0.005	0.001
	(0.005)	(0.005)	(0.005)	(0.752)	(0.299)	(0.887)
GDP per capita	7.119***	7.811***	7.805***	6.992***	7.337***	8.387***
	(1.703)	(1.684)	(1.723)	(0.000)	(0.000)	(0.000)
Polity2	0.002					
	(0.002)					
Freedom of press		0.001				
		(0.001)				
Openness			-0.002			
			(0.004)			
Country's fixed effects	YES	YES	YES	YES	YES	YES
Years effects	YES	YES	YES	YES	YES	YES
Observations	2,182	2,245	2,213	2,204	2,204	2,177
No. of countries	143	143	145	145	145	144

Note: Average marginal effects instead of regressions' coefficients are reported. Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.

A lower level of *Polity2* or *Freedom of press* can potentially hinder economic research relative to business research because the former is more politically sensitive. Political sensitivity has been raised in previous studies when comparing social sciences' relative development to other fields (see Zhou et al., 2009). Both variables show the expected positive sign in regressions (1) and (2) but are not statistically significant. More importantly, the results for the three main variables corresponding to the three formulated hypotheses are qualitatively unaltered. Though the magnitude of the positive effect of the *Data availability index* and *inequality* fall (the former only marginally), their statistical significances are practically unaffected. The results for ethnic fractionalization are still statistically significant but now only at the 95% confidence level.

Column (3) of Table 4 adds trade openness (*Openness*). This variable has been found to have a significant effect in a variety of cross-countries studies. It is defined as the value of exports and imports over GDP and comes from the WDI (World Bank, 2020), but it is divided by 10 to avoid seeing only zeroes in Table 4. A higher value of the variable indicates a higher level of trade openness. A country's trade openness may be considered a proxy for its business-friendliness and business culture. Thus, this factor can be thought of as having the potential to favor business research. Column (3) of Table 4 shows that this variable has a negative point estimate, though statistically insignificant. Most importantly, the main results are robust to its addition.

Arguably, the papers the authors of a country publish in year *t* are not the only measure of output for that year. An alternative indicator is the number of aggregate accumulated citations received by these papers from year *t* onward. The use of citations as a measure of research output or quality has a long tradition; see Heckman and Moktan (2020) for a very recent adoption. Thus, as a further robustness check, in Table 4, columns (4), (5), and (6) we replicate the estimations in columns (1), (2), and (3) of Table 3. However, calculate the respective shares by using the aggregate accumulated citations the papers receive instead of the number of papers published.

Before discussing these results, it is useful to clarify the citations' data, which also comes from SCImago. It provides accumulated citations for each country-field pair until the year 2019. In absolute terms, citations are not comparable within countries across years. A paper published in 2010 has accumulated citations for ten years, while one published in 2015 has only accumulated for five. However, our dependent variable is a ratio. Therefore, as long as the accumulations of citations in economics and business do not diverge in a systematic way that is correlated with the potential determinants, our estimation approach remains valid. Indeed, Podlubny (2005) notices that the ratios of citations received by different fields are constant through time.

The results in columns (4), (5), and (6) of Table 4 confirm our hypotheses that countries with more policy-related data availability, higher income inequality, and lower fractionalization are relatively more productive in economics. The magnitude and significance of the effects of income inequality and fractionalization are of a similar magnitude and significance than in the three first regressions in Table 3. However, the point estimates and significance of the variable *Data reporting index* are substantially lower in each of the three regressions. One reason for this lower effect when moving from the number of documents to the number of citations may be that the *Data reporting index* is perhaps the most strongly associated with country-specific research among the three hypothesized variables. On average, country-specific studies are less cited, as noted by Abramo et al. (2016).[6]

For regression (4) of Table 4, we calculate the practical significance as we did for regression (1) of Table 3. In particular, a one within standard deviation increase in the *Data reporting index*, 0.14, is associated with an increase in the share of citations to economic papers of 0.029, equivalent to a 5.89% rise when *Sh_cit_1* is measured at its mean, 0.49. Similarly, a one within standard deviation increase, 0.01, (decrease, 0.01) in income inequality (ethnic fractionalization) is associated with an increase in the share of citations

[6] We have also run regressions (1), (2), and (3) of Table 4, but with the dependent variable share of citations (Sh_cit_1) instead of the share of publications. However, the qualitative results are not different from the other cases when the dependent variable is the share of citations. Given the substantial insignificance of the added variables (i.e., *Polity2*, *Freedom of press*, and Openness), results are not reported but available from the authors under request.

to economic papers of 0.018 (0.007), equivalent to a 3.70% (1.48%) rise when *Sh_cit_1* is at its mean, 0.49. Again, results show that the practical significance is still more prominent for the *Data reporting index* than for the other two variables. However, the difference is smaller than the one obtained when the number of publications is used to define the dependent variable.

As a further robustness check in Table 5, we test whether the effects of our three main variables still hold for a group of only developed countries or only developing countries. A country is defined as developed if it is classified as a high- or upper-middle-income economy in the WDI for 2005 – the median year in our sample. Similarly, a country is defined as developing if it is classified as low- or lower-middle-income.

We create a dummy variable *D* taking the value of 1 if the country is developed in the year 2005 and 0 otherwise. As before, we continue reporting the average marginal effects in Table 5 because they are more meaningful. However, the existence of interactive variables makes the relationship between the significance of the Fixed Effects Fractional Logit regression coefficients and the significance of the average marginal effects fuzzier. Thus, for clarity, in Table A3 of the Appendix, we also show the coefficients of the regressions where the levels and interaction effects can be seen.

Table 5. Testing whether the results differ between developed and developing countries: using shares of publications as the pendent variables.

	Fixed Effects Fractional Logit					
Dependent variable	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*
	(1)	(2)	(3)	(4)	(5)	(6)
Data reporting index						
Developing	0.260***	0.158**	0.147**	0.217***	0.147**	0.141**
	(0.085)	(0.071)	(0.062)	(0.074)	(0.063)	(0.058)
Developed	0.272***	0.208***	0.206***	0.216***	0.191***	0.196***
	(0.082)	0.066)	0.051)	(0.057)	(0.052)	(0.044)
Dvloped – Dvloping (1)	0.012	0.050	0.059	-0.001	0.044	0.055
	(0.054)	(0.046)	(0.038)	(0.042)	(0.039)	(0.035)
Inequality				1.978***	1.711***	1.799***
				(0.380)	(0.380)	(0.391)
Developing	2.195***	1.385**	1.289**			
	(0.633)	(0.569)	(0.510)			
Developed	1.000***	0.940***	0.942***			
	(0.369)	(0.284)	(0.226)			
Dvloped – Dvloping (2)	-1.194	-0.445	-0.347			
	(0.653)	(0.555)	(0.497)			
Fractionalization						
Developing	-1.415***	-1.243***	-1.300**	-1.117***	-1.132***	-1.230***
	(0.461)	(0.426)	(0.408)	(0.361)	(0.363)	(0.359)
Developed	-0.233	-0.194	-0.030	-0.181	-0.177	-0.028
	(0.144)	(0.121)	(0.090)	(0.110)	(0.108)	(0.085)
Dvloped – Dvloping (3)	1.182	1.049	1.271	0.936	0.955	1.202
	(0.505)	(0.454)	(0.414)	(0.394)	(0.394)	(0.365)
GDP	0.025***	0.023***	0.028***	0.026***	0.024***	0.028***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)
GDP per capita	6.023***	6.336***	7.065***	6.081***	6.365***	7.081***
	(1.630)	(1.694)	(1.626)	(1.630)	(1.695)	(1.625)
Country's fixed effects	YES	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES	YES
Observations	2,257	2,257	2,230	2,257	2,257	2,230
No. of countries	146	146	146	146	146	146

Note: Average marginal effects instead of regressions' coefficients are reported. Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.

The dependent variables in regressions (1), (2), and (3) of Table 5 are the three different specifications of publications-shares used in columns (1), (2,) and (3) of Table 3. In these regressions, the qualitative

results for the variables $Data\ Reporting\ Index$ and $Inequality$ still hold for both, developed and developing countries. However, the magnitude and significance are generally lower than the ones in columns (1), (2), and (3) of Table 3. In addition, the average marginal effects that $Data\ reporting\ index$ has on the share of economics research in regressions (1), (2) and (3) are positive and significant but are more prominent for the group of developed than developing countries. However, the differences in the average marginal effects of the two groups are statistically not significant, as shown by the coefficients in the row called $Dvloped - Dvloping\ (1)$.

Secondly, the average marginal effects that the variable $Inequality$ has on the share of economics research in regressions (1), (2), and (3) are positive and significant but are lower for developed than developing countries. However, as shown by the coefficients and standard errors in row $Dvloped - Dvloping\ (2)$, the differences in the average marginal effects of the two groups are statistically significant (at 90% level of confidence) only in regression (1) and statistically not significant in regressions (2) and (3). One potential reason why the average marginal effect of Inequality may be larger in developing countries is that Inequality is perceived as more important when a country is poor than when it is rich, as the poorest people in a more impoverished country barely satisfy their most basic necessities.

Thirdly, the average marginal effects that the variable $Fractionalization$ has on the share of economics research in regressions (1), (2), and (3) are negative and highly significant for the group of developing countries. However, they are not significant for the group of developed countries, which simply means that ethnic fractionalization helps to explain the share of economics research only in the case of developing countries. Indeed, the differential effect that $Fractionalization$ has in developing vis-à-vis developed countries is sizable and significant as shown by the coefficients and standard errors in row $Dvloped - Dvloping\ (3)$. A possible interpretation for such lack of significance is that reaching a substantial stage of development might be a sign that a country found ways to overcome the drawbacks steaming from fractionalization (e.g., lower conflict, lower clientelism, etc.)

We explained the differential average marginal effects for the groups of developed and developing countries in the first three columns of Table 5. However, it should be mentioned that, as can be seen in Table A3, the interaction effect *Inequality_×_D* is only significant in regression (1) but not in regressions (2) and (3). This indicates that a more reasonable alternative might be to drop this interaction from the three regressions altogether. We do that in regressions (4) to (6) of Table A4 and show the corresponding average marginal effects in columns (4) to (6) of Table 5.

The results in columns (4) to (6) are generally similar to the ones obtained in columns (1) to (3) of Table 5, with some variation in the magnitude of the coefficients but no difference in the level of significance. A seemingly puzzling case, though, is the fact that the average marginal effect of *Inequality* in column (5) (1.711) is outside the range of the average marginal effects of *Inequality* shown in column (2) for developing (1.385) and developed (0.940) countries. The same discrepancy happens when contrasting the average marginal effect of *Inequality* in column (6) with the ones for the developing and developed countries in column (3). However, as mentioned in the previous paragraph, the results of column (5) are more reasonable than the ones in column (2).

In Table 6, we continue our robustness check that looks at differences between developed and developing countries. The dependent variables in columns (1), (2), and (3) are shares of citations identical to the ones in columns (4), (5), and (6) of Table 4, respectively. Table 6 shows the average marginal effects,

and Table A4 of the Appendix shows the coefficients of the Fixed Effects Fractional Logit regressions from which these average marginal effects were calculated.

Notice that the regressions in Table A4 do not include the interaction variables *Data reporting index*_×_*D* and *Inequality*_×_*D* because they were statistically insignificant. Thus, the only difference between regressions (1), (2), and (3) of Table 6 and regressions (4), (5), and (6) of Table 4 is that the former allows for a differential effect of $Fractionalization$ in developed vis-à-vis developing countries. Indeed, as was the case in all the regressions of Table 5, we again find that the average marginal effects that $Fractionalization$ has on the share of economics research in the three regressions of Table 6 are negative and highly significant for the group of developing countries and negative but not significant for the subgroup of developed countries. Indeed, the differential effect that $Fractionalization$ has in developed vis-à-vis developing countries is sizable and significant as shown by the coefficients and standard errors in the row $Dvloped - Dvloping$. On the other hand, all the other qualitative results are very similar to the ones in columns (4), (5), and (6) of Table 4.

Table 6. Testing whether the results differ between developed and developing countries: using shares of citations as the pendent variables.

	Fixed Effects Fractional Logit		
Dependent variable	*Sh_cit_1*	*Sh_cit_2*	*Sh_cit_3*
	(1)	(2)	(3)
Data reporting index	0.200**	0.173*	0.179*
	(0.091)	(0.093)	(0.094)
Inequality	1.968***	1.702***	2.103***
	(0.464)	(0.461)	(0.464)
Fractionalization			
Developing	-1.358***	-1.357***	-1.499***
	(0.401)	(0.412)	(0.407)
Developed	-0.172	-0.069	-0.078
	(0.114)	(0.107)	(0.106)
Dvloped – Dvloping	1.186	1.288	1.420
	(0.424)	(0.422)	(0.415)
GDP	0.003	0.007	0.003
	(0.004)	(0.005)	(0.004)
GDP per capita	6.165***	6.267***	7.293***
	(1.967)	(2.033)	(2.015)
Country's fixed effects	YES	YES	YES
Year effects	YES	YES	YES
Observations	2,204	2,204	2,177
No. of countries	145	145	144

Note: Average marginal effects instead of regressions' coefficients are reported. Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.

4. Conclusion

This is the first study to identify potential determinants that make economics a more productive field than business and one of the first to compare economics and business. We have adopted a cross-country regression analysis where the dependent variable is the share of economics publications over the addition of economics and business publications. The results show that greater availability of policy-related data, more pronounced income inequality, and lower ethnic fractionalization are associated with positive performance of economics research relative to business research. Our results show not only statistical but also practical significance. The findings are robust to two alternative fixed effects specifications, three alternative definitions of economics and business, two alternative measures of research output (publications and citations), the inclusion of meaningful control variables, and the consideration of developed and

developing countries. Yet, the association between ethnic fractionalization and relative research output is limited to developing countries.

Our paper contributes to the literature on research output productivity in a number of ways. First, it brings attention to the importance of policy-related data availability as a factor that promotes economic research. Our regressions show that this variable is the single most important one associated with the strength of economics research when compared with the field of business. Indeed, our result may underestimate the crucial nature of this type of data for economics because the comparison is made with a proximate and sometimes overlapping subject area. The reason for this underestimation is that policy-related data is more critical for business research than it is for most other academic fields.

Second, the paper has policy implications. Among the three hypothesized variables, the availability of policy-related data is the factor whose effect is most specific to research and perhaps also most directly under the control of policy. This is particularly the case if the low availability of such data results from institutional settings that do not foster transparency, as opposed to a lack of resources. When a country's economic research lags, and a lack of policy-related data has been identified as a problem, the recommendation would be to promote conditions leading to a higher abundance of such data.

Third, and as mentioned in the introduction, our research has implications for professionals, universities, university departments, and research-funding agencies that face choices on where to devote their energies and resources. Future professionals may tailor their choices about whether to focus on economics or business based on the relative strengths of the fields in their given locations. Alternatively, they may want to choose their locations to facilitate research in one field or the other.

This study also suggests potential lines for further research. It shows the effectiveness of contrasting two close disciplines to determine where their differences lie. Our focus is on economics and business, but fortunately, the SCImago database is freely available and offers information for 27 major subject areas and more than 300 specific subject categories. Thus, future researchers can use our approach to compare other fields. The authors' specific knowledge about these fields will be critical in selecting the relevant variables that potentially explain their different patterns.

Our work also calls attention to the merits of comparing the fields of economics and business. The previous literature in this area is thin partly because data availability has long been less than adequate. Yet, data availability is improving fast, and there are many cases where a choice between an economics and a business profile is required. Thus, there is potential for further bibliometric analysis beyond the cross-country dimension. Comparisons can be made not only at the level of universities and academic units but also by journals. Further studies could also focus on labor market characteristics for economists and business professionals. The research track we have pursued will become more useful as highly desegregated job-market-related data become available.

References

Abramo, G., D'Angelo, C. A., & Di Costa, F. (2016). The effect of a country's name in the title of a publication on its visibility and citability. *Scientometrics*, 109(3), 1895-1909.

Alesina, A., Baqir, R., & Easterly, W. (1999). Public goods and ethnic divisions. *The Quarterly Journal of Economics*, 114(4), 1243-1284.

Alesina, A., & Drazen, A. (1991). Why are Stabilizations Delayed?. *The American Economic Review*, 1170-1188.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8(2), 155-194.

Alesina, A., & Ferrara, E. L. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3), 762-800.

Alesina, A., & La Ferrara, E. (2000). Participation in heterogeneous communities. *The Quarterly Journal of Economics*, 115(3), 847-904.

Angus, S. D., Atalay, K., Newton, J., & Ubilava, D. (2020). Geographic Diversity in Economic Publishing. Available at SSRN.

Azmeh, C. (2022). Quantity and quality of research output and economic growth: empirical investigation for all research areas in the MENA countries. Scientometrics, 127(11), 6147-6163.

British Academy. (2008). Punching our weight: the humanities and social sciences in public policy making. London: British Academy.

Collier, P., & Gunning, J. W. (1999). Why has Africa grown slowly?. *Journal of Economic Perspectives*, 13(3), 3-22.

Confraria, H., Godinho, M. M., & Wang, L. (2017). Determinants of citation impact: A comparative analysis of the Global South versus the Global North. *Research Policy*, 46(1), 265-279.

Contreras, C., Edwards, G., & Mizala, A. (2006). La productividad científica de economía y administración en Chile: un análisis comparativo. *Cuadernos de Economía*, 43(128), 331-354.

Drazanova, Lenka, 2019, "Historical Index of Ethnic Fractionalization Dataset (HIEF)", Accessed December 2021, from https://doi.org/10.7910/DVN/4JQRCL, Harvard Dataverse, V2, UNF:6:z4J/b/PK UpNdIoeE Pvaw== [file UNF].

Easterly, W., & Levine, R. (1997). Africa's growth tragedy: policies and ethnic divisions. *The Quarterly Journal of Economics*, 112(4), 1203-1250.

Ek, S., & Henrekson, M. (2019). The geography and concentration of authorship in the top five: Implications for European economics. *Scottish Journal of Political Economy*, 66(2), 215-245.

Eriksson, P., & Kovalainen, A. (2015). Qualitative methods in business research: A practical guide to social research. Sage.

Fontana, M., Montobbio, F., & Racca, P. (2019). Topics and geographical diffusion of knowledge in top economic journals. Economic Inquiry, 57(4), 1771-1797.

Freedom House. “Publication Archives”. https://freedomhouse.org/reports/publication-archives Accessed April 1, 2022.

Fourcade, M., Ollion, E., & Algan, Y. (2015). The superiority of economists. *Journal of Economic Perspectives*, 29(1), 89-114.

Gallani, S., Krishnan, R., & Wooldridge, J. M. (2015). Applications of fractional response model to the study of bounded dependent variables in accounting research. Harvard Business School.

Glänzel, W. (1996). A bibliometric approach to social sciences. National research performances in 6 selected social science areas, 1990–1992. *Scientometrics*, 35(3), 291-307.

Glötzl, F., & Aigner, E. (2019). Six Dimensions of Concentration in Economics: Evidence from a Large-Scale Data Set. *Science in Context*, 32(4), 381-410.

Hale, H. E. (2007). Correlates of clientelism: political economy, politicized ethnicity, and post-communist transition. In H. Kitschelt & S. I. Wilkinson (Eds.), Patrons, clients, and policies: Patterns of democratic accountability and political competition (pp. 227-250). Cambridge University Press.

Härtel, C. E., & O’Connor, J. M. (2014). Contextualizing research: Putting context back into organizational behavior research. *Journal of Management & Organization*, 20(4), 417-422.

Heckman, J. J., & Moktan, S. (2020). Publishing and promotion in economics: the tyranny of the top five. *Journal of Economic Literature*, 58(2), 419-70.

Hirschman, D., & Berman, E. P. (2014). Do economists make policies? On the political effects of economics. *Socio-Economic Review*, 12(4), 779-811.

Hodgson, G. M. (2001). How economics forgot history: The problem of historical specificity in social science. Routledge.

Hoover, K.D. (2008) Causality in Economics and Econometrics. In: Palgrave Macmillan (eds) The New Palgrave Dictionary of Economics. Palgrave Macmillan, London. https://doi.org/10.1057/978-1-349-95121-5_2227-1

Horowitz, I. L. (1967). Social science and public policy: an examination of the political foundations of modern research. *International Studies Quarterly*, 11(1), 32-62.

Huntington-Klein, N. (2021). The effect: An introduction to research design and causality. CRC Press.

Irvine, J., & Martin, B. (1989). International comparisons of scientific performance revisited. *Scientometrics*, 15(5-6), 369-392.

Korom, P. (2019). A bibliometric visualization of the economics and sociology of wealth inequality: a world apart? *Scientometrics*, 118(3), 849-868.

Kramon, E. (2019). Ethnic group institutions and electoral clientelism. *Party Politics*, 25(3), 435-447.

Lockett, A., & McWilliams, A. (2005). The balance of trade between disciplines: do we effectively manage knowledge? *Journal of Management Inquiry*, 14(2), 139-150.

Marshall, M. G., Gurr, T. R., & Jaggers, K. (2016). Polity IV project: Political regime characteristics and transitions, 1800–2015. Center for Systemic Peace.

Michailova, S. (2011). Contextualizing in international business research: why do we need more of it and how can we be better at it? *Scandinavian Journal of Management*, 27(1), 129-139.

Morck, R., & Yeung, B. (2011). Economics, history, and causation. *Business History Review*, 85(1), 39-63.

Ntuli, H., Inglesi-Lotz, R., Chang, T., & Pouris, A. (2015). Does research output cause economic growth or vice versa? Evidence from 34 OECD countries. Journal of the Association for Information Science and Technology, 66(8), 1709-1716.

Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401 (k) plan participation rates. *Journal of Applied Econometrics*, 11(6), 619-632.

Papke, L. E., & Wooldridge, J. M. (2008). Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics*, 145(1-2), 121-133.

Parcero, O. J., & Papyrakis, E. (2016). Income inequality and the oil resource curse. *Resource and Energy Economics*, 45, 159-177.

Pieters, R., & Baumgartner, H. (2002). Who talks to whom? Intra-and interdisciplinary communication of economics journals. *Journal of Economic Literature*, 40(2), 483-509.

Pinto, T., & Teixeira, A. A. (2020). The impact of research output on economic growth by fields of science: a dynamic panel data analysis, 1980–2016. Scientometrics, 123(2), 945-978.

Piro, F. N., Aksnes, D. W., & Rørstad, K. (2013). A macro analysis of productivity differences across fields: Challenges in the measurement of scientific publishing. *Journal of the American Society for Information Science and Technology*, 64(2), 307-320.

Podlubny, I. (2005). Comparison of scientific impact expressed by the number of citations in different fields of science. *Scientometrics*, 64(1), 95-99.

Rossier, T., & Bühlmann, F. (2018). The Internationalisation of Economics and Business Studies: Import of Excellence, Cosmopolitan Capital, or American Dominance?. *Historical Social Research/Historische Sozialforschung*, 43(3 (165), 189-215.

Rousseau, S., & Rousseau, R. (2021). Bibliometric techniques and their use in business and economics research. *Journal of Economic Surveys*.

Sabharwal, M. (2013). Comparing research productivity across disciplines and career stages. *Journal of Comparative Policy Analysis: Research and Practice*, 15(2), 141-163.

SCImago, (n.d.). SJR — SCImago Journal & Country Rank [Portal]. Accessed August 2022, from http://www.scimagojr.com

Scopus Content Coverage Guide (2020). https://www.elsevier.com/__data/assets/pdf_file/0007/69451/Scopus_ContentCoverage_Guide_WEB.pdf. Accessed December 21, 2021.

Solarin, S. A., & Yen, Y. Y. (2016). A global analysis of the impact of research output on economic growth. Scientometrics, 108, 855-874.

Solt, F. (2020). Measuring income inequality across countries and over time: The standardized world income inequality database. *Social Science Quarterly*, 101(3), 1183-1199.

Storr, V. H. (2013). Understanding the culture of markets (Vol. 31). Routledge.

Storr, V. H., & John, A. (2018). Why use qualitative methods to study culture in economic life? In Experimental Economics and Culture. Emerald Publishing Limited. Published online: 23 Nov 2018; 25-51.

The World Bank. The World by Income and Region. (2021). Available online at: https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html. Accessed, December 20, 2021.

Thornhill, A., Saunders, M., & Lewis, P. (2019). Research methods for business students. Essex: Pearson Education Ltd. 8th edition.

Venter, J.J. (2002) Economism: The Debate about the Universality Claims of Orthodox Economics. In: Tymieniecka AT. (eds) Life Truth in its Various Perspectives. Analecta Husserliana (The Yearbook of Phenomenological Research), vol 76. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-2085-4_20

Wagner, J. (2003). Unobserved firm heterogeneity and the size-exports nexus: Evidence from German panel data. *Review of World Economics*, 139(1), 161-172.

Wanner, R. A., Lewis, L. S., & Gregorio, D. I. (1981). Research productivity in academia: A comparative study of the sciences, social sciences and humanities. *Sociology of Education*, 238-253.

Wantchekon, L. (2003). Clientelism and voting behavior: Evidence from a field experiment in Benin. *World Politics*, 399-422.

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. The Stata Journal, 12(2), 308-331.

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data. MIT press.

Wooldridge, J. M. (2020). Stata Forum, post #20. https://www.statalist.org/forums/forum/general-stata-discussion/general/1535444-very-high-vif-in-fe-an-issue/page2. Accessed December 15, 2021.

World Bank, World Development Indicators. (2020). Accessed August 2022, from https://databank.worldbank.org/source/world-development-indicators.

Zahra, S. A., Wright, M., & Abdelgawad, S. G. (2014). Contextualization and the advancement of entrepreneurship research. *International Small Business Journal*, 32(5), 479-500.

Appendix

Table A1. Classification of countries according to being developed (1) or developing (1).

Country		Country		Country	
Afghanistan	0	Germany	1	Norway	1
Albania	0	Ghana	0	Oman	1
Algeria	0	Greece	1	Pakistan	0
Angola	0	Guatemala	0	Panama	1
Argentina	1	Guinea	0	Paraguay	0
Armenia	0	Guinea-Bissau	0	Peru	0
Australia	1	Guyana	0	Philippines	0
Austria	1	Haiti	0	Poland	1
Azerbaijan	0	Honduras	0	Portugal	1
Bangladesh	0	Hungary	1	Qatar	1
Belarus	0	Indonesia	0	Romania	0
Belgium	1	Iran	0	Russian Federation	1
Benin	0	Iraq	0	Rwanda	0
Bhutan	0	Ireland	1	Saudi Arabia	1
Bolivia	0	Israel	1	Senegal	0
Bosnia and Herzegovina	0	Italy	1	Serbia	1
Botswana	1	Jamaica	0	Sierra Leone	0
Brazil	0	Japan	1	Singapore	1
Bulgaria	0	Jordan	0	Slovakia	1
Burkina Faso	0	Kazakhstan	0	Slovenia	1
Burundi	0	Kenya	0	Solomon Islands	0
Cambodia	0	Kuwait	1	South Africa	1
Canada	1	Kyrgyzstan	0	South Korea	1
Cape Verde	0	Laos	0	Spain	1
Central African Republic	0	Latvia	1	Sri Lanka	0
Chad	0	Lebanon	1	Sudan	0
Chile	1	Lesotho	0	Swaziland	0
China	0	Liberia	0	Sweden	1
Colombia	0	Libya	1	Switzerland	1
Comoros	0	Lithuania	1	Tajikistan	0
Congo	0	Macedonia	0	Tanzania	0
Costa Rica	1	Madagascar	0	Thailand	0
Cote dIvore	0	Malawi	0	Timor-Leste	0
Croatia	1	Malaysia	1	Togo	0
Cyprus	1	Mali	0	Trinidad and Tobago	1
Czech Republic	1	Mauritania	0	Tunisia	0
Democratic Republic Congo	0	Mauritius	1	Turkey	1
Denmark	1	Mexico	1	Turkmenistan	0
Dominican Republic	0	Moldova	0	Uganda	0
Ecuador	0	Mongolia	0	Ukraine	0
Egypt	0	Morocco	0	United Arab Emirates	1
El Salvador	0	Myanmar	0	United Kingdom	1
Estonia	1	Namibia	0	United States	1
Ethiopia	0	Nepal	0	Uruguay	1
Fiji	0	Netherlands	1	Uzbekistan	0
Finland	1	New Zealand	1	Viet Nam	0
Gabon	1	Nicaragua	0	Zambia	0
Gambia	0	Niger	0	Zimbabwe	0
Georgia	0	Nigeria	0		

Note: A country is defined as developed if it is classified as a high- or upper-middle-income economy in the WDI for 2005 and as developing if it is classified as low- or lower-middle-income.

Table A2. Further criteria for the Data reporting index

What follows are four criteria used to exclude some considered redundant variables.

- We neither consider the variables measured per capita terms nor per certain number of people, except when these variables are available only in such a measure. For example, there is the variable homicides per 1,000 people but no variable for the number of homicides.
- If a variable is expressed in more than one unit of measure (e.g., in current US dollars, constant dollars, and PPP adjusted), it is considered reported if it has values for at least one measurement unit.
- If a variable is expressed in both value and as a percentage (of the GDP, the GNI, or the population), it is considered reported if it has values for at least one measurement unit. In the population's case, the referred percentage could be expressed in relation to total, male, or female.

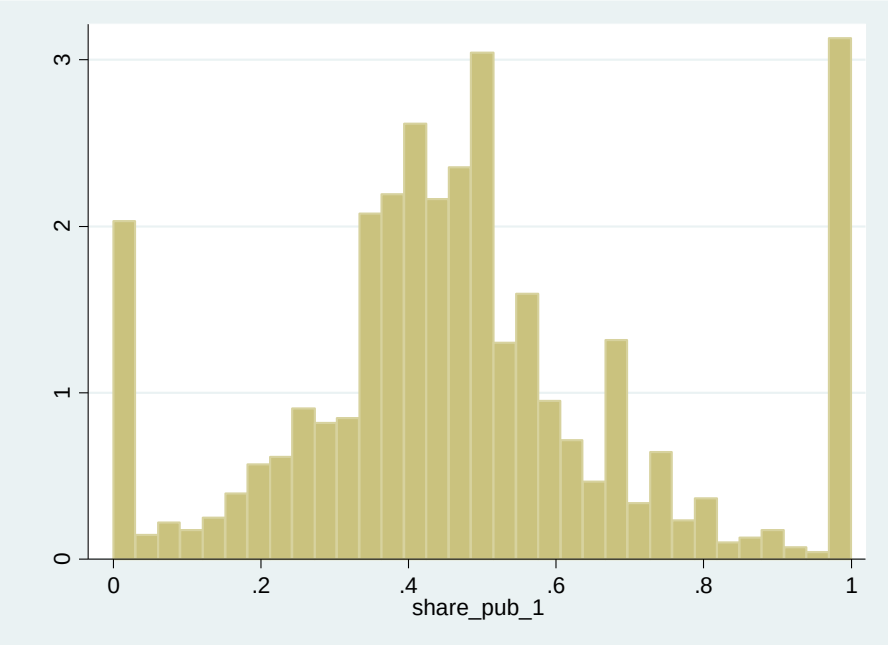

Figure A1: Histogram of the dependent variable *Sh_pub_1*

Table A3. Coefficient estimates from which the average marginal effects of Table 5 are derived.

	Fixed Effects Fractional Logit					
Dependent variable	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*	*Sh_pub_1*	*Sh_pub_2*	*Sh_pub_3*
	(1)	(2)	(3)	(4)	(5)	(6)
Data reporting index	1.249***	0.982**	1.019***	1.262***	0.985**	1.022***
	(0.362)	(0.392)	(0.393)	(0.361)	(0.391)	(0.393)
Inequality	10.531***	8.600***	8.909***	8.699***	7.919***	8.384***
	(2.395)	(2.475)	(2.651)	(1.678)	(1.764)	(1.832)
Fractionalization	-6.791**	-7.718**	-8.988***	-6.508**	-7.609**	-8.906***
	(2.853)	(3.035)	(3.096)	(2.835)	(3.017)	(3.079)
Data reporting index_×_D	0.234	0.495*	0.614**	0.230	0.494*	0.614**
	(0.249)	(0.270)	(0.270)	(0.249)	(0.270)	(0.270)
Inequality_×_D	-5.068*	-1.939	-1.436			
	(3.061)	(3.234)	(3.292)			
Fractionalization _×_D	5.518*	6.341**	8.752***	5.257*	6.236**	8.671***
	(2.889)	(3.096)	(3.125)	(2.871)	(3.075)	(3.105)
GDP	0.111***	0.107***	0.131***	0.116***	0.109***	0.132***
	(0.024)	(0.026)	(0.026)	(0.025)	(0.025)	(0.025)
GDP per capita	26.490***	29.324***	32.921***	26.744***	29.457***	32.997***
	(7.190)	(7.867)	(7.612)	(7.191)	(7.874)	(7.610)
Country's fixed effects	YES	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES	YES
Observations	2,257	2,257	2,230	2,257	2,257	2,230
No. of countries	146	146	146	146	146	146

Note: Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.

Table A4. Coefficient estimates from which the average marginal effects of Table 6 are derived.

Dependent variable	Fixed Effects Fractional Logit		
	Sh_cit_1	*Sh_cit_2*	*Sh_cit_3*
	(1)	(2)	(3)
Data reporting index	0.894**	0.812*	0.833*
	(0.407)	(0.435)	(0.435)
Inequality	8.811***	8.002***	9.761***
	(2.089)	(2.174)	(2.170)
Fractionalization	-8.271**	-9.192***	-10.198***
	(3.281)	(3.472)	(3.495)
Fractionalization _×_D	6.997**	8.626**	9.565***
	(3.347)	(3.541)	(3.552)
GDP	0.013	0.031	0.012
	(0.019)	(0.022)	(0.019)
GDP per capita	27.597***	29.462***	33.858***
	(8.830)	(9.589)	(9.405)
Country's fixed effects	YES	YES	YES
Year effects	YES	YES	YES
Observations	2,204	2,204	2,177
No. of countries	145	145	144

Note: Standard errors clustered at the country level are in parentheses. Superscripts *, **, and *** correspond to a 10, 5, and 1% significance level.