

Lottie Field

Research Interests

- **Primary:** Political Economy, Industrial Policy, Economic History
- **Secondary:** Development and Growth, International Trade, Environment

GRE Scores

- **20th November 2024:** Verbal: 169/170 (99th percentile), Quant: 170/170 (91st percentile)

Research Experience

Industrial Policy Group, University of British Columbia

July 2024 - Present

Pre-doctoral Research Associate, Principal Investigator: Dr. Réka Juhász

- Juhász & Field (Work in Progress) “Industrial Policy, Vision & Political Legitimacy”: co-author
- Handlan, Juhász & Ilzetzki (Work in Progress): constructed pipeline for extracting the research activities and goals from NASA budget requests (1961-1980)
- Juhász et al. (2025) “Measuring Industrial Policy”: designed methods for identifying public-sector organisations conducting industrial policy, assessed how our policy dataset’s coverage varied by income
- Juhász & Lane (2024) “The Political Economy of Industrial Policy”: designed methods for classifying organisations as political or technocratic and identifying green industrial policies

Education

London School of Economics

July - August 2025

ME306 Real Analysis Summer School

- Grade: A+
- Description: An intensive advanced Real Analysis course.

University of Oxford

September 2023 – June

MSc in Economics for Development

2024

- Grade: Distinction
- Modules: Quantitative Methods, Microeconomic Theory, Macroeconomic Theory and International Trade, Development Economics, Thesis “The Political Economy of Industrial Development Organisations” [here](#) 

University of Oxford

October 2020 – June 2023

BA Hons Philosophy, Politics and Economics

- Grade: Upper Second Class (Average score 68.13, 0.37 marks off First Class)
- Finals Modules: Economics of Developing Countries, Econometrics, Quantitative Economics, Macroeconomics, Microeconomics, Feminist Theory, Ethics, Aristotle’s Ethics
- Prizes: Regent’s Park College Eliza Fitzgerald Prize for Academic Improvement after the 1st Year

Christ’s Hospital School

September 2018 – June

International Baccalaureate Diploma

2020

- Grade: 44 (out of 45)
- Finals Modules: Mathematics HL (7), History HL (7), Chemistry HL (7), English SL (7), Economics SL (6), French SL (7), Extended Essay on Deng Xiaoping’s influence on China’s Economic Development from 1977-1986 (A), Theory of Knowledge (A)
- Prizes: (each awarded to a single student): Mathematics Prize, History Prize, Theory of Knowledge Prize, Overall Academic Performance Prize

Skills

- **Coding Languages:** Stata (experienced), Python (experienced), R (proficient), MATLAB (basic)
- **Tools:** Anthropic API (experienced), Excel (experienced), T_EX (experienced), Markdown (experienced), Git (experienced)

Activities and Community Service

St. James Choir

September 2025 - Present

Choir member

- Leading choir member for the renowned choir of St. James Vancouver

Regent's Park College

February 2024 – June

Middle Common Room Secretary

2024

- In charge of purchasing snacks for the graduate student body of Regent's Park College as well as taking minutes at student meetings
- Noted for getting snacks that everyone enjoyed and diffusing conflict during tense meetings

Exeter College Chapel Choir

October 2020 – January

Choir member and Secretary

2024

- Sung three-four times a week in renowned Exeter College Chapel Choir
- Choir secretary for two years organising social events such as movie nights and send-offs for leavers

Regent's Park College Junior Common Room

January 2021 - January

Environment and Ethics Representative

2022

- Environment and Ethics representative for the Regent's Park College undergraduate student body
- Attended and engaged in meetings with college staff on sustainability, provided educational posts on everyday sustainability choices and started a gardening club leaving the college with new wildflower beds

Oxford University Debating Society

October 2020 - April 2021

Member of Advanced Debating Team and Beginner's Debating Teacher

- Attended weekly practice sessions as well as competitive debating events notably winning the Oxford Pro-Am competition (as Pro)
- Co-ran training sessions for debating beginners; noted for being especially kind and spending time with people with questions

Classrooms for Kenya

January 2019 - July 2019

Fundraiser and Member of Trip to Kitale, Kenya building classrooms

- Fundraised for building materials to build classrooms with partner schools in Kenya
- Stayed in Kitale, Kenya for three weeks while building a new classroom for Norah and Msundi Primary school; noted for being a very diligent builder and teaching enjoyable music lessons

Christ's Hospital Model United Nations Society

September 2019 - June

Deputy Leader

2020

- After being an active member of MUN for several years I co-ran the society for my final year in school
- We ran weekly training sessions and organised a multi-school conference
- I won outstanding delegate at Haileybury MUN conference passing two resolutions one on international economic regulations

Christ's Hospital Debating Society

September 2019 - June

President

2020

- After being an active member of Debating for several years I led the society for my final year in school
- I helped with weekly training sessions chairing many debates

Christ's Hospital School

September 2018 - June

House Charity Representative

2019

- I organised several charity events including stands at the Christmas and Summer fetes on behalf of my school house

My grandfather first went down the mines at fourteen. He told us of his terror as he hurtled into the darkness. Coal mining scarred his town, St Helens, with illness, injury and early deaths. Yet coal provided the foundations for the glass industry and, later, the power station where my grandfather worked after escaping the mines in his mid-thirties. The eventual closure of Sutton Manor Colliery marked the end of the everyday horrors of mining, but it precipitated a dramatic decline in economic opportunity. I wondered how the collapse of such a bleak industry could leave behind something even more dismal. How can the government shift the economy away from dangerous jobs to something better? How do such transitions affect pride, community and values? What can be done to help the spirit of a town endure?

These questions led me to economics. I discovered that industrial policies propped up UK coal mining as a strategic industry, until the rise of Thatcher, the Washington Consensus, and climate concerns. The Washington Consensus held that industrial policy cannot succeed due to poor policymaker incentives and information. This view is too simplistic. Regarding St Helens, poor information and incentives led to insufficient rather than excessive industrial policy. Policymakers withdrew support for coal without cultivating anything better because they lacked appreciation for the industry's external effects on community and had little political incentive to advocate for a northern, consistently Labour-voting town.

Initially, I thought technocratic control of industrial policy was the solution. Ideal technocrats do not consider a region's political salience and are experts in industries and their regional context. However, technocratic organisations often pursue narrow objectives without regard for the bigger picture. Moreover, technocratic policy may lack political legitimacy. It is not a simple question of whether politicians or technocrats are better industrial policymakers. We need to determine how to elicit the best input from each group.

Improving policymakers' values is another crucial part of making industrial policy work. Any analysis of industrial policy failures in St Helens falls short if it does not recognise the role of prejudice against the North and Thatcherite faith in efficiency. Empirically investigating the origins of policymakers' values will help improve policy outcomes and deepen our understanding of this key element of decision-making.

My research agenda focuses on how we can conduct better industrial policy by 1) utilising politicians and technocrats more effectively, and 2) improving policymakers' values. These questions led me to co-author a paper with my pre-doctoral supervisor, Dr Réka Juhász, and develop several research proposals. In the PhD program I can pursue these proposals or see how my interests evolve.

My ongoing paper with Dr Juhász asks what the best form of political involvement in industrial policymaking looks like. We look to the political ownership, clarity of purpose and inspiration of Kennedy's Moonshot and Italy's Mezzogiorno policy. We develop a concept of industrial policy vision. A government has an industrial policy vision if it communicates an inspiring and value-laden image of a public goal and the industrial policy path to achieving it. Such vision can provide legitimacy that helps industrial policy endure across political cycles, a purpose that galvanises bureaucratic coordination and aspiration that breaks through public malaise.

This leads to the proposals in which I am currently interested. I have a research proposal for a causal assessment of the trade-offs between political and technocratic industrial policy. In 2002, EU competition law forced three large German development banks (KfW, West Landesbank and LBB) to split off activities into technocratic organisations. I run a difference-in-difference comparing the performance of political and technocratic bank segments that offer the same loan types to the same sectors.

Another research proposal examines whether governments can shift policymakers' values to align with a new ideology. Following the death of Mao, the Chinese Communist Party emerged with a more capitalist agenda. They sent officials on "study tours" to Western countries to disseminate their new worldview. I assess whether officials who went on tours adopted market-oriented policy objectives more quickly than those who did not. I am now exploring this with Jietong Lin, a final-year PhD student at Peking University.

I also have a research proposal on the broader origins of social values. I use the natural experiment of the introduction of Ulitza Sezam (the Russian co-production of Sesame Street) in Moldova in 1996. Ulitza Sezam was an ambitious project designed to foster progressive attitudes different from post-Soviet beliefs. I use difference-in-differences to compare the evolution of social values among Russian-speaking and non-Russian-speaking cohorts.

I am a second-year pre-doc for Dr Juhász. For the last year, I have also worked with Dr Amy Handlan and Dr Ethan Ilzetzki. My speciality is blending machine learning and human validation to construct quantitative measures from messy data. For example, I am building a rigorous pipeline to produce structured data on NASA's activities and goals from its descriptive budget requests for 1961-1980. I have developed practical coding and data analysis skills. I am experienced at navigating research's twists and turns: exploring and then ruling out methods, constructing additional validation checks and distilling complex data work for readers.

I have an MSc in Economics for Development (with Distinction) and a BA in Philosophy, Politics and Economics from the University of Oxford. I excelled in my advanced theory courses (Microeconomics, Macroeconomics, International Trade, Econometrics). I achieved an A+ in the Real Analysis course I took at LSE. For my MSc thesis, I constructed data and produced stylised facts on technocratic and political industrial policy organisations across 116 countries. Dr Juhász and I use this data and find a drastic rise in technocratic industrial policy over the last fifteen years. This further motivates my study of technocratic and political industrial policy organisations.

I have the academic strength and research experience to succeed in an Economics PhD program and to build a strong foundation for an academic career. I would be thrilled to work with Andrés Rodríguez-Clare, Frederico Finan, Jón Steinsson and Chenzi Xu.

Writing Sample — Lottie Field

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Part I — Research Proposals*

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Part II — MSc Thesis

The Political Economy of Industrial Development Organisations: Are They Run by Politicians or Bureaucrats? *pp. 4–20*

* These research proposals are projects that I am currently interested in. In the PhD program, I can pursue these proposals or see how my interests evolve.

The Impacts of Childhood Television on Later-Life Social Values: Evidence from Sesame Street in post-Soviet Moldova

Research Question

Did early childhood access to Ulitza Sezam (the Russian co-production of Sesame Street) influence later-life social values among Russian-speaking children in post-Soviet Moldova? By social values, I mean tolerance and gender equality. I also look at the effect on child-raising values of supporting self-expression and imagination.

Motivation

Where do social values come from? This is an age-old question that has puzzled philosophers. Recently, it has interested economists because of the role that values play in decision-making. The stories we consume convey values be it through intentional moral teaching, the rewards and punishments meted out to different characters, or simply the everyday habits of those on screen. There is growing interest in how media shapes adult values from views on domestic violence (Jensen and Oster, 2009) to risk-preferences (Michalopoulos and Xue, 2021) and tolerance towards minorities (Yanagizawa-Drott, 2014). One understudied area is the influence of media consumed by children. This is important because there is some evidence that childhood is the primary time in which values form (Inglehart, 2008) suggesting effects from childhood interventions may last well into adulthood (Cunha and Heckman, 2007).

This paper conducts a causal investigation of the impact of access to a particular childhood TV show on the evolution of children’s social values through adolescence and early adulthood. Five years after the fall of the Soviet Union, Ulitza Sezam (the Russian co-production of Sesame Street) was broadcast broadly across both Russia and ex-Soviet states including Moldova. Ulitza Sezam was explicitly designed to promote progressive social values and a more “fun” idea of childhood different to post-Soviet status quo beliefs (Rogoff, 2022). In Moldova, the main language is Romanian, but there is a Russian speaking minority who had access to Ulitza Sezam. I will use a difference-in-difference design to compare the evolution of social values among Russian and non-Russian speaking cohorts who were in early childhood when Ulitza Sezam aired and older cohorts who were not.

Data

I will use data from Waves 2-7 of the World Values Survey that covered Moldova in 1990, 1996, 2000, 2004, 2008, 2011, 2014 and 2018 (World Values Survey Association, 2025). I will use the age and language of interview variables to proxy for access to Ulitza Sezam. The survey contains questions on men having more rights to jobs than women, whether men are better political leaders than women, which groups people say that they would not like to have as neighbours and which qualities people say children should be encouraged to learn. I will use participant’s answers to these questions to measure attitudes on gender, tolerance and child-raising.

Empirical Strategy

I will use difference-in-differences to compare the evolution of social values among Russian and non-Russian speaking cohorts who were in early childhood when Ulitza Sezam aired and older cohorts who were not. I will run the following regression at the individual (i) - cohort (t) - language group (j). Kearney and Levine (2019) use a very similar empirical strategy to estimate the effect of access to the original American Sesame Street on educational outcomes using regional variation in signal exposure.

$$\text{Outcome}_{ijt} = \beta_0 + \beta_1(\text{UlitzaSezamExposedCohort}_{it} \times \text{RussianLang}_j) + \beta_2 X_{ijc} + \gamma_t + \delta_j + \varepsilon_{ijt} \quad (1)$$

Is the Increased Use of Arm’s length Organisations for Industrial Policy a Good Thing? Evidence from German Development Banks Split Up to Comply with EU Law.

Research Question

Did making parts of KfW, West Landesbank and LBB arm’s length organisations cause them to perform better? An arm’s length organisation is a public-sector organisation that is run by non-politicians. I will measure performance by the extent to which they i) finance socially oriented companies, ii) lend differently to private sector banks, iii) use a diverse range of loan types relative to the diversity of recipients.

Motivation

In 2010, only 5% of the organisations conducting industrial policy were arm’s length, in 2022 it was 50% (Field and Juhász, 2025). The drastic increase in the use of arm’s length organisations has outpaced our theoretical and empirical understanding of their effects. Theoretically, it is unclear whether the insulation from political cycles and technocratic expertise outweigh the loss of legitimacy and coordination. The key obstacle to identification is constructing a plausible counterfactual for an organisation’s performance had it not become arm’s length. Public-sector organisations are diverse: there is typically not a comparable non-arm’s length organisation.

This paper overcomes this challenge by using a natural experiment. In 2002, Germany was forced to comply with an EU competition regulation. Consequently, three large development banks (KfW, West Landesbank and LBB) split off some activities to arm’s length organisations. I will run a difference-in-difference comparing the performance of the segments of the parent and arm’s length organisations that continued to provide i) the same types of loans ii) to the same sectors.

Data

I will construct performance measures based on the idea that development banks’ purpose is to finance socially beneficial projects that would not receive private sector funding (Lazzarini et al., 2015). First, I measure the extent to which recipient companies use “socially conscious” language in annual reports. Second, I will construct a “private sector difference” index that compares the lending portfolio of each development bank to commercial banks at the sector-year level. Third, following (Fernández-i-Marín et al., 2021) I will measure the diversity of loan terms relative to the diversity of recipient firms (size, profit, language) as an indicator of “bespoke policies”. I identify recipient firms in each year using commercial loan data from IJGlobal supplemented by analysis of publicly-listed firms’ annual reports using the method of (Lazzarini et al., 2015).

Empirical Strategy

I will use difference-in-differences to compare the evolution of performance among similar bank segments that were and were not made arm’s length after the split. I will run a difference-in-difference regression for each outcome variable at the bank segment (i) - sector (s) - year (t) level.

$$\text{Outcome}_{ist} = \beta_0 + \beta_1(\text{PostSplit}_t \times \text{Armslength}_i) + \beta_2 X_{ist} + \gamma_i + \delta_s + \varepsilon_{ijt} \quad (1)$$

Jump-Starting Capitalism by Converting the Bureaucrats: Evidence that Study Tours to the West Shifted Chinese Policymaker Priorities

Research Question

Did being sent on a study tour to a Western country cause Chinese policymakers to adopt market-oriented values and policy objectives more quickly? As a secondary result, I will also investigate how being sent on a study tour affected policy quality. I will measure quality using i) the academic consensus view on the policy and ii) the diversity of policy instruments used relative to the number of different policy objectives.

Motivation

How can a government pursue a new policy agenda when its bureaucracy embodies the values and traditions of the old ways? Governments that change ideology faster than their bureaucracies will find themselves hampered from out-of-kilter briefs to disorganised enforcement. There is a rich literature on how to overcome government-bureaucrat misalignments driven by material incentives (Alesina and Tabellini, 2007). The difficulties from misalignments caused by differences in values, conceptions of the public good and the proper role of government are not well understood. It is particularly important to study how governments can bridge these “idea-gaps” because of the increasing evidence of how much ideas affect civil servants’ decision-making (Ash et al., 2025).

This paper investigates whether governments can use short educational courses to align policymakers’ values with a new ideology. After the death of Mao in 1976, there was a significant shift in the Chinese Communist Party leadership favouring more capitalist policies and opening up to the West. Under first Hua Guofeng and then Deng Xiaoping, government officials were sent on study tours to a variety of countries including Japan, the US and other Western countries. Deng was an enthusiastic supporter of the tours and framed them explicitly as an exercise in learning from the West (Vogel, 2011). I will run a difference-in-difference comparing i) uptake of market-oriented policy objectives and ii) policy quality for officials who were and were not sent on study tours.

Data

I will construct data on which officials were sent on study tours, the organisations that the officials worked for before and after the tour, where the officials were sent, and the content of the tours.

I will also construct data on the policy documents issued before and after the tours. I will build an LLM pipeline to extract the following variables from the documents: i) name of issuing organisation, ii) name of organisation leader, iii) policy tools and iv) policy objectives. Fang et al. (2025) conduct a similar exercise using their corpus of Chinese policy documents from 2000-2022.

I will construct the following variables to measure “policy quality”. First, I will follow Wang and Yang (2025) in constructing a measure of the academic consensus on the merits of each policy. Second, I will construct a measure of the diversity of policy tools used relative to the number of different policy objectives. This method was suggested and validated by Fernández-i Marín et al. (2021) as a measure of policy quality.

The Political Economy of Industrial Development Organisations: Are They Run by Politicians or Bureaucrats? *

Lottie Field [†]

Abstract

This paper produces the first cross-country comparable, scalable method of categorising organisations as political or bureaucratic. I use this method to construct new data on the politicisation of organisations designing industrial policy in 116 countries. Thus, this paper produces the first systematic global analysis of the politicisation of industrial development organisations. I produce the following four stylised facts. First, industrial policymaking is predominantly political. Over 60% of the industrial policy organisations in my data are run by politicians. Second, lower-income countries use a higher proportion of political organisations to do their industrial policy. Third, there is great variation in the proportion of political organisations in each policy area. Politicians run 30% of Export-Import and Central banks. Politicians run 60% of organisations focused on primary commodities. Fourth, the proportion of organisations run by bureaucrats is positively and statistically significantly correlated with several measures of bureaucratic quality. This relationship is robust to controlling for the number of industrial policy organisations and GDP per capita.

1 Introduction

Economic prosperity hinges on the effectiveness of government policy. The public-sector policy space is home to a rich and diverse set of public-sector organisations. These range from cabinets and ministries to specialised government agencies and state-owned enterprises. Both politicians and bureaucrats head public-sector organisations. For the purposes of this paper, bureaucrats are public administrators without political positions or public party affiliations. Hence, understanding the relative merits of politicians and bureaucrats as policymakers is vital to both governments looking to improve and international development institutions aiming to help them do so. Indeed, the use of politicians and bureaucrats is an important area of focus for economists and the topic of seminal works in the social sciences at large (Chibber 2002; Evans 1995; Persson and Tabellini 1999).

The debate over the use of bureaucrats and politicians occupies a particularly dominant role in the industrial policy literature. Industrial policies are state actions that intend to shift the composition of economic activity, for example, towards industry or decarbonisation. The theoretical justifications for industrial policy are increasingly well-understood and evidenced (Hanlon 2020; Juhász 2018; Lane 2021; Mitrunen 2023). While uncertainty is clearing over the economics, a deep fog remains over the political economy (Juhász et al. 2023). Yet, political economy looms particularly large in the explanations for the successes and failures of industrial policy (Robinson 2011; Wade 1990). The use of bureaucrats to

*I would like to thank Réka Juhász and Nathan Lane for access to their data, invaluable discussions and their support.

[†]Lottie Field is a pre-doctoral research associate based at the University of British Columbia working for Réka Juhász as part of the Industrial Policy Group. Her email address is lottie.field@ubc.ca.

design policy is a recurring explanation for the successes of various industrial policy episodes (Evans 1995; Johnson 1982; Juhász et al. 2023). Nonetheless, there is a dearth of empirical evidence (Juhász and Lane 2024). Until now, there has been no scalable, cross-country comparable method of classing organisations as political or bureaucratic.

This paper produces the first scalable, cross-country comparable method of classing organisations as political or bureaucratic. I call this method the ‘Bureaucrat or Politician’ or ‘BoP’ method. I use the BoP to generate new data on the use of bureaucrats and politicians in industrial policymaking. I do so by applying the BoP to 3,438 organisation names from internal source data provided by (Juhász et al. 2022). This means that I individually hand clean and categorise every one of 3,438 organisations from (Juhász et al. 2022). In my stride, I do so at the rate of 30 per hour. Standardising names and screening out private and regional organisations leaves me with 871 government organisations doing industrial policy.

I use this data to produce the following four stylised facts about the use of industrial policy across these 871 government organisations. First, industrial policy is predominantly but by no means entirely political: just under 60% of the 871 government organisations are run by politicians. Second, higher-income countries use a lower proportion of political organisations than lower-income countries. Just under 30% of industrial policy organisations in high-income countries are political; nearly 50% of industrial policy organisations in middle-income countries are political. Third, the proportion of political organisations varies greatly by policy specialism. Only 30% of Export-Import and Central banks are run by politicians. 60% of organisations focused on primary commodities are run by politicians. Fourth, there is a positive and statistically significant correlation between a country’s use of bureaucratic organisations and measures of its bureaucratic quality. This relationship is robust to controlling for the number of industrial policy organisations and income. These stylised facts are highly relevant in and of themselves. They also demonstrate the insights that the BoP method allows us to gain.

This paper contributes to two key literatures. First, this paper contributes to the literature on independent government organisations. Providing the first cross-country comparable, scalable, entity-level measure of the use of politicians and bureaucrats enables studies to use larger samples and data on developing countries. Small sample sizes limit the abilities of studies to identify causal effects. This is of great interest in a literature containing many inconclusive studies (Dan 2014; Verhoest et al. 2021). The lack of data on developing countries limits the variation in the bureaucratic autonomy of sample countries. Moreover, there are many reasons to think that the effects of using bureaucrats and politicians differ in developing countries (Krueger 1990). In contributing to the literature on independent government organisations, this paper contributes to the broader literature of the political economy of bureaucracy in development and economic policy (Besley et al. 2022; Persson and Tabellini 1999).

Second, this paper contributes to the literature on the political economy of industrial policy. I do so by providing the first global comparative analysis of the use of bureaucrats and politicians in industrial policy around the world. This is particularly significant given the important role of the use of bureaucrats and politicians in the industrial policy literature. The focus on industrial policy in analysis is particularly crucial as there are reasons to expect that the incentives for and the effects of delegating to bureaucrats are different for industrial policy as opposed to other kinds of economic policy. This is because industrial policy has concentrated benefits, is prone to time inconsistency and is particularly risky (Juhász and Lane 2024; Maloney and Nayyar 2018).

The paper proceeds as follows. First, I outline the procedure for producing data classifying the organisations designing industrial policy as political or bureaucratic. Second, I evaluate the data on the bureaucratic autonomy of the organisations designing industrial policy. Third, I generate the four stylised facts.

2 Literature Review

Existing measures of organisational autonomy tend to fall into two categories. First, there are detailed entity-level measures. Second, there are less detailed country-level measures.

Detailed entity-level measures do an excellent job of capturing organisational autonomy. For example, Verhoest et al. (2012) develop a five-way classification system of public sector organisations based on expert surveys. The use of detailed expert surveys makes the classifications highly reputable. However, this detail comes at the expense of scalability: the effort to apply the measure to twenty-one countries was gargantuan and has not been repeated. Moreover, although Tanzania and Pakistan are exceptions, these countries are predominantly Western. Indeed, Verhoest et al. (2021: 14) write that the typology is ‘mostly based on western countries with certain legal-administrative systems.’ Similarly, Gilardi (2009) also develops a highly detailed and credible measure of bureaucratic independence at an entity level. However, lack of scalability and cross-country comparability limited his endeavour to seventeen European countries.

There are highly reputable country-level measures too. These include the governance effectiveness indicator from the World Bank Governance Indicators. Among other things, this measure aims to capture the ‘political independence of the civil service’ (Kaufmann et al. 2010: 4). Additionally, there are variables produced by the V-Dem institute that capture concepts closely related to the political independence of the bureaucracy. These include the extent to which access to public sector jobs is connected to political affiliation (Coppedge et al. 2024). Additionally, Cingolani et al. (2015) proxy for bureaucratic autonomy using the irregularity in the turnover of central bank governors. While their measure is positively and significantly correlated with the measure of bureaucratic autonomy by (Gilardi 2009), they note that ‘future work should seek additional objective measures of bureaucratic autonomy that incorporate other agencies than central banks’ (Cingolani et al. 2015: 201).

The existing literature has three key limitations. First, the existing measures have produced relatively small sample sizes. Detailed entity-level measures are so detailed that they can only feasibly be applied to a small set of countries. Country-level measures are applicable across a larger set of countries, but only clock in one observation per country. Many studies on increased bureaucratic autonomy find insignificant effects (Verhoest et al. 2004; Andrews 2011). Small sample sizes are likely an explanation. Large samples are particularly important when theoretical and qualitative evidence overwhelmingly points to the effects of bureaucratic autonomy being highly conditional and context-dependent (Dan 2014; Evans 1995).

Second, there is a lack of data on developing countries. There is a vast gap in data at an entity level for developing countries. Lacking data on developing countries limits sample size and the amount of variation in the level of bureaucratic autonomy. Hence, this lack of data raises the minimum detectable effect.

The lack of data on developing countries is also limiting for those interested in investigating the use of bureaucrats and politicians in these countries. Crucially, the theoretical literature points to several reasons that the effects of using bureaucrats are likely to differ in developing countries.

Indeed, one key justification for using bureaucrats rather than politicians is that bureaucrats are less likely to favour special interests. In developing countries, political and bureaucratic corruption are particularly high (Krueger 1990). Additionally, allocating resources to special interests can be important in maintaining complex political equilibria in developing countries (Dercon 2022). If the policy reform is successful, but the political equilibrium remains unchanged, policymakers will likely simply shift the distortions to an alternative policy instrument (Acemoglu et al. 2008). Alternatively, if the political equilibrium does not survive the policy reform, consequences can be catastrophic. The IMF pressured the Ghanaian prime minister Kofi Busia to devalue the exchange rate in the midst of an economic crisis in 1971 (Acemoglu and Robinson 2013). ‘Whatever the textbook economic logic behind the

reforms, the political outcome was dire’ (Acemoglu and Robinson 2013: 187). A military coup toppled the government two weeks later and reversed the devaluation.

Furthermore, using bureaucrats often means developing new institutional machinery. This is especially true in developing countries lacking bureaucratic infrastructure and traditions. Krueger (1990: 15) writes ‘administrative difficulties can be overwhelming, either because of a shortage of personnel or because of the enormous administrative difficulties of establishing and maintaining complex operations within the public sector.’ Many scholars note the coordination difficulties that come with large bureaucracies (Bouckaert et al. 2010; Dan 2014). While many developing countries lack such large bureaucracies, they are likely to also lack the institutional infrastructure for effective coordination.

The third limitation of the literature is the lack of focus on industrial policy specifically. Providing data on industrial policy specifically is important. First, issues of political economy are the spectre of the industrial policy literature (Juhász et al. 2023). Second, certain features of industrial policy suggest the positive and normative analysis of the use of bureaucrats and politicians will be different.

Regarding normative analysis, as industrial policy supports particular sectors, its benefits are often concentrated (Juhász and Lane 2024). Moreover, optimal industrial policy often involves policymakers committing to a course of action over time (Juhász and Lane 2024). Consider infant industry protection. In textbook policy, the firm receives support while its marginal cost decreases. It is crucial that firms believe that support will be withdrawn to incentivise cost-cutting innovations rather than sweet-talking politicians for additional subsidies (Juhász and Lane 2024). Hence, industrial policies are prone to time inconsistency. Alesina and Tabellini (2007) and Alesina and Tabellini (2008) suggest that it is optimal for politicians to delegate policies in areas prone to time inconsistency and with concentrated benefits to bureaucrats. Hence, there is good reason to think that the normative implications of the use of bureaucrats and politicians in industrial policy differ to other kinds of economic policy.

Regarding positive analysis, Alesina and Tabellini (2007) suggest that politicians are less likely to relinquish control of policies with distributional stakes. Moreover, industrial policies are often considered particularly risky relative to other policy areas. Maloney and Nayyar (2018) argue that we know less about the benefits of targeting specific sectors as opposed to policies with broader benefits. Alesina and Tabellini (2005) suggest that politicians are particularly likely to delegate risky policy areas to bureaucrats. Hence, there are reasons to think that the incentives regarding the delegation of policies to bureaucrats from politicians will differ in industrial policy.

In sum, there are three key limitations to the empirical literature on independent public sector organisations: 1) small sample sizes, 2) lack of data on developing countries, and 3) lack of focus on industrial policy. Producing an entity-level, cross-country comparable and scalable measure of whether organisations are run by politicians and applying it to organisations designing industrial policy overcomes these limitations. A measure that is entity-level, cross-country comparable and scalable allows for a larger sample size including data on developing countries. Applying it to specifically industrial policy organisations allows for data on industrial policy.

3 Data Production

3.1 List of organisations doing industrial policy

To categorise the organisations designing industrial policy, I need a list of organisations designing industrial policy. Juhász et al. (2022) extract industrial policies from the Global Trade Alert (GTA) database. The GTA database records government statements which include ‘a credible announcement of a meaningful and unilateral change in the relative treatment of foreign domestic and commercial interests’ (Evenett and Fritz 2022: 1). It records policy announcements not only by central governments

but also by public sector organisations and regional governments (Evenett and Fritz 2022). Industrial policies intend to stimulate a particular sector of the domestic economy. Thus, industry policy makes the relevant domestic sector relatively more attractive than foreign sectors (Juhász et al. 2022). Hence, industrial policies ‘fall squarely under the scope of GTA surveillance’ (Juhász et al. 2022: 13).

Juhász et al. (2022) use a supervised machine learning algorithm to class policies as industrial policies or not industrial policies. They do so for all policies between May 2009 and March 2023 for the over 175 countries covered by the GTA. Their model is highly credible. In cross-validation, it correctly classifies 93% of policies. This algorithm also extracts the name of the entity conducting the policy. Hence, this data provides an estimate of the stock of organisations that designed industrial policies between May 2009 and March 2023.

Juhász et al. (2022) provided me with a list of 3,438 organisations. These organisations span 116 ‘countries’ including the semi-autonomous areas Puerto Rico and Hong Kong, and the supranational organisation of the European Union. This includes all the countries covered by the GTA except for countries for which limited industrial policy is detected.

Using the 2024 World Bank income classification (World Bank Group 2024), the sample contains seven low-income countries, twenty nine lower-middle-income countries, thirty one upper-middle-income countries and forty eight high-income countries.¹ As explained earlier, this is nearly the population of countries designing industrial policy between May 2009 and March 2023.

My data covering fewer lower-income countries largely reflects that lower-income countries do less industrial policy (Juhász et al. 2022). However, Juhász et al. (2022) do find evidence that GTA data on lower-income countries is less reliable. Overall, the aggregated results likely do underrepresent lower-income countries but by considerably less than one would think without realising that lower-income countries do less industrial policy.

3.2 A guide to the BoP method

The list provided by Juhász et al. (2022) contains private, regional and supranational organisations. For this paper, I focus only on government organisations. In addendum 1, I explain how I filter out these organisations to get a list of 871 government organisations.

In brief, the BoP method classes organisations whose leaders are politicians as political and organisations whose leaders are bureaucrats as bureaucratic. In addendum 2, I provide rigorous definitions of ‘leader’, ‘politician’, and ‘bureaucrat.’ These rigorous definitions cover the bizarre cases out there. Here, I provide a practical guide to applying the BoP method to a list of government organisations that works for the vast majority of cases.

The first step is finding the organisation’s leadership structure. There are two predominant leadership structures. 1) Single leader. In this structure, the organisation has one clear leader. Common names for this leader include governor, director general, and comptroller. The organisation is political if this leader is a politician and autonomous if this leader is a non-politician.

2) Corporate. This leadership structure resembles that of a private company. There is a team focused on the day-to-day running of the organisation. Common names for this team include the management board, the executive board and the leadership team. The leader of this team is often known as the CEO, managing director or general manager. There is a second team that serves a supervisory function. This

¹There is no income group categorisation for Venezuela in the 2024 World Bank income classification due to lacking data availability (World Bank Group 2024). Maldonado and Olivo (2022) investigate and find that Venezuela is a lower-middle-income country by the World Bank classification rules. I class Venezuela as a lower-middle-income country. From now on, when I state that I use the 2024 World Bank income classification, this covers that I class Venezuela as a lower-middle-income country.

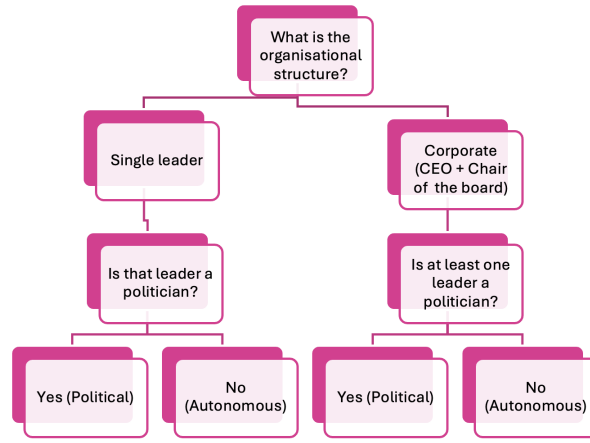


Figure 1: Chart showing classification process

team is often known as the board, the supervisory board or the non-executive board. The leader of this team is often called the chair of the supervisory board or simply the chair of the board. The organisation is political if at least one of these leaders is a politician. Figure 1 summarises this classification process.

First, one needs information on leadership structure. Drop-down menus under headings such as ‘our people’, ‘authorities’ or ‘leadership’ indicate whether the organisation has a single leader or corporate structure. Figure 2a shows the drop-down menu under the heading ‘Corporate Profile’ on the website of the Citizen Entrepreneurial Development Agency of Botswana. The options include both ‘Executive Management’ and ‘Board of Directors’. This indicates that the organisation has a corporate structure.

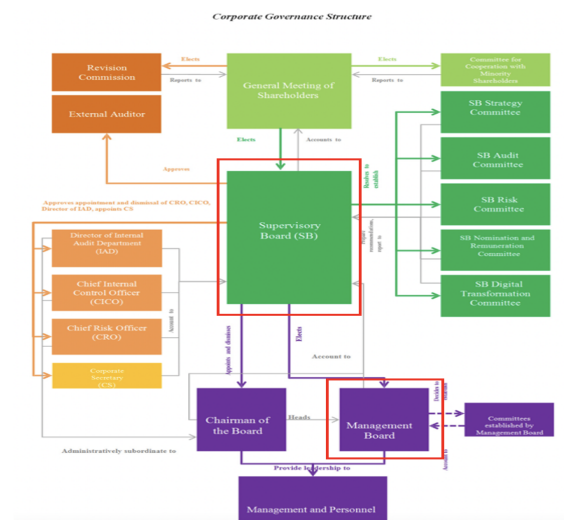
If drop-down menus provide no clarity, websites generally have organisation charts. Figure 2b shows the organisation chart on the website of Belarusbank. The organisation chart is very complicated. However, the only relevant information is that it contains a supervisory board and a board of directors for the organisation as a whole. Hence, Belarusbank has a corporate structure.

Figure 2: Examples of information used to identify organisational structure

Notes: Red boxes encompass evidence that the organisation has a corporate structure.



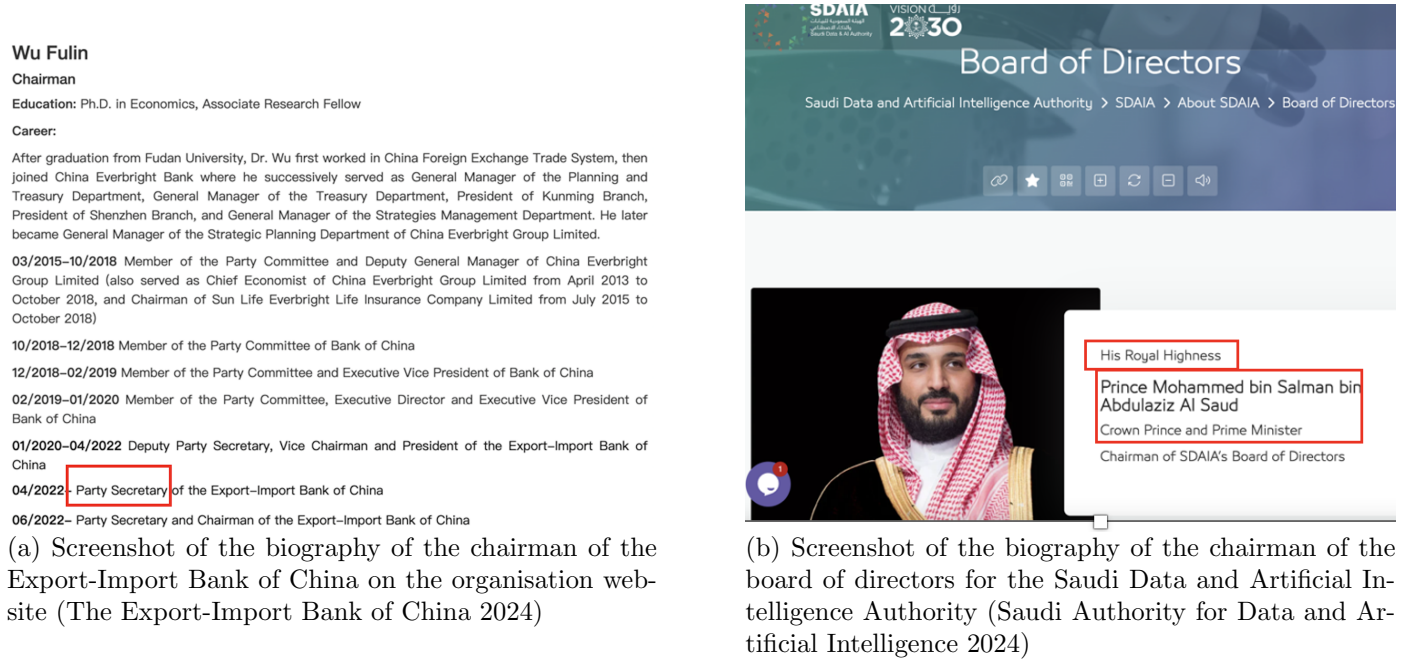
(a) Screenshot of the drop-down menu under the heading ‘Corporate Profile’ on the website of the Citizen Entrepreneurial Development Agency of Botswana (Citizen Entrepreneurial Development Agency 2024).



(b) Screenshot of the organisation chart on the website of Belarusbank (Belarus Bank 2024)

Figure 3: Examples of information used to class individuals as politicians

Notes: Red boxes encompass evidence that the individual is a politician.



I classify an individual as a politician if I find that they hold a political position or are affiliated with a political party. Political positions include cabinet minister, national legislature member, roles in regional governments and political party governance. I use information from the organisation’s website, job platforms, news websites and informative sites such as Wikipedia in that order of preference. Figure 3a shows the biography of the chairman of the Export-Import Bank of China provided on the organisation’s website. This biography details the chairman’s university education and his career since then. He currently holds the position of ‘Party Secretary’ of the Export-Import Bank of China. This indicates that he holds a position in a political party. Hence, he is classed as a politician and the Export-Import Bank of China is classed as a political organisation.

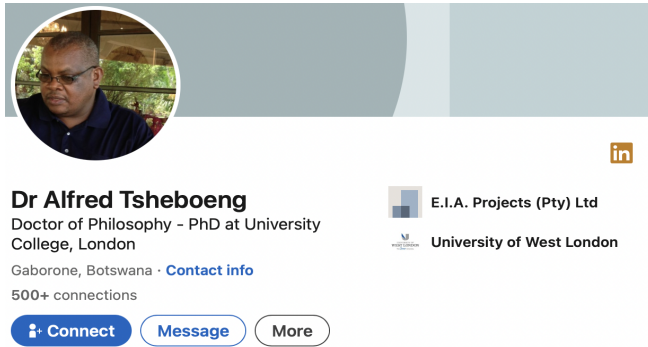
Figure 3b shows the biography of the chairman of the board of directors for the Saudi Data and Artificial Intelligence Authority. He is Prince Mohammad bin Salam bin Abdulaziz Al Saud, the crowned Prince of Saudi Arabia. Hence, I class him as a politician and I class the Saudi Data and Artificial Intelligence Authority as a political organisation.

I class an individual as a bureaucrat if I can find no evidence of them being a politician in their CV, listed experience or biography. Bureaucrats typically display ‘bureaucratic qualities’ such as expertise, private sector and civil service experience. Evidence of ‘bureaucratic qualities’ is not directly used to classify an individual as a bureaucrat. Nonetheless, bureaucratic qualities provide supporting evidence as they indicate a plausible alternative occupation to being a politician.

Figure 4a shows the LinkedIn page of the chair of the supervisory board of the Citizen Entrepreneurial Development Agency of Botswana. This LinkedIn page just contains an ‘About’ section, it does not contain an ‘Experience’ section as most do. This ‘About’ section makes no mention of political involvement. It also indicates typical bureaucratic qualities: a history of work in industry (here construction) and education quasi-related to the field (environmental practitioner). Hence, I classify Dr Alfred Tsheboeng as a bureaucrat.

Figure 4b is the biography of the president of Bancóldex (the Colombian development bank) provided on Bancóldex’s website. This biography page makes no mention of political involvement. It also indicates typical bureaucratic qualities: a history of work in private and public sector financial organisations.

Figure 4: Examples of information used to classify individuals as bureaucrats



About

Experienced Managing Director with a demonstrated history of working in the construction industry. Skilled in Environmental and Social Governance (ESG) Biodiversity assessments, Construction, Management, and Information Extraction. Strong business development professional. He is a certified environmental practitioner registered with EAPB and holds a Doctor of Philosophy - PhD from University College, London (UCL).

(a) Screenshot of the LinkedIn page of the chair of the supervisory board of the Citizen Entrepreneurial Development Agency of Botswana (Tsheboeng 2024)

JAVIER DIAZ FAJARDO

Mr. Fajardo has over-20-year experience in Latin American financial markets. His work in this field includes business development and transactional positions in New York, Washington and Colombia. From January 2018 to January 2019, Mr. Fajardo served as Chairman of the Renta 4 Global Trust. During this time, the trust tripled its monthly income, doubled the managed assets and increased the number of clients significantly.

Between 2013 and 2017, Mr. Fajardo held the positions of Commercial Vice President and Corporate Vice President (in charge) of the Colombian Stock Exchange, where he participated actively in the business model transformation, carried out the first fintech to finance SMEs -through the capital market- and contributed to double the Stock Exchange consolidated income. During this time, he also served as the main member of the boards of directors of the Colombian Foreign Exchange Clearing House, SET-ICAP, Precia (formerly Infovalmer) and Derivex. He is a founding member of the Colombian Corporate Governance Institute.

Mr. Fajardo had previously served as Vice President of Investor Relations for Grupo Aval, Colombia's largest financial group. Between 2010 and 2012, he oversaw the Group's registration process with the U.S. Securities and Exchange Commission (SEC) and participated in local and international securities offerings for more than \$2.7 billion dollars. Prior to joining Grupo Aval, he founded and served as CEO of Andes Capital, an investment fund in Colombia. Until 2010, he served as Chief Counsel of IDB's Multilateral Investment Fund, based in Washington. He also worked as a partner at the law firms of Cleary, Gottlieb, Steen & Hamilton in New York and Cárdenas & Cárdenas in Colombia.

(b) Screenshot of the biography of the president of Bancóldex on the Bancóldex website (Bancoldex 2024)

For most organisations, categorisation follows the pattern above and the necessary information is available. The remainder of the sample is tricky. First, I cannot find information on a handful of individuals. In these cases, the individuals usually head small and highly specialised organisations. There tends to be very little information about these individuals in general. I classify these individuals as bureaucrats on the assumption that politicians are generally better publicised.

Additionally, one category of edge cases involves 'civilians' who hold cabinet positions. Take Lloyd Austin III, the current US Secretary of Defense. Prior to his post, he served in the military and worked in private companies. In accepting a cabinet post, the individual agrees to work with political incentives. Nonetheless, they are perhaps less politically motivated than a career politician. Moreover, these civilian 'experts' face different information constraints than politicians. Overall, I judge these individuals to be closer to politicians than bureaucrats. Hence, I classify them as politicians.

Another type of edge case is party membership in China. Chinese Communist Party membership is publicised for all the leaders in identified organisations. Most leaders are not merely members of the party but hold positions within the regional or national party apparatus. However, there are some who do not hold party positions. One argument is that the mention of party membership is not sufficient to suggest people are politically involved. Moreover, party membership in China is more publicised than in other countries. Nevertheless, the expression of party membership is not epiphenomenal; it is a product of the tighter connection between the civil service and the party. On this basis, I classify these organisations as political.

4 Data Evaluation

4.1 Cross-country comparability

The Global Trade Alert (GTA) database is highly credible. However, it is unlikely to pick up all organisations doing industrial policy. I evaluate the GTA using the report by the Export-Import Bank of the United States (EXIM US) on global export credit competition during 2022 (EXIM US 2023). Export credit refers to 'a financial instrument which allows the buyer of a cross-border good or service to defer payment of that good or service through the creation of a debt obligation' (EXIM US 2023:

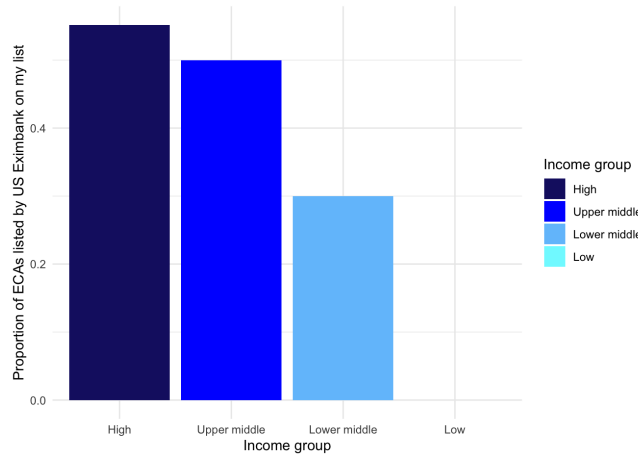


Figure 5: Proportion of known ECAs picked up by the GTA

Notes: 871 government industrial policy organisations from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022). List of known ECAs provided by the US EXIM competition report (EXIM US 2023). Income group classification is from the 2024 World Bank classification (World Bank Group 2024)

75). The report lists all known active export credit agencies (ECAs). An ECA is an organisation that provides insurance and guarantees to exporters (EXIM US 2023; Kabir et al. 2024). ECAs are often called Export-Import banks. ECAs are frequently involved in industrial policy: by supporting exporters they are generally intentionally supporting particular areas of the economy (Kabir et al. 2024). Hence, the proportion of listed ECAs identified by the GTA provides an indication of the extent of industrial policy organisations the GTA identifies.

The GTA only identifies 45% of the ECAs listed by EXIM US for the countries doing industrial policy. Figure 5 shows that the GTA is better at identifying industrial policy organisations in higher-income countries. It is worth noting that for the low-income countries doing industrial policy, there was only one listed ECA. As the GTA did not identify this ECA, it is marked as picking up 0% of ECAs in low-income countries.

It is interesting that the GTA does not identify all ECAs in high-income countries. There are high reporting standards in high-income countries. Hence, this suggests that the lack of identified ECAs is not down to information being unavailable. It also suggests that not all ECAs are engaged in industrial policy. Indeed, it seems possible to support exporters without the intention of boosting a particular sector of the economy. For example, the aim of export credit could be to enable national firms to compete with firms from geopolitical rivals.

It is concerning that the GTA identifies a higher proportion of listed ECAs in higher-income countries. It is possible that ECAs in higher-income countries are more likely to engage in industrial policy. However, it is also likely that this reflects better reporting standards in higher-income countries. This is particularly concerning as the proportion of a country's ECAs identified is strongly correlated with both the number of entities doing industrial policy picked up by the GTA and the proportion of bureaucratic organisations. Indeed, countries with no listed ECAs identified by the GTA have on average 12 fewer organisations doing industrial policy and use 15% points fewer bureaucratic organisations. Both of these relationships are significant at the 1% level.

Hence, I run a robustness check in which I drop countries for which the GTA picks up none of its listed ECAs. This means dropping 38 countries and going from a sample of 116 to 78. I will refer to this sample as 'ECA drop'. Using the 'ECA drop' sample, the regression coefficients on the average proportion of listed ECAs identified are not significant at any conventional level for either the number of organisations doing industrial policy or the proportion of bureaucratic organisations.

Going forward, I use another robustness check to account for the influence of data from countries with poorer GTA coverage. There are many countries for which the GTA only picks out one or two industrial policy organisations. One might think that this is because reporting standards are worse in these countries or that the GTA applied less attention to these countries. This is particularly concerning as there is a correlation between the number of identified industrial policy organisations and the proportion of bureaucratic organisations that is significant at the 1% level. Hence, I create a version of the sample in which I drop the fifty countries for which the GTA only identifies one or two industrial policy organisations. I call this the ‘drop’ version of the sample.

4.2 Picking up the organisation receiving rather than enacting industrial policy

One concern is that the algorithm sometimes extracted the organisations receiving rather than enacting the industrial policy. Consider an industrial policy involving the central government allocating loans to green energy companies. In this case, the enacting entity is the central government. The concern is that the algorithm lists a green energy company receiving a loan instead. Indeed, this is one theory for why the GTA has picked up considerable numbers of private organisations. I am not concerned about the algorithm wrongly identifying private companies to which the industrial policy applies. This is because I carefully screen out private companies. However, it is possible that the algorithm picked out some of the public sector organisations that are not enacting but are affected by industrial policy.

The main dataset from Juhász et al. (2022) contains the ‘announcement text’ for all the policies done by a given organisation. When I was categorising one batch of organisations from G20 countries, I looked at a randomly selected ‘announcement text’ for each organisation. I noticed that there were many private companies with announcement texts referring to the German export credit agency Euler Hermes and the EU Commission.

For one batch of 817 organisation names, I noted all organisations with announcement texts that mentioned the EU Commission or Euler Hermes. These are the organisations with announcements texts indicating that they may be receiving rather than enacting industrial policy. I dropped 87.4% of these organisations as they were either private, regional or supranational entities. Hence, if all of these organisations are recipient entities, only just over 10% slipped through into the final list of government industrial policy organisations. It is likely that some of the entities that were government organisations had additional policies which they enacted rather than received. Moreover, it is likely that these announcement texts involved collaborations between these organisations and the EU Commission/Euler Hermes. Hence, although this test is far from complete, it indicates that this error is relatively small.

4.3 Successfully capturing the concept of interest

My measure captures whether politicians or bureaucrats head organisations. The concept of interest is the extent to which bureaucrats or politicians influence decision-making in organisations. There is an intuitive connection between the identity of an organisation’s leader and the identity of the decision-makers. However, leadership and decision-making power do not always go hand-in-hand. Pollitt (2004) notes that politicians frequently meddle in agencies beyond their remit. On the other hand, a political leader may be rather hands-off in the running of an organisation, allowing bureaucrats to make the key decisions. Indeed, I doubt that Mohammed bin Salman is keenly involved in the day-to-day matters of the Saudi Data and Artificial Intelligence Authority.

There are other variables one can use to get a better indication of the extent to which politicians or bureaucrats make decisions. These include 1) whether bureaucrats or politicians decide on appointments and promotions, 2) the degree of budget autonomy, and 3) the degree of political oversight (Verhoest et al. 2021). Concerningly, Verhoest et al. (2012: 18) note the range of variation in the individual

characteristics of agencies: ‘the degrees of financial, personnel and management autonomy vary per (type of) organisation. It is exactly this degree of variation between (types of) organizations that make it impossible to develop a more precise definition.’

Nonetheless, the BoP method is highly defensible. First, regardless of the relationship to these other elements of autonomy, my measure captures something of interest: whether organisations are run by politicians or bureaucrats. Of course, there is variation in the extent to which the leader has control. Nonetheless, the identity of the leader captures something meaningful.

Second, while there is great variation amongst organisations, elements of bureaucratic control are correlated with each other. Hence, we can take my concept as an indicator of whether bureaucrats or politicians are the decision-makers more broadly. Indeed, characteristics were sufficiently clustered for Verhoest et al. (2012) to develop a categorisation system that allowed expert respondents to categorise 95% of entities on the basis of many different characteristics.

Moreover, data confirm the associations between the BoP measure and other elements of bureaucratic control. First, consider meritocratic recruitment. I use a measure from the Varieties of Democracy Institute (V-Dem). This measure captures ‘whether appointment decisions in the state administration are based on skills and merit as opposed to personal and political connections’ (Besley et al. 2022). This should be related to the BoP measure. If more politicians are in charge of the organisations doing industrial policy, this indicates that political and personal connections help with public sector appointments. Of course, the correlation should not be perfect as many organisations doing industrial policy are part of the state’s political apparatus rather than its state administration. Moreover, it is possible that the bureaucrats serving under the political leaders of agencies are recruited in a highly meritocratic manner. Nonetheless, I expect these concepts to be related.

Figure 6 shows the scatter plot with meritocratic recruitment on the y-axis and the proportion of bureaucratic organisations on the x-axis. There is a clear positive relationship between meritocratic recruitment and the proportion of bureaucratic organisations. Indeed, the regression coefficient of meritocratic recruitment on the proportion of autonomous organisations is significant at the 1% level. The coefficient retains its significance when using the ‘ECA drop’ and ‘drop’ samples.

Another V-Dem variable I expect to be related to the proportion of bureaucratic organisations is the extent to which political group influences access to public sector jobs. It is intuitive that if political group influences access to state jobs, political group will also influence access to public-sector leadership positions. Indeed, the regression coefficient on the extent to which access to public sector jobs is influenced by political group is in the expected direction and significant at the 1% level across the original, ‘ECA drop’ and ‘drop’ samples.

Nomenclature provides additional evidence that the BoP measure captures the relative decision-making power of bureaucrats more broadly. It makes sense that patterns in naming differ across bureaucratic and political organisations. Additionally, there are particular words associated with political organisations and particular words associated with non-political organisations. For example, ‘ministry’ is associated with political cabinet offices. Verhoest et al. (2021) note that autonomous organisations are often called ‘agencies.’

As Figure 7 shows, the words ‘ministry’ and ‘agency’ are used in quite different proportions in political and non-political organisations. Other featured words such as ‘bank’ also make sense. Central, development and EXIM banks generally operate specific government functions. Hence, one would expect them to be more bureaucratic. Words associated with particular policy areas such as ‘finance’ and ‘economy’ also make sense. Public finance is generally the purview of a minister. Economy most frequently appeared in ministries of Economy which are cabinet ministries. Hence, basic patterns in the naming of organisations provide additional face-value validity to my categorisation system.

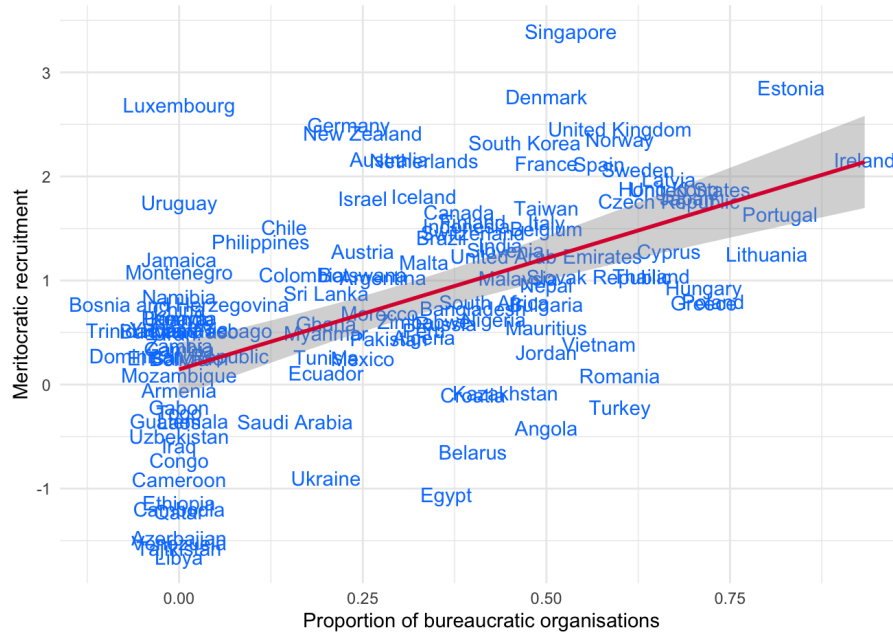


Figure 6: Scatter plot of meritocratic recruitment and the proportion of bureaucratic organisations

Notes: 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022). The plot shows a linear line of best fit with a 95% confidence interval.

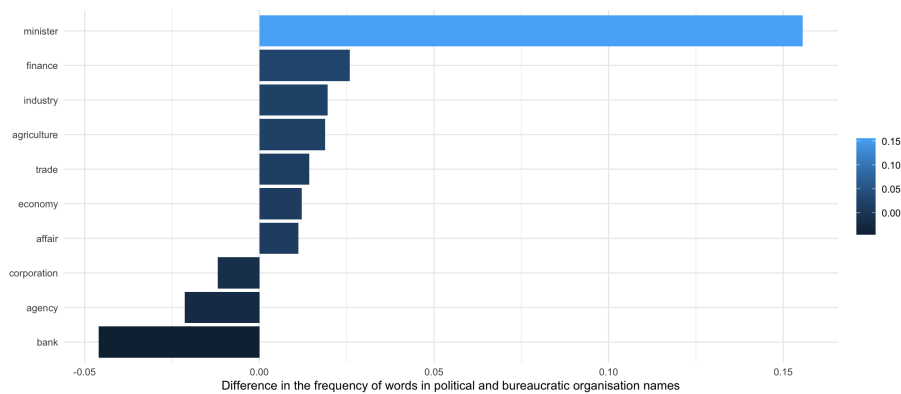


Figure 7: Graph showing the words with the largest differences in frequency between political and bureaucratic organisation names

Notes: 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022).

5 Stylised Facts

5.1 Industrial policy is predominantly political

The first key stylised fact is that politicians are the primary decision-makers regarding industrial policy. Just under 60% of the 871 organisations identified doing industrial policy are run by politicians. This is robust across both the ‘ECA drop’ and ‘drop’ versions of the sample.

Averaging over the number of organisations gives greater weight to countries with more industrial policy organisations. Hence, I also find the proportion of bureaucratic organisations in the average country. 30% of the organisations doing industrial policy in the average country are bureaucratic. This figure is 31% for the ‘ECA drop’ and 43% for the ‘drop’ sample. It makes sense that the figure is higher for the ‘drop’ sample as most countries with only one or two entities have very few bureaucratic organisations doing industrial policy. Hence, it is particularly striking that even with this sample, the organisations in the average country are predominantly political.

This confirms that models of political influence are incredibly relevant to industrial policy. On the other hand, this data shows that over 40% of organisations designing industrial policy are run by bureaucrats. Hence, this data confirms the importance of bureaucrats in designing industrial policy and suggests it is important to continue analysing the incentives of bureaucrats designing industrial policy too.

5.2 Relationship between the proportion of bureaucratic organisations and income

Figure 8a shows the proportion of bureaucratic organisations by income group. We can see that around 50% of industrial policy organisations in high-income countries are run by bureaucrats. In both upper- and lower-middle-income countries, around 30% of industrial policy organisations are run by bureaucrats. No organisations from low-income countries are run by bureaucrats. The figure shows that this finding is robust to using both the ‘ECA drop’ and ‘drop’ versions of the sample. The pattern and approximate proportions of bureaucratic organisations across income groups remains the same for all three versions of the sample. Hence, this is a strong indication that lower-income countries use a lower proportion of bureaucratic organisations. Although, it is worth noting that there is no substantial difference between lower-middle and upper-middle income countries in this regard.

Figure 8b is a scatter plot of the proportion of bureaucratic organisations and average GDP per capita from 2009-2023. The regression coefficient of GDP per capita on the proportion of bureaucratic organisations is positive and significant at the 1% level for the original, ‘ECA drop’ and ‘drop’ versions of the sample. It retains significance at the 1% level when controlling for the number of industrial policy organisations. Hence, there is a strong case that the relationship between the proportion of bureaucratic organisations and GDP per capita is not driven by differences in reporting standards.

Figure 8: Relationship between proportion of bureaucratic organisations and income group

Notes: 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022).



Notes: Income group from World Bank 2024 classification (World Bank Group 2024).

Notes: Average GDP per capita from 2009-2023 from V-Dem (Coppedge et al. 2024). Linear line of best fit with 95% confidence interval.

5.3 The proportion of bureaucratic organisations by policy specialism

5.3.1 Measuring policy specialism

I record the areas of policy specialism for each organisation. To categorise an organisation by policy specialism, I look at an organisation’s title, summaries of their functions and mission statements. An organisation specialises in policy area X if the organisation’s name, summary of functions or mission statement refers to this policy area. Hence, a bank that specialises in providing loans to green companies counts as having a policy specialism in the environment. A bank that specialises in providing loans to small and medium-sized enterprises and has a hidden drop-down menu for green finance does not count as having a policy specialism in the environment.

I split the data into five broad and often overlapping categories: 1) ‘International’ includes organisations covering foreign policy and trade. 2) ‘Public finance’ includes sovereign wealth funds, procurement and tax collection agencies and ministries of finance. 3) ‘Domestic economic growth’ takes inspiration from ministries of Economy which cover both general economic growth and the component sectors of the economy. Hence, this category includes ministries of the economy, organisations focused on growth and development (such as development banks) as well as organisations specialised in infrastructure, primary commodities, enterprise and industry. It does not include organisations focused on boosting export sectors; these fall under ‘International.’ 4) ‘Non-growth goals’ includes organisations specialising in goals not directly related to growth. These include defence, environment, health, labour, culture, digital and social protection. 5) ‘Central banks’ includes institutions specialised in monetary policy.

Within most categories, I include subcategories and often sub-subcategories. Details are in addendum 3. I categorise an organisation at the finest-grained level of specialisation applicable. I automatically categorise organisations specialised in a subcategory in the relevant broader category. For example, I automatically categorise an EXIM bank under ‘International.’

5.3.2 Proportion of bureaucratic organisations by policy specialism

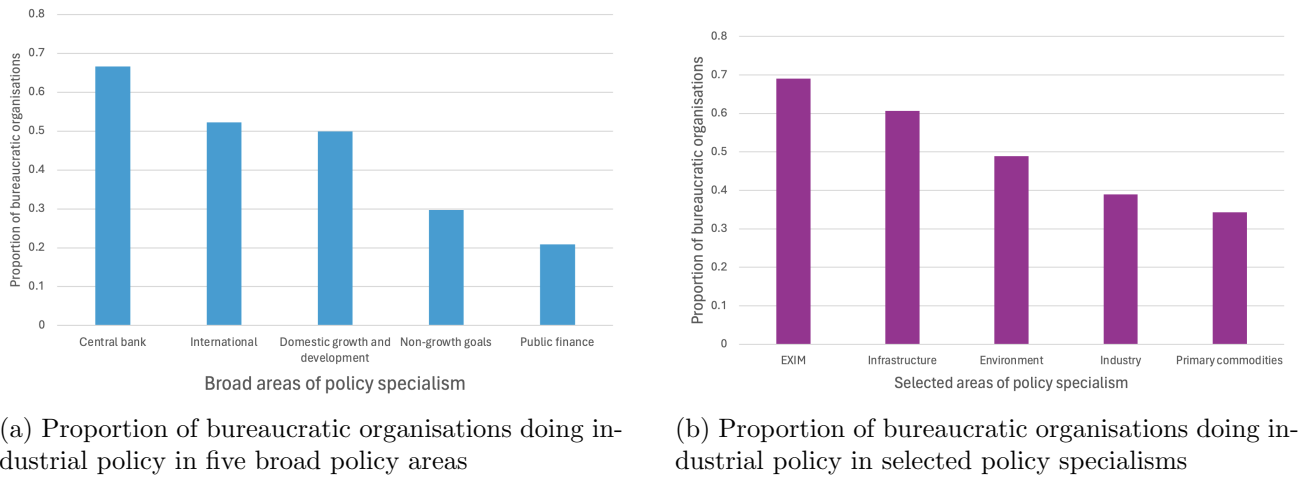


Figure 9: Proportion of bureaucratic organisations by policy specialism

Notes: 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022).

Figure 9a shows the proportion of bureaucratic organisations for each broad area of policy specialism. Approximately 50% of organisations in ‘International’ and ‘Domestic economic growth’ are run by bureaucrats. Approximately 75% of central banks are bureaucratic. This makes sense, given the global push for central bank independence (Acemoglu et al. 2008). Organisations specialising in public finance and non-growth goals are predominantly political.

Figure 9b shows the proportion of bureaucratic organisations for six selected areas of policy specialism. 70% of EXIM banks are autonomous. Around 60% of organisations specialising in infrastructure and the environment are political. Industry and primary commodities are generally more political.

5.4 Association between bureaucratic quality and the proportion of bureaucratic organisations

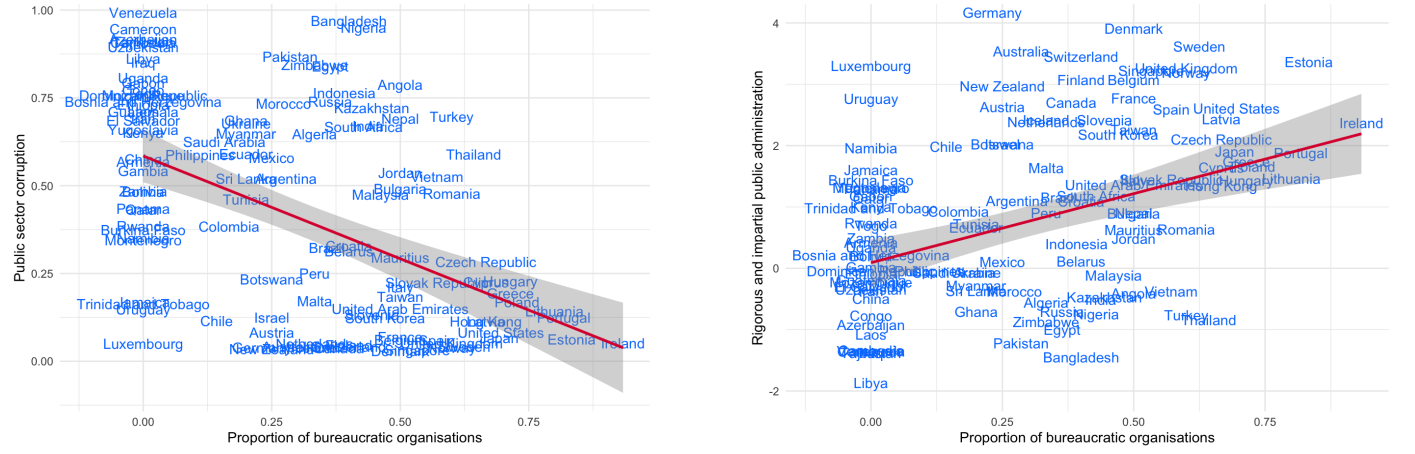
A higher proportion of bureaucratic organisations doing industrial policy is associated with higher bureaucratic quality. The relationships with meritocratic recruitment and the politicisation of access to state jobs indicates this. Here, I confirm this finding using two more direct measures of bureaucratic quality.

These measures are the V-Dem variables ‘rigorous and impartial public administration’ and ‘bureaucratic corruption.’ Figure 10a is the scatter plot of the proportion of bureaucratic organisations and the V-Dem measure of bureaucratic corruption. Figure 10b is the scatter plot of the proportion of bureaucratic organisations and the V-Dem measure of rigorous and impartial administration. Both relationships are in the expected directions and are significant at the 1% level across the original, ‘ECA drop’, and ‘drop’ samples.

For the original sample, the relationships remain statistically significant at the 1% level when controlling for GDP per capita and the number of industrial policy organisations. For the ‘ECA drop’ and ‘drop’ samples with these controls the coefficient on the proportion of bureaucratic organisations is not significant at any conventional level for rigorous and impartial public administration. However, this is not too disheartening given the small sample size of these samples. Additionally, for the ‘ECA drop’

Figure 10: Associations with measures of bureaucratic quality

Notes: 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022). Linear lines of best fit are drawn with a 95% confidence interval.



(a) Scatter plot with proportion of autonomous organisations and bureaucratic corruption

Notes: Bureaucratic corruption is measured using the average value of the V-Dem variable 'v2excrptcs' from 2009-2023 (Coppedge et al. 2024).

(b) Scatter plot with the proportion of autonomous organisations and rigorous and impartial public administration

Notes: Rigorous and impartial public administration measured using the average of V-Dem variable 'v2clrspct' from 2009-2023 (Coppedge et al. 2024).

and 'drop' samples, the coefficient on the proportion of autonomous organisations is significant at the 5% and 10% levels, respectively, for public sector corruption.

Overall, there is strong evidence that there is a relationship between the proportion of bureaucratic organisations and bureaucratic quality that is not entirely driven by differences in income or reporting standards. It is in itself interesting that countries with a higher proportion of bureaucratic organisations have higher quality bureaucracies. This finding also encourages further causal investigation into the effects of using bureaucrats on policy quality.

It is worth noting the variation around the lines of best fit. In Figure 10a, Luxembourg and Chile reveal that politicisation without corruption is possible. On the other hand, in Figure 10a, Bangladesh and Nigeria have higher corruption than the level of politicisation would predict. In Figure 10b, Germany shows that it is possible to have a highly rigorous impartial administration and use a relatively low proportion of bureaucratic organisations. On the other hand, Thailand uses a high proportion of bureaucratic organisations and scores poorly on rigorous and impartial administration.

5.5 Use of bureaucrats and politicians across the world

Figure 11 shows the distribution of the proportion of autonomous organisations across the world. This map is rich with detail that goes beyond the stylised facts I have selected. I highlight the following features on the map.

First, there is huge variation in the proportion of autonomous organisations. Approximately 90% of the Irish and Portuguese industrial policy organisations are run by bureaucrats. There are also many countries, such as China, Iran, and Cameroon that have no bureaucratic industrial policy organisations. It is noteworthy that the global variation is much greater than the variation among Western high-income countries.

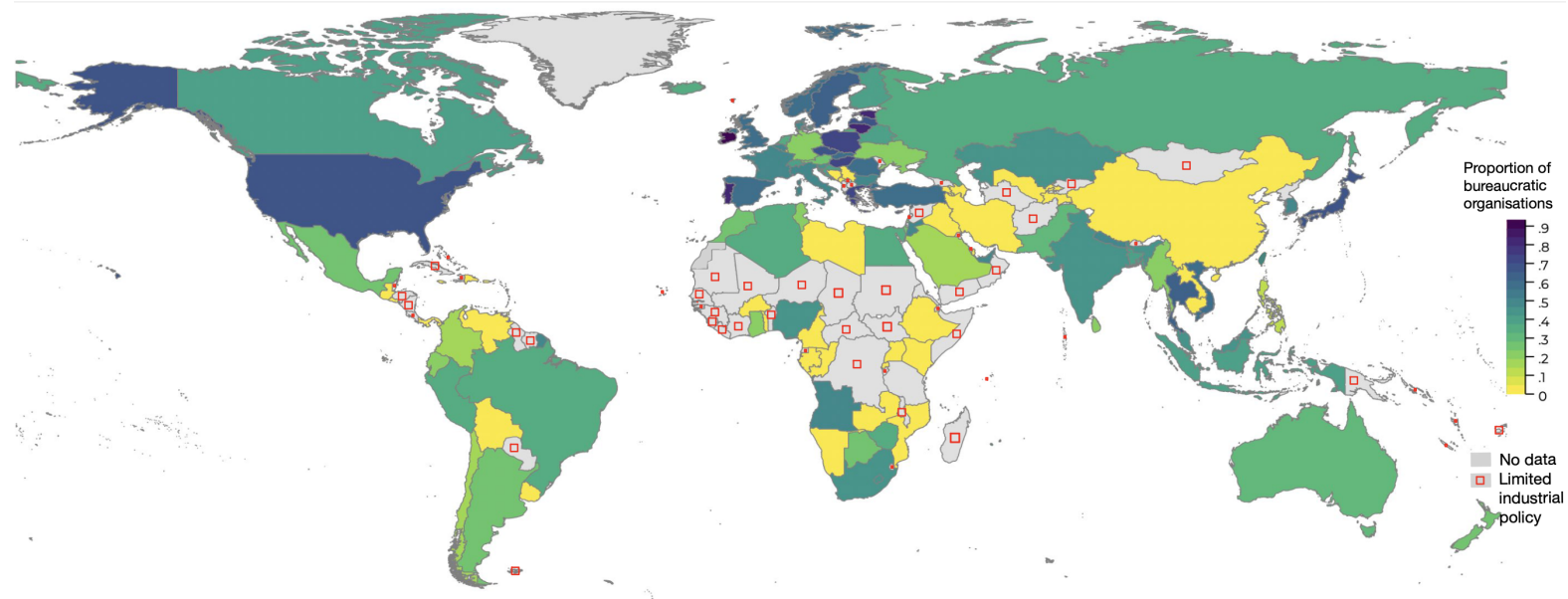


Figure 11: Map of the proportion of autonomous organisations

Notes: There are 871 government organisations doing industrial policy from 116 countries after screening out non-government organisations and standardising the organisation names extracted from the GTA (2009-2023) using supervised machine learning (Juhász et al. 2022).

Second, the map shows regional patterns in the proportion of bureaucratic organisations. European countries have high proportions of bureaucratic organisations. The proportions of bureaucratic organisations in India, Pakistan and Bangladesh are virtually identical. This indicates that historical institutional background is important in the determination of the use of bureaucratic organisations.

6 Conclusion

This paper has produced the first cross-country comparable, scalable measure of whether organisations are run by politicians or bureaucrats. This is a key methodological contribution. This measure enables the analysis of the use of bureaucrats and politicians with large sample sizes including developing countries. I have illustrated the possible insights one can gain with this measure by applying it to organisations designing industrial policy. Future work will further investigate the countries for which there is limited evidence of industrial policy. Nonetheless, the first global analysis of the use of bureaucrats and politicians in designing industrial policy has been instructive.

I have produced the following four stylised facts. First, industrial policy is predominantly political. Second, higher-income countries generally use a greater proportion of bureaucratic organisations than lower-income countries. Third, the proportion of bureaucratic organisations varies considerably over the policy specialism of organisations. Just over 30% of organisations with a specialism in primary commodities are bureaucratic. Nearly 70% of export-import banks are bureaucratic. Fourth, there are positive and statistically significant relationships between the proportion of industrial policy organisations that are bureaucratic and measures of bureaucratic quality.

I hope that these stylised facts inform political economy analyses of industrial policy going forward. The incentives of bureaucrats and politicians differ. Hence, the political economy of industrial policy should differ across income groups and policy areas. Going forward, the BoP method opens up causal investigation of the determinants and effects of the use of bureaucrats and politicians on a global scale.

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