

New monarchs, expropriation risk, and the trade of the English East India Company*

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Abstract

The role of institutional changes in England's precious development is one of the most debated topics in economic history. In this paper, we provide new insights by studying how executive expropriation risks affected shipping investment and trade related to the English East India Company. The narrative history of the Company reveals numerous instances of forced loans, extraordinary taxes, and violations of privileges on the part of the English monarch. Moreover, many of these 'expropriations' occurred in times of political instability. Building on this history, we use changes in the monarchy as a shock to expropriation risk and test for its effects using a new data set on East Indian ships. We show that ships returning to England when there was a change in the monarchy were significantly more likely to exit the trade and had longer turnover times compared to ships that did not return following a change in the monarchy. Moreover, Company-level data shows that changes in the monarchy were associated with lower growth in export revenues and shipping capacity in subsequent years. The econometric evidence is consistent with shocks to executive authority having significant effects on one of the largest and most important companies in the English economy.

Keywords: Institutions, Expropriation risk, Investment, East India Company.

JEL Codes: N4, P1, L9

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1 Introduction

England's precocious economic development during the first industrial revolution is one of the most cited examples of how institutions matter for economic development. For example, in a widely cited text Acemoglu and Robinson (2012) argue that England became rich because it had a revolution in 1688 which transformed its politics and economics. Despite such claims, there is still much disagreement on how to interpret English development. One view is that sovereign promises related to property rights and budgetary policies became more credible following political changes like the Glorious Revolution of 1688.¹ A second view argues that the security of property rights did not change in ways material to development. The second view is broadly supported by the gradual evolution of macro-economic indicators, like interest rates and GDP, even in the wake of major political changes (Clark 1996, Quinn 2001, Broadberry et. al. 2011, Murrell 2017). But the first view has received more support when the focus is on overseas trading companies. For example, Jha (2015) argues that investors in overseas companies believed that executive discretion was contributing to expropriation risk. Their concerns were so great, they were willing to support a Civil War against the monarch.

The political conflict over foreign trade raises a question with implications for the larger debate about institutions and development in England. Was the investment and trade of overseas companies hindered by executive expropriation risk? We address this question in the context of the English East India Company. The English Company or EIC was the most important of all overseas companies. It provided trade between England and all of Asia for over two centuries starting in 1601 and played a pivotal role in establishing the British Empire in India. The EIC is also ideal for studying the effects of executive expropriation risk. The EIC's operations span the reigns of more than 10 English monarchs,

¹See North and Weingast (1989), Acemoglu, Johnson, and Robinson (2005), and Cox (2016) for three prominent studies making this argument.

allowing for a long-run study. More importantly, the EIC's trade was highly dependent on the monarchy. Through its royal charter, the EIC was granted a monopoly over all trade between England and Asia, meaning no other English trader could legally enter this vast market. The rationale for monopoly was similar to public utilities today. Proponents argued that large fixed investments were necessary to create trade between England and Asia and that economies of scale favored a single firm.

While beneficial in principle, the relationship between the monarchy and EIC was far from smooth in practice. One major issue was that the monarch could always renegotiate the EIC's charter. Some monarchs exploited their authority by demanding loans or presents in return for renewing or extending the EIC's trading monopoly. If the EIC's offer was not sufficient, some monarchs allowed or encouraged 'interlopers' to enter their market undermining the EIC's profits. Importantly, the narrative history suggests that renegotiation of the charter, bribes, and the like often occurred when the monarchy changed.

In this paper, we use changes in the monarchy as an exogenous shock to expropriation risk and test how they influenced shipping investment and East Indian trade. The premise is that a monarch should suffer a reputation cost from violating the EIC's rights, but such reputation costs were lower when rights were granted by a previous monarch. Therefore, all else equal, investors in the EIC trade may have believed that violations were more likely when monarchs changed. In terms of timing, most changes in the monarchy were caused by the death and ill-health of the previous monarch. Other monarch changes were caused by Revolutions, but even these were plausibility exogenous with respect to the EIC's trade as they were mainly related to religion and foreign policy within Europe.

The first step in our empirical analysis focuses on ships trading in East Indies, also known as East Indiamen. Due to an early decision by the EIC's directors, most East Indiamen were owned by groups of individuals, who rented them to the EIC for each voyage. There was an understanding between the EIC and shipowners that new vessels would be hired for multiple

journeys. However, the EIC or shipowners sometimes opted out of this implicit contract, resulting in East Indiamen leaving the trade after one or two journeys. Such exits were costly to shipowners because their ships were specially built for the East Indian trade.

Our first regressions examine ship-level decisions to sail or exit the trade depending on whether a ship returned to England around the time of a change in the monarchy. The ship-level data are derived from Farrington's (1999) transcription of the EIC ship books. It provides details on each voyage, including date of sailing to Asia from England and date of return to England from Asia. For each return to England, we create an outcome variable identifying whether the ship permanently exited the trade or sailed again. The main explanatory variable is an indicator if the ship's last arrival occurred within a year of the monarchy changing. The regression also includes fixed effects for ships, number of previous voyages, decade of last arrival, and month of last arrival. The results show that ships were significantly more likely to exit when arriving within a year of a change in the monarchy. The average effect is equivalent to one-third of the overall probability of exiting.

We also test for heterogeneity in the effects of each monarch change. If expropriation risk was the main channel through which changes in the monarchy mattered, we would expect larger effects in the seventeenth century when the literature suggests property rights were at greater risk from political conflict. We find evidence in favor of this argument. Based on the size and significance of the coefficients, the most meaningful changes in the monarchy were associated with the start of the Civil War in 1642 and the Glorious Revolution in 1688. Both of these events were associated with large exits of EIC ships.

Exit was not the only response to changes in the monarchy. Ships might have also spent longer time in port preparing to sail from England to Asia because changes in the monarchy created uncertainty about the earnings of a voyage. Therefore, we also examine how changes in the monarchy affected port turnover times. The specification is similar to the analysis for exit, but focuses only on ships that sailed to Asia. The results show that turnover times were

18% longer when ships last arrived in England around the time of a monarch change. In particular, the execution of King Charles I in 1649 was associated with the greatest increase in turnover times. Given that the arrival of a new Republic in the 1650s almost led to the end of the EIC, this again suggests that the main channel was through expropriation risk.

In the second step of our analysis we study how changes in the monarchy affected shipping capacity and revenues across the entire EIC trade. We use a newly constructed annual time-series on the total shipping tonnage employed by the EIC each year, along with the tonnage added and tonnage exiting in each year. The series are created from ship level data provided in Sutton (1981), Farrington (1999), and Hackman (2001). These series are also merged with Chaudhuri (1976) and Bowen's (2004) annual series on EIC import and export revenues.

The impacts of changes in the monarchy on the shipping and trade of the entire EIC are tested using Vector Auto regression Models. We find that changes in the monarchy Granger Caused the annual growth in shipping capacity and the growth in export revenues. Impulse Response Functions (IRFs) also show that shipping capacity and export revenues declined significantly following a change in the monarchy. Finally, additional IRFs show that decline in shipping capacity largely came through more tonnage exiting the trade. This last pattern is important because it matches with the micro-evidence that ships were more likely to exit if they returned to England around the time of a change in the monarchy.

The main contribution of this paper concerns the effects of executive authority and expropriation risk in England's development. Their economic impacts have long been debated because quantitative evidence is limited. For example, there is no research examining the effects of expropriation risk on firm-level investment, entry, and exit decisions. Such micro-level evidence is important because the alternative view is that expropriation risk had little affect on decisions crucial to economic growth and the industrial revolution (Clark 1996, Murrell 2017). This paper provides new, micro-founded, evidence that the investments of firms directly dependent on the monarchy for their rights were affected by shocks to execu-

tive authority. We think the main channel is through expropriation risk, broadly defined to include a weak commitment to protect exclusive trades. This interpretation is supported by the narrative history and heterogeneous effects by time (i.e. the greater effect of seventeenth century monarch changes).

Our results are also consistent with scholars, like Jha (2015) and Pettigrew (2003), who argue for the centrality of executive discretion in overseas trading companies. Our findings push this argument further by demonstrating that shocks to executive authority affected the investment of the most important overseas trading company.²

This paper also contributes to a vast literature focusing on the EIC, its trade, and larger effects on the global economy.³ Most prior works examine how the EIC and the English government established colonial power in India (Bowen 2005, Stern 2011). Those most related to this paper emphasize the role of English politics in determining EIC's trading privileges (Sutherland 1962, Philips (2013, Bogart 2017) and those studying its business and trading decisions (Chaudhuri 1978, 1993, Erikson 2014). Our paper adds to the literature in two ways. First, we provide new time-series on shipping capacity and a new ship level data set which integrates information from several sources. Second, this paper is the first to empirically analyze the effects of the monarchy on EIC investment and trade earnings.

Finally, this paper contributes to the broader literature on the connection between policy risk, uncertainty, and investment.⁴ It is especially related to policy risks for public-private partnerships or PPPs.⁵ The EIC has some elements of a PPP as it was originally chartered

²The history of infrastructure improvement companies like turnpike trusts and river navigation companies provide another example of how executive authority affected investment (see Bogart 2011).

³See Scott (1912), Chaudhuri (1965, 1978, 1993), Sutherland (1962), Horwitz (1978), Watson (1980), Desai (1984), Carlos and Nicholas (1991), Lawson (1993), Bowen (2005), Hejeebu (2005), Robins (2006), Webster (2009), Stern (2011), Philips (2013), Solar (2013), Erikson (2014), and Bogart (2017) for works on the EIC. See De Vries (2003, 2010), Rei (2011), Gelderblom et. al. (2013), and Dari-Mattiacci et. al. (2014) for comparative works, especially relating to the Dutch Company.

⁴See Julio and Yook (2012), Handley and Limao (2015), Gulen and Ion (2016), Fernandez-Villaverde et. al. (2015), and Baker et. al. (2016) for a sample of works on policy uncertainty and investment. There are also related papers on political instability which tend to use macroeconomic data, including Rodrick (1991), Alesina and Perotti (1996), Svensson (1998), Feng (2001), and Henisz (2002) among others.

⁵See Newberry (2002), Guasch (2004), and Laffont (2005) for overviews of policies towards infrastructure and private partnerships.

to promote trade between Asia and England. Of course, the EIC did not always well serve the public interest, especially in India. Nevertheless its history provide new insights on how policy risk affects PPPs over the long-run.

The rest of the paper is organized as follows. Section 2 provides background on the EIC and its relations with the English monarchy. Sections 3 analyzes ship exit and turnover times. Section 4 analyzes the growth of shipping capacity and revenues across the entire East Indian trade. Section 5 concludes.

2 Background

The English East India Company or EIC was one of several European trading companies operating in the East Indies (i.e. modern day China, India, and Indonesia). They were involved in a triangular trade, in which new world silver was brought to Europe, and then purchased as ‘exports’ to Asia. After arriving in Asia, approximately six months to one year later, the exports were sold and the proceeds were largely used to purchase ‘imports’, like cotton textiles, spices, tea and other goods. Some of the revenues from imports were used to purchase exports in Europe, one or two years later.

In Asia and the wider European market, the EIC competed with Dutch, Portuguese, French, Danish, and Swedish East India companies. Table 1 reports the total shipping tonnages bound for Asia for all companies in each European country. The Portuguese were the leaders in the 16th century. The Dutch leapfrogged the Portuguese in the early 17th century. The English emerged as well, but are in second place. From 1630 to 1730, English shipping tonnage grew, but its share of total tonnage falls. This was mainly due to the continued growth of the Dutch and the emergence of the French trade. The turning point for English trade was the mid-18th century. English tonnage grew faster at that point and was the clear leader in the 1820s.

Table 1: Asian Bound Shipping Tonnage Among European Companies

Period	English	Dutch	Portuguese	French	Danish	Swedish	England
							% of Total
1581-90	0	0	55,419	0	0	0	0
1631-40	31,179	63,970	20,020	3000	4000	0	25.5
1681-90	47,879	130,849	11,650	17,500	4000	0	22.6
1731-40	67,880	280,035	13,200	53,891	12,267	7,368	15.6
1781-90	228,315	243,424	8,250	130,490	63,461	0	33.9
1820-29	859,090	178,000		168,180	22,770	6730	60.0

Source: De Vries (2003, pp. 46-49), Solar (2013, p. 649).

The English monarchy played a crucial role in the EIC's history. The Company was founded by a charter from Queen Elizabeth in 1601. The original charter gave the EIC a monopoly over all trade between the East Indies and England. In addition, it was granted corporate powers, rights to export silver, and assistance from the Royal Navy. The charter also stated that the monarch had the right to collect special duties on East Indian imports, and when necessary the EIC had to follow its foreign policy directives. Importantly, the final clause allowed any provision of the charter to be voided with three years notice, if it was deemed not profitable to the current monarch, its heirs and successors, or to its realm (see Hill 1887 for details on the charters).

The narrative history on the EIC suggests that several monarchs exploited their legal power over the EIC. For example, several monarchs demanded loans, often under the threat of charter renegotiation. Table 2 lists what can be termed 'forced loans' from 1641 to 1744.⁶ Notably several forced loans were made in times when executive power was changing. The loan in 1641 to Charles I came just before the Civil War between the monarchy and parliament. The loan in 1643 to the Long Parliament happened during the Civil War. The loan in 1659 to the Council of State was made shortly after the death of Oliver Cromwell, England's leader during its brief Republic. Finally, the loan in 1662 to Charles II came two years after the Restoration of the Monarchy in 1660.

Table 2: Forced Loans and Repayments to the EIC before 1750

⁶These cases are summarized in Bogart (2017).

Year	Amount	Description
1641	£63,283	Charles I forces Company to give its pepper stock. £31,500 unpaid
1643	£6,000	Loan to Committee of Navy in Long Parliament. Repayment unknown
1655	£50,000	Loan to Council of State. £46,000 unpaid
1659	£15,000	Loan to Council of State. Canceled at Restoration
1662	£10,000	Loan to Charles II. Repayment unknown
1666	£50,000	Loan to Charles II. Repaid in 1667
1667	£70,000	Loan to Charles II. Repayment unknown
1676	£40,000	Loan to Charles II. Repaid in 1678
1678	£110,000	Loan to Charles II. Repaid in 1679
1698	£2,000,000	Loan to William by New East India Company. Redeemed in 1793
1708	£1,200,000	Loan to Anne. Redeemed in 1793
1744	£1,000,000	Loan to George II. Redeemed in 1793

Source: Loans are described in Bogart (2017).

Besides loans, some monarchs also demanded financial payments from the EIC or levied new taxes on its trade. Sometimes the EIC offered gifts to the monarchy, which could be interpreted as bribes to protect its monopoly. Table 3 shows all tax levies, financial demands, and known bribes paid to the monarch by the EIC from 1620 to 1730. The long list shows they were common. Also several occurred in the wake of changes in the monarchy. The gift to the new King Charles II in 1660 is one example. The additional import duties imposed by the new King James II in 1685 is another example. Two other examples include the additional dues levied by the new King William shortly after the Glorious Revolution in 1688, and those imposed by Queen Anne, shortly after the start of her reign.

Table 3: Financial demands, bribes, and tax levies on the EIC before 1730

Year	Description
1620	James I demands £20,000 payment following the Company's capture of Ormuz
1636	Duties on pepper imports increased by 70%
1660	Gift of £4000 to Charles II and James II at Restoration
1681-88	Annual Gift to King of 10,000 guineas
1685	Additional duty of 10% on imports of Indian linens and silks
1690	Additional duty of 20% on East Indian imports
1692	Tax of 5% on value of Company's stock
1692-95	Gifts to King and bribes to MPs estimated at £200,000
1697	Additional duty of 5% on imports of Indian linens and silks
1703	Additional duty of 5% on imports of Indian linens and silks
1730	Payment of £200,000 to government to renew charter

Source: Financial payments are described in Bogart (2017).

The monarch's support or tolerance of interlopers presented yet another problem for the EIC. Interlopers were traders seeking to enter the Asian market and capture some of the EIC's profits. A list of all documented interloper cases prior to 1760 is provided in table 4. Several interlopers offered bribes to the monarch in order to gain market access. The monarch would then leverage these bribes to extract more from the EIC. Kings James I employed this strategy immediately after becoming King in 1604. The entry by the Assada Adventurers in 1648 shortly before the execution of King Charles I is similar, although here interlopers were appealing to the Long Parliament then in power.

Table 4: Interloper Challenges to the Monopoly

Year	Description
1604	James I gives charter to interlopers to trade in Asia
1607	James I gives interlopers license to discover Northern passage to Asia
1617	James I gives Scottish East India Company charter to trade in Asia
1635	Charles I gives Courteen Association license to trade in Asia
1637	Charles I gives Courteen Association charter to trade in places with no EIC factories
1649	Assada Adventurers appeal to Council of State for voyage to Asia
1658	Richard Cromwell gives interloper license to trade in Asia
1681	Interlopers linked to Whigs petition Charles II to form a rival joint stock company
1689	Interlopers led by Papillion petition William to dissolve EIC and incorporate new
1695	Act of Scottish Parliament gives Darien Company license to trade in Asia
1698	Act of Parliament authorizes new East India Company with monopoly trading rights
1730	Interlopers petition Commons to form company licensing trade to India for a fee
1758	Tea dealers petition Treasury for licenses to import tea from China

Source: Interloper cases are described in Bogart (2017).

The Glorious Revolution of 1688 is perhaps the best example of the link between changes in the monarchy and interloper threats to the EIC's monopoly. The Revolution saw the overthrow of King James II by William of Orange, who received the help of English elites hostile to James II's rule. In the wake of this major change in government, several interlopers became influential in parliament. Starting in 1689, they lobbied the new King William to enter the East Indian trade. The interlopers were unsuccessful at first. The EIC was able

to maintain its monopoly up to 1695 by making significant bribes to the monarch and government ministers.

The interloper challenge re-emerged in 1697 when King William desperately needed a war-time loan. The EIC offered the King £0.7 million at 4% interest. An interloper syndicate offered £2 million at 8% interest with the expectation that they would get the monopoly. To put these figures into perspective, the net value of the EIC's assets were a little over £1 million in 1695, and its annual exports plus import revenues were approximately £0.5 million.⁷ King William accepted the larger offer of the interlopers, and, by an Act of Parliament in 1698, monopoly rights over the trade were given to a 'New' East India Company. The 'Old' EIC was supposed to wind up by September 1701. However, the Old EIC began a successful lobbying campaign to re-establish its trading rights. Early in 1702, King William approved a merger between the New and Old Companies. The merger took several years to implement and was only finalized in 1709 following a £1.2 million loan to Queen Anne.⁸

The events of the early 1700s led to a notable legal change concerning the EIC's monopoly. For the first time in 1712, an Act of Parliament sanctioned a single East India Company with a monopoly over all trade between Britain and Asia. The 1712 Act stated that the monopoly would last at least until the year 1733. Several more Acts in the eighteenth century would extend the monopoly to longer terms. This series of Acts had two important consequences. First, the monarch could no longer unilaterally threaten to end the EIC's monopoly as in the seventeenth century. Now the monarch would need to gain the consent of the House of Commons and House of Lords. Second, if the law was followed, the EIC

⁷Assets and liabilities are taken from Scott, *Constitutions and Finance*, (1912 Vol II, pp. 123-128, 177-179). Chaudhuri (1978) provides data on export and import revenues, which together I define as sales.

⁸For a full discussion of these events see Scott (1912, pp. 150-189). The forced loan of 1709 was not the last extraction of the 18th century. In 1730 and 1744 parliament and the monarchy secured additional loans or payments from the EIC. The 1730 event is notable because it coincided with a proposal by interlopers to transfer the monopoly to a new company (Sutherland 1962, p. 29). The EIC got an act of parliament extending its monopoly trading rights to at least 1769. In return the Company made a £200,000 payment to King George II and accepted a lower interest rate on the £3.2 million debt owed to it by the government.

monopoly could only be ended when its charter came up for renewal. At these moments, the EIC's connections to the monarchy were crucial. The House of Commons could be hostile to the EIC's monopoly, especially when influenced by the growing free trade interest.

By the mid-eighteenth century the monarchy posed less expropriation risk for the EIC. Nevertheless, the monarchy was still important to the EIC because it appointed the key ministers, who controlled majorities in the Commons. The continuing significance of the monarch is evident in the events that led to the end of the EIC's monopoly over the Chinese trade. The details are informative on how politics changed in England. The Chinese monopoly was due to expire in 1833 unless renewed by an act of parliament. In 1829 the government, led by the Duke of Wellington, signaled an interest in ending the China monopoly. But the outcome was not certain as the EIC still had strong connections to the government in power. Then King George IV died in June 1830, leading to the formation of a new government under Lord Grey. As it turned out Grey's government was more critical of the monopoly and less connected to the EIC. The new government under Grey worked successfully to end the EIC's China monopoly in 1833. In fact, it ended the EIC as a commercial body.⁹

The importance of politics in the long history of the EIC is nicely summarized by Philip Lawson (1993, p. 74) "...when the EIC experienced its worst troubles, there was matching instability in national politics." Troubles came in the form of forced loans, extraordinary tax levies, tolerance for interlopers, and attacks on the monopoly. The association between political instability and expropriation risk makes sense in theory as well. If monarchs are constrained from expropriation due to reputation costs of revoking their own agreements, then a change in the monarchy should increase expropriation risk because there is less reputation loss from revoking a previous monarch's agreement, especially one made in different circumstances or by a different dynasty.

If one accepts the premise that changes in the monarchy led to higher expropriation

⁹This case is discussed by Phillips (1961), Webster (2009), and Kumagi (2012).

risks for the EIC, then how will the EIC and its business partners respond? The literature on credible commitment suggests they will invest less because their expected profits would be lower.¹⁰ The literature on investment under uncertainty also suggests the EIC and its partners might delay irreversible investments because there is an option value to waiting and learning how the new monarch will behave.¹¹ The rest of the paper examines these responses with a focus on shipping investments.

3 New monarchs, ship exit, and turnover time

Most ships in the East Indies trade were owned by individuals, who rented their ships to the EIC for a fee. So-called East Indiamen were generally larger than other ships in the English fleet and so they were best suited to the East Indian trade. Chaudhuri (1993) notes there was an agreement that ships would be hired for multiple voyages, presumably to avoid a hold-up problem. This agreement was probably enforceable given the strong ties of shipowners and EIC directors, but the details are not known. While the typical agreement was for a ship to sail four times in the late 17th century, in practice, many ships sailed only once to Asia. Many others sailed only two times. This is true even for those who returned to England from an Asian voyage. Therefore, it appears that some ships ‘exited’ the trade. For the ships that remained in the trade, there was wide variation in the time between their arrival from Asia and their next departure from England. A longer stay was sometimes needed as ships had to be repaired, new captains found, and new plans made. However, many ships stayed in England for several years, more than would be expected for repairs and planning.

Our first hypothesis is that ship exit decisions were affected by changes in the monarchy. Following such an event, the expected earnings on a ship might decline, in which case the

¹⁰See Persson and Tabellini (2002, ch. 12) for a review of the literature on commitment problems.

¹¹See McDonald and Siegel (1986), Caballero (1991), Rodrick (1991), Dixit and Pindyck (1994), Abel and Eberly (1994), and Bloom et. al. (2007) for theoretical models on investment and uncertainty.

shipowner may want to exit the trade prematurely. It is also possible that the EIC canceled the contract with the shipowner, because it was not profitable to the Company. Our second hypothesis is that changes in the monarchy led to longer turnover times. Once a ship sailed for Asia, it could not easily turn back due to winds. Thus sailing was an irreversible investment, implying there was an option value associated with waiting to sail. If sailing turned out to be unprofitable, say due to expropriations by the monarch, then by waiting the shipowner could discover that state of the world, meaning the monarch's type. If the monarch was found to be credible, they could sail later with greater certainty of earning a profit. If the monarch was not credible, they could exit the trade or devise a strategy to retain their profits.

In order to examine these hypotheses, we use Farrington's (1999) data appendix on EIC ships.¹² Farrington lists departure and arrival dates for 1,474 ships in the service of the EIC between 1601 and 1834. Farrington also provides the arrival dates for all ports of call on a voyage. Many ships in Farrington's data did not return to England on their last voyage because they sunk due to weather, accident, or were taken by enemies. For the analysis of exit and turnover time, we select all ships that sailed from England on their first voyage and returned to England on their last voyage. Therefore we know these ships exited because of a choice made by the shipowner or the EIC. As an outcome variable, we create an indicator equal to 1 if the ship exited the EIC trade and 0 if it sailed again to Asia. The final exit indicator in every ship's panel is 1 and all previous values, if any, are 0. We also record the number of previous voyages for each ship, the date of arrival from the previous voyage, and the date of departure if the ship did sail to Asia (i.e. the exit indicator is 0). The difference between the arrival and departure dates, measured in days, is what we call the turnover time. In total, we observe 3,043 exit/sail observations across 840 ships between 1601 and 1834. There are 2,189 observations on turnover time for 606 ships between 1601 and 1834.

Crucial to this analysis is an accurate classification of ship exit in England, rather than

¹²I thank Emily Erikson for kindly sharing a digitized version of Farrington's data on ships.

exit in Asia. Fortunately, there is another source to confirm the coding of ship exit in England. Hackman (2001) provides a data appendix with lists of ship voyages, including their departure and arrival dates in England. Hackman's information is similar to Farrington, but it is especially detailed on the reasons for ship exit. It identifies most sinking due to weather, accidents, or by foreign navies, pirates, and privateers. We match the ships in Hackman and Farrington based on name and dates of sailing. The match rate for 489 Hackman ships from 1600 to 1708 is 75% and the match rate for 865 ships from 1708 to 1834 is 96%. Thus most of Hackman's ships are matched after 1708.¹³ Moreover, in comparing Farrington and Hackman, we find that in most cases where Farrington does not record a final return to England, Hackman reports the ship was sunk or lost. But there are some cases where Hackman alone reports an exit due to enemy attacks. To be safe, we exclude these ships identified by Hackman since our ideal sample contains commercially viable ships that exited after returning to England. We also exclude all exits that occurred in 1833 and 1834 following an Act of Parliament that ended the EIC as a commercial company. These years were extraordinary in that all returning ships exited the trade. In other words, there was no possibility of sailing again as an EIC ship.

The date when the ship arrived back in England, before exiting or sailing again, identifies exposure to periods when the monarchy changed. The dates of changes to the monarchy are listed in table 5 and are based on political histories (Holmes 1993, Holmes and Szechi 1993, Evans 2014). Dating is straightforward in many cases because they are due to deaths. But others like the Civil War, Restoration, and Glorious Revolution are more complex. The Civil War (1642-1648) and Interregnum (1649-1659) periods are particularly difficult because it is not clear who held executive power. In the baseline specification, we code the monarchy as changing with the beginning of the Civil War on 22 August 1642 and the execution of

¹³Before 1708 many unmatched ships in Hackman were built in India and did not sail to England more than once. Many were also sent to Asia, it appears with the intention to remain their permanently. Some unmatched ships were surveyed but their charter was not taken up. Others simply had little accompanying information in Hackman.

Charles I on 30 January 1649. The coding is arguably more precise followed the death of the Lord Protector, Oliver Cromwell, in 1658. The Restoration of the Monarchy is dated as occurring on 4 April 1660 when Charles II issued the Declaration of Breda. The reign of King William is assumed to start on 23 December 1688 when James II fled England. In all subsequent cases, the monarchy changed with the deaths due to ill health.

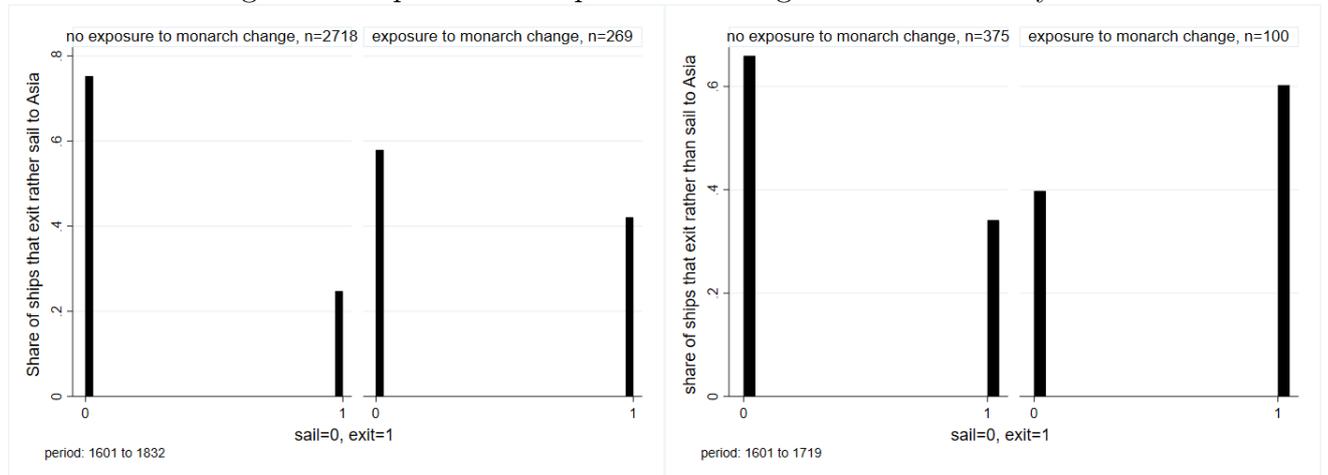
Table 5: Dates of monarchy change, 1625 to 1830

Year	Description
3/27/1625	Death of King James I
8/22/1642	Start of the English Civil War
1/30/1649	Execution of King Charles I
4/4/1660	Restoration of Charles II, specifically the Declaration of Breda
2/6/1685	Death of King Charles II
12/23/1688	Glorious Revolution, specifically King James II flees England
3/8/1702	Death of King William III
8/1/1714	Death of Queen Anne
7/27/1727	Death of King George I
10/25/1760	Death of King George II
1/29/1820	Death of King George III
6/26/1830	Death of King George IV

Source: Dates are derived from Holmes (1993), Holmes and Szechi (1993, and Evans (2014).

In the regressions, we use a two-year time window to measure exposure to changes in the monarchy. In the baseline, the window is defined as 365 days before the date of change and 365 days after the the date change. In an alternative coding, the time before continues to be 365 days but the time after is adjusted to include one full sailing season. The sailing season lasted from November to May because of wind patterns. Some monarch changes occurred before the season, say from June to October. In that case, we assume the window after the date of change extends to May 31 of the next season. If the monarch change occurred in the middle of the season (November 1 to May 31) the window after the date of change extends to May 31 of the next season. Therefore, the ‘one-year-before, one-season-after’ exposure window allows monarch changes to have effects during a full sailing season after the event date.

Figure 1: Ship exit and exposure to changes in the monarchy

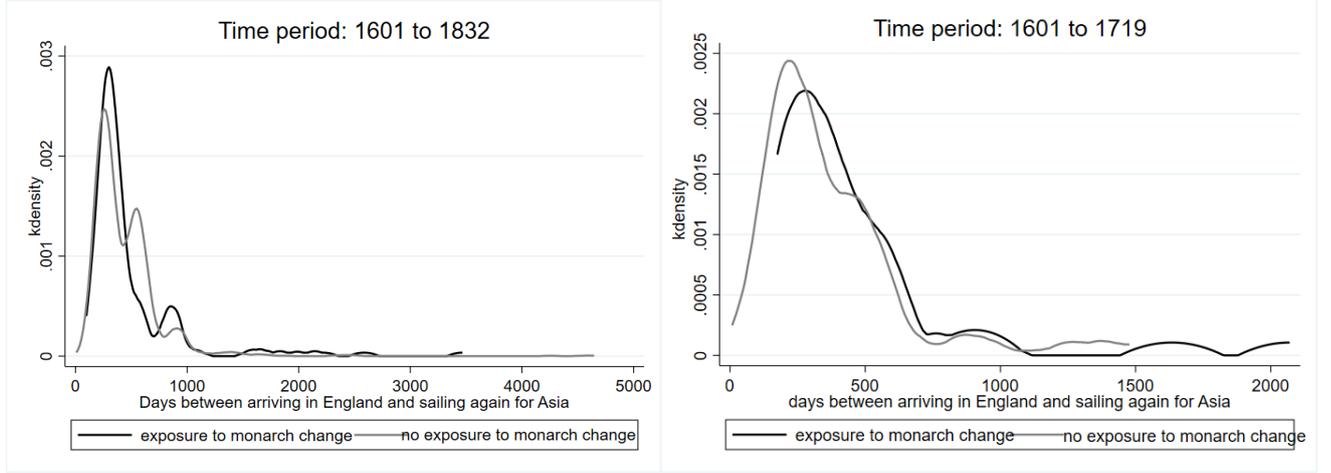


Some summary statistics illustrate the key patterns. The mean number of ship voyages from England to Asia and back was 3.66. The mean probability that a ship exited the trade conditional on returning to England from Asia at least once is 0.271. On average, ships that returned to England during a change in the monarch were more likely to exit than ships that returned to England in other times. This pattern is illustrated in the left graph of figure 1 for the entire time period. Ships were always more likely to sail than exit, but a higher share exited when exposed to changes in the monarchy. The effects of exposure were much larger in the period before 1720. In fact, ships were more likely to exit than sail when exposed (see the right graph of figure 1).

It was also the case that turnover times were longer if a ship was exposed to changes in the monarchy when they returned from England during their last voyage. This feature is illustrated in Figure 2, which plots kernel density estimates for turnover times depending on exposure. While there is wide variation in both cases, the density has more rightward mass during years of exposure. The difference is more evident for changes in the monarchy before 1720 (see the right graph of figure 2).

The effects of changes in the monarchy are tested more formally using regressions. The baseline specification is a fixed (FE) linear probability equation,

Figure 2: Ship turnover times and exposure to changes in the monarchy



$$exit_{ik} = \alpha_i + \beta MonarchChange_{ik} + VoyageFE_{ik} + DecadeFE_{ik} + MonthFE_{ik} + \varepsilon_{it} \quad (1)$$

where $exit_{ik}$ is an indicator equal to one if ship i exits after k previous voyages and 0 if it sails to Asia again, α_i is a ship fixed effect, $MonarchChange_{ik}$ is an indicator equal to 1 if ship i 's arrival date in England from its k th previous voyage is in the time window surrounding changes in the monarchy, $VoyageFE_{ik}$ are fixed effects for the number of previous voyages with 15 as the maximum, $DecadeFE_{ik}$ are fixed effects for the decade in which the last arrival occurred, where decades are defined as 1600–09, 1610–19, ..., 1830–39, and $MonthFE_{ik}$ are fixed effects for the month of the last arrival in England. The ship fixed effects capture ship-specific unobservables that might be associated with changes in the monarchy. Including the number of previous voyages is important because the vintage of ships may be related to changes in the monarchy. The decade fixed effects capture general trade effects that evolve with time and were possibly correlated with political instability. The month of last arrival fixed effects could also matter, since the next departures might be delayed if a ship arrived in the middle of season and was not ready to sail quickly.

The specification in (1) is intended to be similar to a difference in difference regression.

The ‘treatment’ group are ships that arrived back in England from their previous voyage in time window of instability (generally one year before or after the day of change). The control group are ships arrived in England from their previous voyage in the same decade and after the same number of previous voyages, but the previous arrival was not within the instability time window. The identifying assumption is that the ship’s arrival date in England is exogenous with respect to a change in the monarchy once all the fixed effects are accounted for. This assumption is plausible given that weather and events in Asia determined the length of a voyage and made it difficult for captains to time their arrival in England.

The results from several regressions are shown in table 6. In all specifications, the standard errors are clustered on ships. The baseline specification shows that the probability of exit increased by 0.091 when a ship’s previous arrival occurred during a change in the monarchy. The estimated effect is reasonably large. The mean probability of exit was 0.271, implying instability has an exit effect equal to around one-third of the mean. Column 2 shows that the alternative definition of the exposure window to include one full season after the date of change does not significantly affect the estimate. Column 3 shows that dropping ships arriving before 1659 (i.e. before the Restoration) does not affect the estimates either. In fact, there are only 50 sail/exit observations to analyze before 1659. Column 4 shows the effects are larger when the period is restricted to ships that returned to England before 1720. In this period, the mean probability of exit was 0.39, implying a 0.16 increase in the probability of exit represents around 40% of the mean.

Table 6: Monarch changes and ship exit

Dep. Variable=1 if ship exits and 0 otherwise	(1)	(2)	(3)	(4)
Variable	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)
Monarch Change (1 year before, 1 year after)	0.091 (0.034)***			
Monarch Change (1 year before, 1 season after)		0.081 (0.032)**	0.083 (0.032)***	0.165 (0.067)***
Ship fixed effects	Y	Y	Y	Y
FEs number of previous voyage	Y	Y	Y	Y
FEs decade of previous arrival	Y	Y	Y	Y
Drop ships arriving before 1659	N	N	Y	N
Drop ships arriving after 1720	N	N	N	Y
N	2,987	2,987	2,937	475
R-squared	0.477	0.476	0.478	0.546

Notes: The standard errors are clustered on ships. *, **, *** indicates significance at the 10%, 5%, and 1%.

A similar model is run using a dummy variable for the exposure window of each monarch change. The coefficients are not reported to save space. Six of twelve monarch changes were associated with a significantly higher probability of exit. The largest coefficients were associated with the start of the Civil War in 1642 and the Glorious Revolution of 1688. That fits with the narrative history of the EIC, which points to the importance of these events and their implications for expropriation risk.

The next regression tests whether changes in the monarchy increased turnover times, conditional on the ship choosing to sail (i.e. when the exit variable is zero). The turnover time is measured in days and is right-skewed due to some long turnovers. Therefore, we use the natural log of turnover time as the outcome variable. The log minimize outliers and the coefficients can be interpreted as an elasticity. The specification is the following:

$$\log(\text{turnovertime})_{ik} = \alpha_i + \beta \text{MonarchChange}_{ik} + \text{VoyageFE}_{ik} + \text{DecadeFE}_{ik} + \text{MonthFE}_{ik} + \varepsilon_{it} \quad (2)$$

where turnovertime_{ik} is the natural log of turnover time in days for ship i with k previous voyages. The right hand side variables are the same as (1).

The results on turnover times are shown in table 7. In all specifications, turnover time is estimated to be significantly higher when a ship's last arrival occurred during a change in the monarchy. The coefficient implies the turnover time increased by 15 to 18%. The effects are slightly larger for monarch changes before 1720, consistent with the heterogeneity for exits.

Table 7: Monarch changes and ship turnover times

Dep. Variable=log turnover time in days	(1)	(2)	(3)	(4)
Variable	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)
Monarch Change (1 year before, 1 year after)	0.178 (0.047)***			
Monarch Change (1 year before, 1 season after)		0.153 (0.051)**	0.154 (0.052)***	0.179 (0.104)*
Ship fixed effects	Y	Y	Y	Y
FEs number of previous voyage	Y	Y	Y	Y
FEs decade of previous arrival	Y	Y	Y	Y
Drop ships arriving before 1659	N	N	Y	N
Drop ships arriving after 1720	N	N	N	Y
N	2,189	2,189	2,162	277
R-squared	0.106	0.105	0.107	0.217

Notes: The standard errors are clustered on ships. *, **, *** indicates significance at the 10%, 5%, and 1%.

4 New monarchs, EIC shipping capacity, and revenues

The previous section provides evidence that changes in the monarchy affected trading decisions at the ship-level. This section examines the effects of changes in the monarchy on shipping capacity and revenues for the whole EIC trade. The goal is to see whether the micro and macro evidence coincide and also to assess the effects of monarch changes on East Indian trade. We begin by constructing a new time series on EIC shipping capacity, drawing mainly on two published sources. As noted above, Farrington (1999) provides data

on departure and arrival dates for 1,474 ships from 1601 to 1834. Sutton (1981) also provides a list of 1,236 EIC ships from 1601 to 1834. Sutton's data includes ship name, tonnage, number of voyages, first and last year of sailing from England, and its ownership status including identifiers in the 1690s for New Company ships.¹⁴

We combine information from Sutton and Farrington to get a comprehensive series based on all known ships that sailed from England to Asia. The starting point is Sutton's list of 1,236 ships because it includes only those ships that sailed from England to Asia. Next a match is made to Farrington based on ship name and years of sailing. The match rate is 94%. We retain the 6% of ships in Sutton, absent in Farrington, to err on the side of including more ships in the English-Asian trade rather than less. Next we add 182 ships in Farrington without a match in Sutton, again to err on the side of including more ships. In total, 1,419 ships are identified in either Sutton or Farrington. It should be noted that Sutton and Farrington omit so-called licensed ships, which sailed to India after the monopoly ended there in 1813. Therefore our list of 1,419 ships includes all known types of ships sailing from England to Asia before 1813, and most but not all types after 1813.

A time series on total capacity is constructed by summing tonnage across 1,419 ships potentially employed by the EIC in each year. There are some assumptions in this series. First, ships are assumed to be employed the first year they sailed and one year after their last sailing given that voyages generally lasted two years. For example, the African was a 240 ton ship which first sailed from London in 1660 and for the last time in 1664. The African's 240 tons are recorded from 1660 to 1665. Second, Sutton reports tonnage for 98% of the ships, while Farrington reports tonnage for 83% of ships. We use Sutton's tonnage because it is more consistently reported. Tonnage is estimated using the average for ships that first sailed in that year if it is not reported in either Sutton or Farrington. Third,

¹⁴Sutton (1981) relies on Krishna (1924) to identify ships from 1601 to 1672. Krishna uses a variety of sources, but in the period under study here (1660-1673) two main sources are used: Home Miscellaneous Vol. 15 and Court Book 25a (see Krishna p. 332). From 1673 Sutton uses information from Ship Book, East India Company Records Vol. II at the British Library.

Sutton dates the voyage by the calendar year when the fall sailing season started. Instead, we date the voyage as belong to the end of the season. Thus if Sutton dates a ship as sailing in year 1745 (corresponding to the season starting in November 1745 and ending in May of 1746), we assign it as sailing in 1746. This makes the dating of annual sailings match the dating of revenues, which will be introduced shortly.

We construct additional series to measure the yearly change in shipping capacity. The first is tonnage added, which is the tonnage of all ships entering the employment of the EIC in a given year. The second is tonnage exiting based on the tonnage of all ships that left the employment of the EIC in the previous year. A third series is the tonnage exiting because of sinking, either due to weather or because of enemy attack. These exits are identified from the ship-level matching with Hackman (2001), who details most exits by sinking or attack. Annual rates are calculated by dividing either (1) tonnage added, (2) tonnage exiting, or (3) tonnage exiting because of sinking by the stock of tonnage in the previous year. We also use the log difference in total shipping capacity as an overall measure of the annual change in all EIC shipping capacity. It is similar to difference between the rate of tonnage added and the rate of tonnage exiting.

4.1 EIC import and export revenues

In a famous book on the EIC's trade, Chaudhuri (1978) uses the EIC's accounts to build a series on the value of total exports of commodities and treasure to Asia from 1660 to 1760 (p. 507). In later and equally important work, Bowen (2005, 2007) constructed a series on the value of all commodity and silver exports from 1760 to 1834 (series 12) and the value of total Asian imports from 1761 to 1834 (series 16). We combine the Bowen and Chaudhuri series to study EIC import and export revenues over a long time span.¹⁵ As the two series were created independently, it is important to check their comparability. Chaudhuri and Bowen's export series share one observation in 1760. The figures are fortunately close. The

¹⁵In Chaudhuri and Bowen, the accounting year for sales runs from 1 July to 30 June, and the year refers to the date on 30 June.

import series do not overlap in time, but the numbers in neighboring years are similar. This gives confidence that a single series on exports and imports is suitable for econometric analysis.

The series for import revenues, export revenues, and shipping capacity between 1660 and 1832 are plotted in logs in figure 3. There are several notable patterns. First, all three series exhibit volatility in late seventeenth century when there frequent and important changes in the monarchy. Second, fluctuations in import and export revenues differ by one or two years. As observed by Chaudhuri (1978), past import revenues were used to pay for exports each season and exports were used to pay for imports in current and future seasons. Third, in terms of their statistical properties, the log of shipping capacity, imports, and exports are all non-stationary. Moreover, there is a co-movement between shipping capacity and both revenue series. Johansen tests indicate that the log of shipping capacity was co-integrated with the log of exports and with the log imports. There is some evidence for co-integration among all three variables, but the test statistic is only significant at the 10% level.

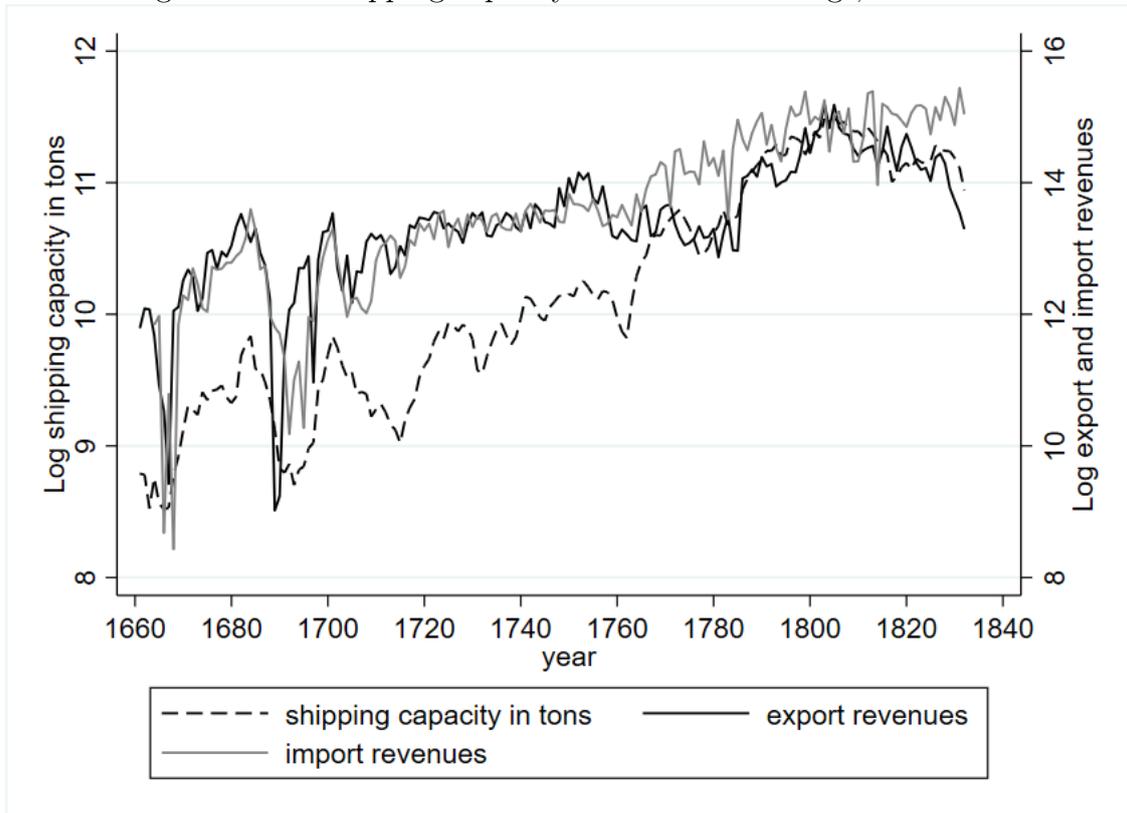
4.2 A VAR model of new monarchs, shipping, and revenues

In this sub-section, we use Vector Auto-regression (VAR) models to test how shipping capacity, import revenues, and export revenues were affected by changes in the monarchy. To capture the inter-dependencies between shipping and revenues, we estimate a four-variable VAR model shown in equation (3),

$$y_t = \Phi_1 y_{t-1} + \Phi_2 y_{t-2} + \varepsilon_t \quad (3)$$

where y_t is vector with (1) an indicator for years when the monarch changed, (2) log difference in shipping capacity, (3) the log difference in export revenues, and (4) the log difference in import revenues. Analyzing the log differences makes it easier to interpret test statistics

Figure 3: EIC shipping capacity and revenues in logs, 1660-1832



since these variables are all stationary, while their log levels are not. Moreover, the first differences model is appropriate because the main hypothesis is that changes in the monarchy led to short-run responses by shipowners and the EIC. The VAR specification in (3) has two lags, as recommended by several lag order selection statistics including the final prediction error (FPE), Akaike’s information criterion (AIC), and the Hannan and Quinn information criterion (HQIC). The four variable VAR model produces a good fit for the log difference in export revenues, import revenues, and shipping capacity. The R-squares for each equation are 0.13, 0.37, and 0.15. The model does not explain monarchy changes with an r-square is 0.03.

Granger causality test statistics for each of the equations in the four-variable VAR are shown in table 8. They show changes in the monarchy Granger Cause the log difference in shipping capacity and the log difference in export revenues. However, changes in the

monarchy do not Granger Cause the log difference in import revenues. Instead, the log difference in shipping capacity and export revenues Granger Cause the log difference in import revenues. Lastly, the log difference in imports Granger Causes the log difference in exports, revealing a mutually reinforcing relationship between imports and exports.

Table 8: Granger causality tests for the four-variable VAR

Null Hypotheses	Chi-square	Deg. Freed.	P-value
Change in the monarchy does not GC the log difference in shipping capacity	5.214	2	0.074
Log difference in exports does not GC the log difference in shipping capacity	1.667	2	0.435
Log difference in imports does not GC the log difference in shipping capacity	3.056	2	0.217
Change in the monarchy does not GC the log difference in exports	9.719	2	0.008
Log difference in shipping capacity does not GC the log difference in exports	0.072	2	0.965
Log difference in imports does not GC the log difference in exports	6.056	2	0.048
Change in the monarchy does not GC the log difference in imports	1.468	2	0.480
Log difference in shipping capacity does not GC the log difference in imports	9.669	2	0.008
Log difference in exports does not GC the log difference in imports	7.084	2	0.029
Log difference in shipping capacity does not GC the change in the monarchy	1.869	2	0.393
Log difference in exports does not GC the change in the monarchy	3.465	2	0.177
Log difference in imports does not GC the change in the monarchy	0.216	2	0.897
N			166

Notes: The tests are based on series described in the text.

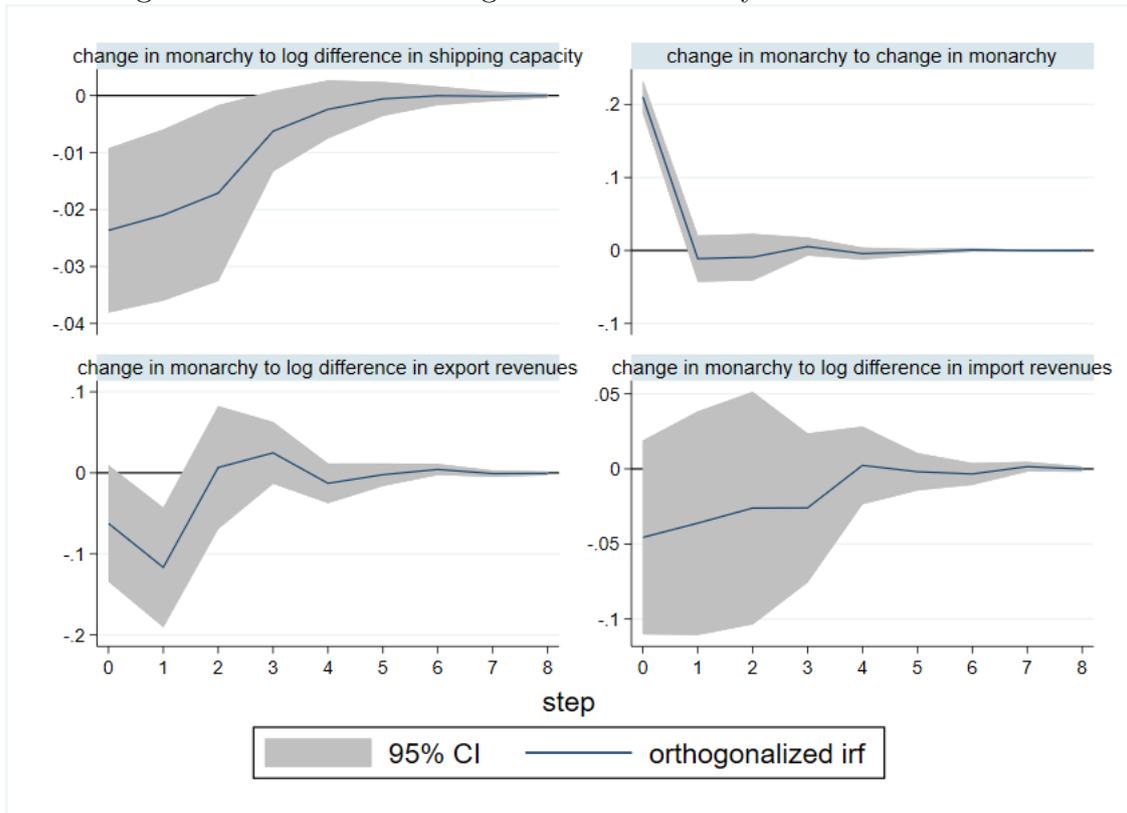
The VAR model can yield a causal interpretation if one makes some additional assumptions on the ordering of variables via a Cholesky decomposition. Our first assumption is that shocks to import growth in year t did not affect export growth, shipping growth, and changes in the monarchy in year t . This is reasonable as most shocks to imports occurred in Asia and took time to be felt in England where decisions on exports and shipping were made. The second assumption is that shocks to export growth in year t did not affect shipping growth and changes in the monarchy in year t . This assumption is plausible if shipowners were slow in adjusting their fleet in response to export supply shocks. This second assumption is also supported in the Granger Causality tests which show that exports did not Granger Cause shipping. The absence of contemporaneous impact on changes in

the monarchy is assumed given the latter was largely exogenous. Finally, we assume that shocks to shipping growth in year t did not affect changes in the monarchy in year t . Again this is plausible since changes in the monarchy are thought to be largely exogenous. The ordering of the VAR model is the following: (1) changes in the monarchy, (2) growth in shipping capacity, (3) growth in exports and (4) growth in imports.

Building on these assumptions and the VAR estimates, we plot orthogonalized impulse response functions (OIRFs) showing how a change in the monarch change affected the three other variables. The gray bands in Figure 4 show the 95% confidence interval for the OIRFs. The results confirm that changes in the monarchy were a negative shock for at least two variables. The growth in shipping capacity fell when there was a change in the monarchy and remained below its long-run mean for 3 years. Export revenues fell sharply in the first two years after the change and then returned to its long-run mean. Import revenues declined as well after a monarchy change, but the estimated effect is less precise as seen by the wider confidence intervals.

What do these results imply about changes in the monarchy and the East Indian trade? The negative effect on export revenues could be due to the fiscal extractions that often followed changes in the monarchy. For example, the extractions that followed the Glorious Revolution and the death of Queen Anne required revenues that could have otherwise been used to purchase silver or manufactured goods for sale in Asia. The negative effect on shipping capacity suggests that shocks to executive authority either deterred shipowners from renting their ships to the EIC or that the EIC rejected their offers. The former appears more likely. Chaudhuri (1993) produced a series on the average freight rates per ton paid to shipowners from 1676 to 1760. A simple regression of the log difference in the freight rate per ton on the one-year lagged variable for changes in the monarchy shows a positive correlation between changes in the monarchy and freight rates (although not statistically significant). If the EIC was rejecting shipowners presumably the freight rates would have

Figure 4: OIRFs from changes in the monarchy: four-variable VAR



fallen, not risen. Therefore, it appears that in moments when the monarchy changed, the EIC was trying to entice reluctant shipowners by offering higher freight rates

The implications for shipping capacity can be explored more deeply using the series on the rate of tonnage added and the rate of tonnage exiting. One hypothesis is that changes in the monarchy discouraged new ships from entering the trade and therefore reduced the rate of tonnage added. Another and not mutually exclusive hypothesis is that changes in the monarchy encouraged ship owners to exit and therefore increased the rate of tonnage exiting. We test these hypotheses using a five-variable VAR with the following ordering: (1) changes in the monarchy, (2) the rate of tonnage added, (3) the rate of tonnage exiting, (4) the log difference in export revenues, and finally (5) the log difference in import revenues. The added ordering assumption is that shocks to the rate of tonnage exiting in year t did not affect the rate of tonnage added in year t . This assumption is not crucial as the results

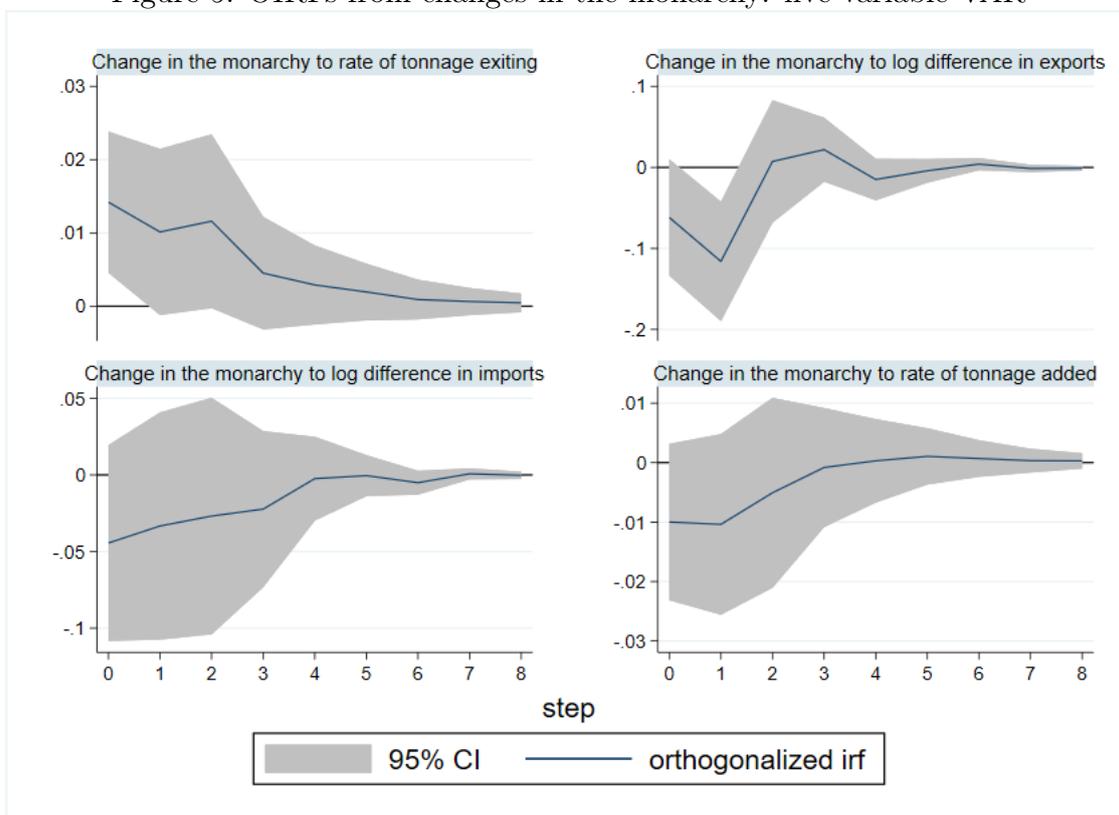
are similar if the ordering of these two variables are reversed.

The impulse response functions for the five variable VAR are shown in figure 5. We focus on shocks originating with changes in the monarchy. The upper left hand graph shows that a change in the monarchy led to a significant increase in the rate of tonnage exiting. The response in the rate of tonnage added is negative, but less precisely estimated. One explanation for these results is that shipowners expected shocks from monarch changes to have negative effects on profits for one or two years only. This might not deter them from adding a new ship that might sail for a decade or more. Another possibility is that negative political shocks led to the exit of older ships, implying that new ships could earn additional profits from less competition. There is some evidence for this behavior. Additional tests on the five-variable VAR model show the rate of tonnage exiting Granger Caused the rate of tonnage added. Thus changes in the monarchy could have generated offsetting effects on entry incentives. They directly lowered the profitability of adding tonnage but also indirectly raised the profitability of adding tonnage by encouraging the exit of older competing ships.

We can probe even deeper into the rate of tonnage exiting by divided them into two types. The first type are exits due to sinking because of weather and enemies as noted by Hackman (2001). The second type are ‘exits by choice,’ defined as the overall exit rate minus the exit rate due to sinking. Note that choice could have meant retiring the ship, or it could have meant shifting to another trade. Unfortunately, we don’t always know why a ship exited. Nevertheless the choice to retire or shift to a new trade meant that the ship was leaving the EIC trade presumably because it was no longer profitable. One hypothesis is that changes in the monarchy led to more tonnage exiting by choice, but had no effect on exits by sinking.

In order to test for this channel, we estimate a six-variable VAR model, replacing the single exit rate with two exit rates. The added ordering assumption is that shocks to exits by sinking in year t do not affect exits by choice in year t . That is plausible as sinking often

Figure 5: OIRFs from changes in the monarchy: five-variable VAR

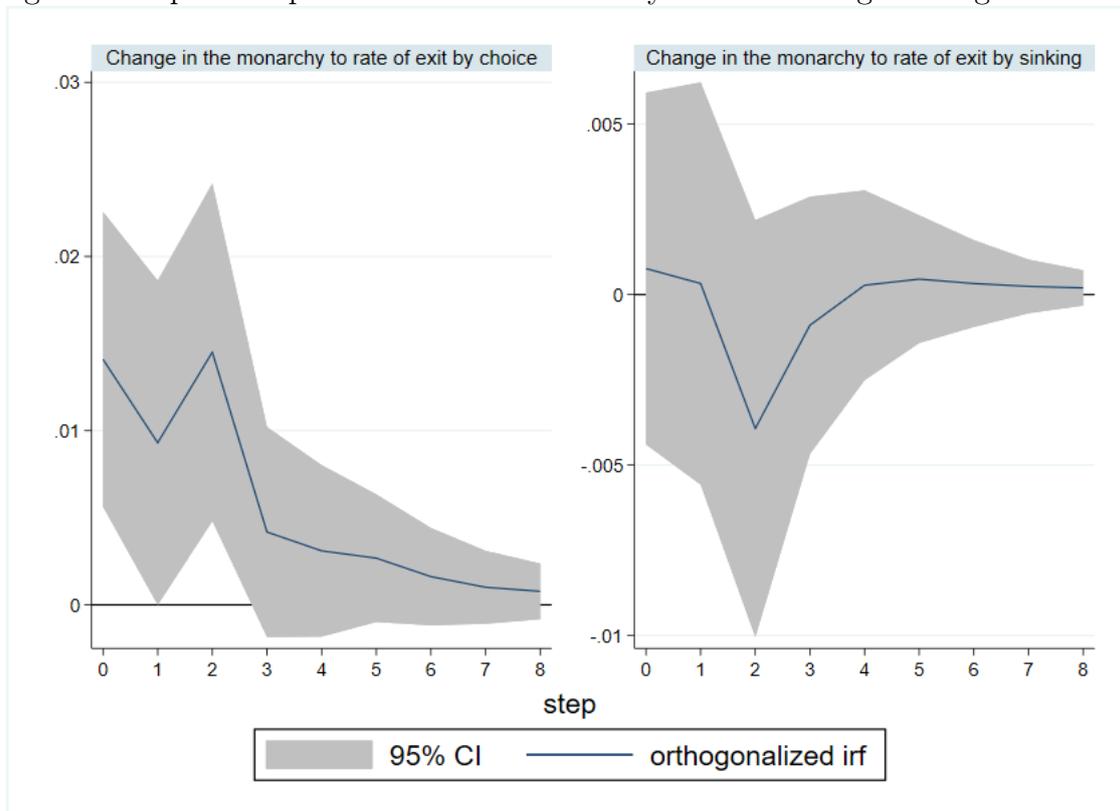


occurred in Asia and responses to them would be delayed. The OIRFs for a shock from changes in the monarchy to each exit rate are shown in figure 6. The rate of tonnage exiting by choice is estimated to have responded by significantly increasing. The rate of tonnage exiting due to sinking did not respond in a significant manner. These findings are consistent with the argument that changes in the monarchy encouraged shipowners to pull their ships out of the trade. Importantly, these findings are also consistent with the ship-level exit results discussed in section 3. The micro and the macro evidence coincide.

5 Conclusion

This paper examines the investment and trade of the English East India Company. We argue that the EIC was subject to executive expropriation risk because the English monarch

Figure 6: Impulse response functions: Instability to EIC tonnage exiting and added



gave it a monopoly over all trade between England and Asia and for much of its history, the monarch could renegotiate the EIC’s charter unilaterally. Our interpretation is bolstered by the fact that some monarchs demanded loans, levied extraordinary taxes, and allowed interlopers to enter the EIC’s market. To provide more evidence, we also make use of the fact that many of these quasi-expropriations occurred in the wake of a change in the monarchy. We use changes in the monarchy as observable moments when the risk of expropriation exogenously increased.

The first step in our empirical analysis focuses on ships trading in East Indies. We examine ship-level decisions to sail or exit the trade depending on whether a ship returned to England around the time of a change in the monarchy. Regression results show that ships were significantly more likely to exit when returning to England within a year of a change in the monarchy. The most significant changes in the monarchy occurred before 1720 and

there was an especially large exit associated with the start of the Civil War in 1642 and the Glorious Revolution in 1688.

We also analyzes how changes in the monarchy affected turnover times. Regression results show that turnover times were significantly longer when ships returned to England around the time of a change in the monarchy. The execution of Charles I in 1649 was associated with the greatest increase in turnover times. Together the analysis of ship exit and turnover provide micro-evidence that East India shipping was affected by changes in the monarchy. The narrative history, and the timing of which changes in the monarchy mattered most, suggest the main channel operated through higher expropriation risk.

The second step of our analysis studies how changes in the monarchy affected shipping capacity and revenues across the entire EIC trade. There is evidence that shipping capacity and export revenues declined significantly following a change in the monarchy. Moreover, the decline in shipping capacity largely came through more tonnage exiting the trade. This pattern matches with the micro-evidence that ships were more likely to exit if they returned to England around the time of a change in the monarchy.

The main implications of our results concerns the effects of executive expropriation risk on England's development. Through a detailed study of the EIC, we provide new evidence that the investments of firms directly dependent on the monarchy for their rights were hindered by shocks to executive authority. Such micro-level evidence is important because the alternative view is that expropriation risk had little affect on decisions crucial to economic growth and the industrial revolution. This paper also contributes to a vast literature focusing on the EIC, its trade, and larger effects on the global economy. Our study adds to the literature by providing new time-series on shipping capacity and a new ship level data set which integrates information from several sources.

The paper offers lessons beyond the EIC. It is novel in analyzing the same investment activity surrounding a company for over 200 years. It shows the relevance of policy risk

and uncertainty over the long-run, especially for companies involved in prominent partnerships with government. For economic history, this paper illustrates a different approach to studying policy risks. It treats policy risks as constantly evolving and sometimes uncertain due to changing governments and political circumstances. Studying how corporations and other actors responded to political shocks and government changes can reveal more about the dynamics of growth in many historical contexts.

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