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The Impact of Mergers and Acquisitions on Top Income Shares

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Abstract

Each successfully completed M&A transaction generates lucrative income opportunities to specific parties involved in deal-making due to compensation mechanisms linked to the transaction value. In theory, this transactional channel of M&A activity might relate to income inequality. The main objective of this study is to provide the first empirical analysis on the relationship between M&A and income shares at the very top of the income distribution. Using an unbalanced panel design with country-year observations from 46 countries allows exploiting cross-sectional along with temporal variation. Methodologically, the Driscoll and Kraay estimator is applied as it is heteroskedasticity-consistent and robust to nonparametric forms of serial and cross-sectional dependence. This study finds statistical evidence for a positive and non-linear association pattern between changes in M&A activity and changes in top income shares, indicating pro-rich effects. Additionally, periods of systematic banking crises significantly intensify the relationship between M&A activity and increasing income concentration.

Keywords: Acquisitions, Mergers, Income Inequality, Top Income Shares

Section 1 | **Introduction**

In recent decades, the evolution of income inequality has been driven by high growth at the very top of the income distribution in many advanced economies of the developed world. (Atkinson et al., 2011). This increase has been particularly striking in the United States, with the top percentile of income earners almost having doubled their income share from 10.3% in 1980 to 18.7% in 2019.[2] Parallel to this, the CEO-to-worker compensation ratio measured for the top 350 firms in the United States climbed sharply to 278-to-1 in 2018, compared to a more equally balanced ratio of 20-to-1 in 1965 (Mishel and Wolfe, 2019).[3] They also find that the inflation-adjusted CEO compensation under consideration in the given sample from 1978 to 2014 skyrocketed and rose by 940.3% compared to the slow 11.9% growth of the average worker's compensation over the same period. Such analytical insights about these long-term trends have not only fuelled debates on income inequality per se but might have fostered more and more people to conceive today's high CEO compensations as social unjust. Given that and the fact that *"top incomes represent a small share of the population but a very significant share of total income"* (Atkinson et al., 2011, p.3), it appears no longer surprising why distributional concerns are at the centre of economic and political discussions, putting forward the question which impact factors cause top income shares to rise so disproportionately.

Empirical research examining potential impact factors of extreme income concentration at the very top of the distribution show that financial development, systematic banking crises, economic growth,

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[2] Please see appendix A.I. for an overview of several inequality measures of the United States in figures A.1 to A.4. Data comes from the World Inequality Data base. Retrieved in January 2021.

[3] The CEO-to-worker compensation ratio is based on realized stock options of the top CEOs. When alternatively using the stock options-granted measure, CEO compensation rose 1,007.5%.

trade openness and globalization, advances in technology, and the economic activity of the government are supposed to play a relevant role (see Roine et al., 2009, Neal, 2013, Dorn and Schinke, 2018). Next to the set of economic determinants are several political factors with significant impact, including government ideology, the strength of unions, the taxation of top income earners, and investment in public tertiary education (see Roine et al., 2009, Scheve and Stasavage, 2009, Neal, 2013, Huber et al. 2019). However, as these attempts are primarily designed to explore the cross-national variation in the rise in top incomes over time identify robust determinants, some other research approach is more focused on specifying theoretical channels and their mechanism more precisely. According to Dünhaupt (2014) and Flaherty (2015), several financialization indicators show a positive and statistically significant correlation to the rise of income inequality in developed OECD countries. In line with these results, Godechot (2016) broke down the financial sector effect, concluding that an increase in income inequality is mainly driven by a growing volume of stocks traded in national stock exchanges.[4] Yet another research field investigates the composition of top income earners. For the United States, empirical studies provide statistical evidence that professionals in the finance industry are the largest group and the main contributor to rising incomes at the top of the distribution (Kaplan and Rauh, 2010, Philippon and Reshef, 2012). Other professional groups include top executives like CEOs from nonfinancial companies, as well as superstars such as athletes and celebrities (Kaplan and Rauh, 2010). Estimates show that around 45% of occupations in the top 1% of income earners are engaged in executive management or the financial sector, whereas other highly paid professions such as medical practitioners and lawyers account for around 24% (Bakija et al., 2012). Indeed, by 2006, the premium of education-adjusted wages for professionals in finance was 50% on average, although showing a similar development to other workers until 1990, (Philippon and Reshef, 2012). In addition, they document that executives in finance earned between 250% and 300% more than executives in other sectors. But how are these large and increasing structural differences in compensation justified? Which income opportunities does the financial sector offer to its professionals that others do not or only to a smaller extent?

To answer these questions the axiom of accelerated business growth to maximise shareholder value seems to play an important role. In the present era of liberalized and rapidly expanding financial markets, the pace at which companies grow has been of higher significance to their shareholders, bringing inorganic growth opportunities in form of M&A activity into focus. By nature, M&A transactions aim to increase the purchasing company's revenues and are motivated to obtain a competitive and strategic advantage over other relevant market players. To give an example, an acquisition or amalgamation could enlarge the acquirer's market power along the supply chain in terms of price negotiations or could enhance product quality through advances in newly acquired technological expertise. Aside from frequently explored motives of M&A and long-term macroeconomic consequences of market consolidation activities such as market power shifts and the ability to set price premiums, the income opportunities related to successful deal completion can be tremendous but though are often neglected in literature as a potential determinant that could shape the income distribution at the very top.

Notwithstanding, it is theorized that the transactional channel of mergers and acquisitions presents particularly attractive opportunities for certain professionals at the senior level who facilitate, conceptualize, and execute such deals (Short, 2017). This is because compensations are often remunerated not on the basis of effort contributed (i.e. hourly charges), but as commissions and bonuses calculated as a percentage of the monetary value of the M&A transaction. Professionals involved in M&A transactions normally include senior investment bankers, senior lawyers and incentivised top executives of the purchasing and target companies. Indeed, in business practice their incomes directly either largely depend on transaction size or raise with deal complexity (i.e. due diligence, purchase price

[4] Research that elaborates the channel between top income shares and financialization has often only focused on classical measures of financial development (or financialization) such as stock market size, stock trading volumes, dividend payments or even the number of new company listings.

negotiation rounds, payment structure etc.). Kaplan and Rauh (2010) show that financial professionals involved in deal-making reside among the top income earners by finding that the compensation of almost all VC (Venture Capital) and PE (Private Equity) partners in the United States is above the 0.48m US dollar threshold necessary to put them in the top 0.5% of the income distribution. Grinstein and Hribar (2003) report that about 39% of the acquiring firms reward their CEOs for successful acquisitions, further suggesting that deal-related bonus compensations are increasing with deal size. Accordingly, higher numbers of completed M&A transactions and higher values of M&A transactions are theorized to generate higher incomes for financial and law senior advisors, as well as for top executives involved.

This study contributes to the literature by being the first systematic approach to empirically examine how changes in M&A activity are related to changes in top income shares. By analysing panel data, the cross-national along with the temporal variation can be exploited to efficiently help explaining the evolution of income inequality at the top of the distribution. One of this study's advantages is to use yearly data which are better suited to analyse volatile variables with enormous annual fluctuations, such as M&A and stock market activities, rather than averaged data that would come with sizeable loss of variation. The restricted data availability of M&A activity leads to a large N small T panel data structure.[5] However, the comprehensive country scope comprises 46 developed and developing economies, mostly classified as OECD countries, and enlarges the number of observations to be highly competitive in comparison with previous research. To ensure valid statistical inference in presence of cross-sectional dependence of unknown form and heteroskedasticity, this study uses a fixed-effects OLS regression but employs the Driscoll-Kraay standard error. To verify results, I run regressions on a rich set of income inequality measures as dependent variables including top income shares, top income share ratios, and Gini coefficients. This is of relevance as the composition of the top decile of the income distribution is heterogeneous (Dorn and Schinke, 2018). The results show a positive and non-linear relation between M&A activity and the top income shares except for the income share of the next 9% of income earners.

This study also examines other hypotheses related to the behaviour of top income shares in Anglo-Saxon countries and in periods of systematic banking crises defined by Leaven and Valencia (2018). In the literature of top income shares, several studies gathered by Atkinson and Piketty (2007) show striking differences of income concentration at the top of the distribution between Anglo-Saxon countries and Continental Europe from 1980 and onwards. Whereas Anglo-Saxon countries have experienced a surge in income concentration in recent decades, countries in Continental Europe displayed either no or modest increases in income concentration. This study is concerned with the question why the evolution of top income shares has been different in Anglo-Saxon and other countries, and whether M&A activity has influenced the diverging pattern across the two country-groups. I find that the distributional effect of M&A activity on top income shares between Anglo-Saxon and other countries is not systematically different. However, the effect of M&A activity on the Gini coefficients is more pronounced in Anglo-Saxon countries.

By combining all these factors, this research is expected to be unique and to advance the understanding of the relationship between M&A activity and the richer income share groups beyond current knowledge. The remainder of this study is structured as follows. The next section introduces the theory of the transactional side of M&A in more detail and performs a literature review. The data sources and a descriptive analysis are provided in section 3. Section 4 discusses the econometric framework. Section 5 presents the results of the panel data estimations, extensions, and robustness tests. Finally, section 6 concludes with a discussion of the findings in this study.

[5] Other studies trying to identify potential determinants of top income shares rely on a large T and small N data set to establish robust relationships with top income shares over the long run (see Roine et al., 2009, Neal, 2013, Huber et al., 2019).

Section 2 | **Literature & Hypotheses Development**

Economic theory suggests a wide spectrum of economic and political determinants that could be eligible to shape income inequality but provides only limited theoretical channels that directly connect to the evolution of top income shares. This study, however, focuses on empirically investigating an unexplored theoretical channel more specifically linked to the income generation process of the working rich at the top of the income pyramid. Thereby, emphasis is put on each M&A's transactional side and income opportunities to a particular group of deal-facilitating intermediaries. The purpose of this section is to introduce this new theory developed by Nicholas Short (2017) throughout which M&A activity could affect top income shares in the short run. Given the current limitation of theoretical mechanisms that are primarily related to effects on top income share over the long run, this channel offers a new perspective and could especially add value in understanding direct changes. Further, hypotheses development in line with the proposed theory constitutes the analytical field of the first empirical investigation in that direction.

2.1 Traditional View of M&A's Impact on Income Inequality

In a dynamic and globally competitive business environment, securing corporate revenue growth and competitiveness are the key for generating superior profits demanded by the principles of shareholder value maximization. In addition to organically growing a corporate from the inside by enhancing core competencies and capabilities in accordance with customer needs (Kling et al., 2009), mergers and acquisitions have become a primary strategy to expedite corporate growth rates in order to meet investor expectations.[6] According to Brock (2005), effective mergers and acquisitions minimize the costly time lag in the development of products and other supporting structures associated with organic growth, thus immediately gaining competitive advantage without increasing own capacity. Motives of undertaking mergers and acquisitions are not solely rooted in achieving comparative advantages but can also be of a deeper financial, strategic, or managerial character (Faulkner et al., 2012). Concerning the first, mergers and acquisitions aim to increase corporate market power and shareholder value by taking advantage of economies of scale and scope, and by realizing synergy potentials through mutual transfers of knowledge as well as shifts of corporate control towards the acquirer (Napier, 1989). The second motive category is related to pursuing the corporate's diversification strategy, performing mergers and acquisitions to increase market shares, extend and innovate product portfolio, expand geographically into new markets, or to deal with its own positioning in mature or emerging markets (Faulkner et al., 2012, Bower, 2001). M&A activity resonating from the third motive is explained by non-rationale and self-serving manager behaviour driven by cognitive biases such as managerial hubris or empire-building fantasies (Sudarsanam, 2012, Junni and Teerikangas, 2019).

Emphasis is given to the market power hypothesis owing to its direct link to economies of scale and business size. As suggested by (Piesse et al., 2013), market power can be interpreted as a corporate's ability of significantly influencing or controlling volume, pricing and quality of its products and services as a direct response to the scale of its operations. M&A activity leads to a substantial reallocation of economic activity among corporates, as well as to changes in ownership structures and changes in exercisable market power, that in turn might have effects on welfare (Blonigen and Pierce, 2016). Indeed, Devos et al. (2009) show empirically that an increasing market power transfers gains from mergers and acquisitions towards shareholders. To follow the argument of Brennan (2015), M&A activity leads to increasing corporate concentration with larger relative corporate size having an upward

[6] Although often used interchangeably, mergers actually refer to the amalgamation of two previously separate corporates into one newly joint business entity with broadly equal ownership, whereas an acquisition takes place when the (often larger) acquiring corporate purchases the majority of shares of the (smaller) targeted one, or specific parts of its business units (Junni and Teerikangas, 2019). Purchasing a corporate's minority stakes also reflects an acquisition process at the end of which the new minority shareholder does not possess complete control of the acquired target.

effect on redistribution of income. By merging and acquiring, market power concentrates at larger corporates, reduces competitive pressures, and in turn translates into enlarged earnings margins, greater profits, and increased cash flows (Brennan, 2015). He concludes that higher cash flow levels might disproportionally translate into dividends disbursed to capital owners and into compensation paid to top executives. Given the unequal distribution of corporate profits, most of the bottom 90% of income earners will be potentially being worse off as a result of profitable transactions (Ennis et al., 2017). Moreover, monopolistic market power is exercised by setting higher than efficiency prices, thus increasing producer surplus at the expense of decreasing consumer surplus, which again benefits the class of rentiers (Gans et al., 2019). Indeed, for the case of the US economy, Blonigen and Pierce (2016) find empirical evidence for M&A activity to be significantly associated with increasing average price markups.

However, the empirical findings of Zhuang and Griffith (2013) do not document evidence for robust effects of cross-border mergers & acquisitions on the income distribution. However, their result might most likely be driven by offsetting and differential effects across various income groups at the top. By relying on top income shares, this study targets to advance knowledge by disentangling potential M&A effects on different income groups at the top of the income pyramid.

2.2 Introduction of Transactional Effects from M&A as Inequality Driver

Aside from traditionally conceptualizing M&A activity as a mechanism to accumulate corporate profit and exert market power, a focus shift towards the transactional side unveils another theoretical explanation about how M&A activity might impact income inequality at the top of the income distribution. As recently introduced by Nicholas Short (2017), the transactional side of mergers and acquisitions offers lucrative opportunities to generate substantial rewards for certain professionals who facilitate, conceptualize, and execute such deals. This is because the compensation of involved intermediary advisors is directly aligned with transaction size or increases with deal complexity. Beneficiaries include senior intermediaries engaged in investment banking, private equity, and corporate law, but also top executives involved in the deal-making process. Indeed, professionals in such industries accounted for more than two thirds of income earners residing at the top 0.1% of the US labour income distribution in 2005 (Bakija et al., 2012). To start with investment banks, remuneration is based on a commission calculated as a percentage of the monetary deal value, with increasing transaction size leading to greater profits (Short, 2017). Then, a bonus system unequally divides the realized profits to the benefit of a small number of senior partners with equity shares (Folkman et al., 2007). Nevertheless, another larger tier of non-equity directors or vice presidents just below the partner level also receive higher bonus payments tied to performance (Folkman et al., 2007). Further, the business model of private equity is built upon raising funds from institutional investors or wealthy individuals in order to finance investment in selected private corporates, with the aim to develop, grow and finally sell them at a profit a few years later (Kaplan and Strömberg, 2009, Folkman et al., 2007). Mergers and acquisitions play a central role in corporate value creation through applied buy and build strategies. The compensation of private equity fund managers has three dimensions, consisting on the one hand of a management fee that resembles pricing-terms of fund services and is calculated as a percentage of the committed capital per year, and on the other of a variable performance-based incentive fee derived from overall fund profits, also known as the “carried interest” or “carry” (Kaplan and Strömberg, 2009, Metrick and Yasuda, 2010). Charging deal and monitoring fees onto portfolio corporates invested reflect the third compensation dimension (Kaplan and Strömberg, 2009). With respect to the “carry”, all partnering fund managers are entitled to participate from profits, and in larger funds senior investment executives are also eligible to receive parts of the “carry” bonus (Folkman et al., 2007).

For law corporates compensation is not entirely fixed to transaction size, but rather increases more flexibly with chargeable hours based on effort contributed. The attorney’s workload relevant to the M&A process, such as performing the due diligence or constantly writing contract drafts in response of

negotiation progress, surges dramatically with transaction size and deal complexity (Short, 2017). Larger law corporates such as Linklaters or CMS Hasche Sigle are designed as partnerships whose equity partners (senior attorneys) are formally entitled to all the considerable profits (Folkman et al., 2007), while non-equity partners primarily rely on salaries.[7]

Along the acquisition process, the workload for top executives increases dramatically as they are not only in charge of managing the operative business but also to spend substantial resources and efforts on forming the transaction. After the successful transaction closing, nearly four out of ten acquiring corporates reward their CEOs with a bonus, often remunerated in cash (Grinstein and Hribar, 2004). It is notable that evidence suggests M&A bonuses to be larger when transaction size is higher, completion time longer and decision-making more complex (Grinstein and Hribar, 2004). Incentives in form of bonuses also elevates the compensation for the top executives at the selling side, serving to compensate for the additional efforts related to selling process and for countering potentially adverse career outcomes, such as job loss following an acquisition (Burns et al., 2017). Furthermore, mergers and acquisitions create new tasks and responsibilities for the top executive team of the acquiring corporate, including the integration of the new business. Gabaix et al. (2014) show evidence for a positive association between corporate size and top executive compensation. Such conditions give rise to renegotiate compensation, with the likely outcome of increased CEO compensation after the transaction is completed, since M&A activity increases the acquiring corporate's size (Short, 2017).

Even though each of these mechanisms stands for a plausible theoretical channel through which M&A activity might shape the income distribution at the very top, this paper views them as one channel due to the use of aggregated data sets on M&A activity and top income shares. Based on the arguments presented above, this study's first hypothesis formulates as follows:

Hypothesis 1: *Changes in top income shares are positively associated with changes in M&A activity.*

Second, by following the seminal work of Atkinson and Piketty (2007) and Roine et al. (2009), it is important to point out differences across the heterogeneous income share groups at the very top. Such heterogeneity is rooted in different characteristics of each income share group's composition, with the superrich (top 0.1% and top 1%) typically consisting of a high share of rentiers and executives with higher capital incomes. Income of this group is therefore often prone to fluctuations. Whereas the income share group of the rich (next 9%) composes of highly salaried and highly skilled workers with more stable income sources from their occupations (Roine et al., 2009). Hence, effects of M&A activity might be stronger or of less presence across several income share groups. Thus, this study expects:

Hypothesis 2a: *The impact of M&A activity is different across top income share levels, with larger effects at the higher end of the income distribution.*

In that sense, this study also elaborates the widening gap within the top income groups but also between the top income groups and the bottom 90%. Therefore, this study examines the effects of M&A activity on different income share ratios such as the top-1%-to-next-9%-ratio. An increase in the ratio would be considered as pro-rich. The transactional side of M&A is tested as a driver of a widening gap in terms of increasing income share ratios. The hypothesis is formulated as:

Hypothesis 2b: *The influence of M&A activity is pro-rich and represents a channel that disproportionally benefits top income earners at the costs of income share groups at lower levels.*

[7] To see an exemplary partnership structure please visit: a) https://cms.law/en/deu/list-of-partners and b) https://www.linklaters.com/en/about-us/news-and-deals/news/2019/march/linklaters-announces-33-new-partner-elections-worldwide

Further, the Gini coefficient summarizes the entire income distribution and meets the desirable Pigou-Dalton criteria (Haughton and Khandker, 2009). Although showing some shortages such as being more sensitive to changes in the middle of the income distribution (Arjona et al., 2003), and the fact that very different income distributions can exhibit exactly the same inequality coefficient (Afonso et al., 2015), the Gini coefficient is widely used and is an accepted measure to examine combined effects from the top and the bottom on inequality.[8] This study expects:

Hypothesis 2c: *Changes in the Gini coefficient show a positive correlation with changes in M&A activity, substantiating a pro-income-inequality effect.*

2.3 Are there Dissimilarities between Anglo-Saxon and Other Countries?

In his theoretical work, Esping-Anderson (1990) mainly distinguishes between *liberal welfare states* (Anglo-Saxon countries) with modest social security transfers and slow progress of social reforms due to strongly liberal and free market-based work-ethic norms on the one hand, and *corporatist conservative welfare states* (e.g. Austria, France, Germany) with less obsession of liberalized markets efficiency and stronger willingness to grant social rights and family-friendly security transfers on the other.[9] Complementary to this, Dorn and Schinke (2018) describe Anglo-Saxon countries as traditionally possessing weaker employment protection, weaker trade unions and more decentralised wage bargaining, but since the 1980's they have also been characterized as relying more on high-tech companies and the finance sector rather than on manufacturing.[10] This is in line with the empirical findings coming from Atkinson and Piketty (2007) that shows striking differences of income concentration at the top of the distribution between Anglo-Saxon countries and Continental Europe from 1980 and onwards. Whereas Anglo-Saxon countries have experienced a surge in income concentration in recent decades, countries in Continental Europe and Japan displayed either no or merely moderate increases in income concentration. Indeed, Atkinson and Leigh (2013) find that the income share of the top percentile shows a higher correlation across Anglo-Saxon countries than the combined income share of the next four percentiles. This indicates diverging dynamics especially at the top 1% income share level between Anglo-Saxon and other countries. Nevertheless, albeit intensive discussions in economic literature (see Piketty and Saez, 2006, Roine et al., 2009, Neal, 2013, Dorn and Schinke, 2018), determinants of systematic differences between them have yet been unidentified.[11]

The origin of top income generation is fundamentally different in both country-groups. In continental Europe or Japan, the prevailing class of top income earners is formed by the rentiers, and still relies on capital income flows as primary source of income. Though, in Anglo-Saxon countries, the rise of top income shares during the last decades has mainly been driven by large increases in compensation of the working rich, including top wages for the best performing executives (Piketty and Saez, 2006). In short, the income hierarchy has changed in the United States with the working rich at the very top of the income distribution, while capital incomes in the other country-group are still predominant.[12]

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[8] The Lorenz curve can assume different shapes even when the size of the measured area is the same (Afonso et al., 2015).

[9] Esping-Andersen (1990) also describes a third but admittedly small group of social democratic welfare states (Scandinavian countries).

[10] In the early 1980s and under the leadership of Reagan and Thatcher, market reforms have been established that favour pure market mechanisms and less regulation.

[11] In their work, Roine et al. (2009) argue that the diverging patterns of top income shares between Anglo-Saxon countries and other developed countries could arise due to market-based or bank-based financial systems. However, they failed to find different systematic distributional effects from either economic growth or trade openness (Roine et al., 2009).

[12] Theoretical explanations for these sharp increases in top wages relate to increased competition for top executives and the removal of free market impediments such as labour market regulations, unions, and social norms (Piketty and Saez, 2006).

As the transactional channel of M&A is theorized to benefit senior investment bankers and senior lawyers in leading or executive positions, as well as incentivised top executives of the purchasing and target companies, it might be a potential determinant of top income shares in Anglo-Saxon countries with the working rich at the very top of the income pyramid. [13] By interacting the key variables of M&A activity with an Anglo-Saxon dummy variable, potentially different systematic distributional effects between the two groups can appropriately be analysed. This study expects:

Hypothesis 3: *The effect of M&A activity on top income shares is more pronounced in Anglo Saxon countries than in other countries.*

2.4 The Presence of Systematic Banking Crises and M&A Activity

One of the major findings reported by Roine et al. (2009) suggests a negative effect on income shares of the top 1% stemming from systematic banking crises. Such a result gives rise to the question whether the effect of M&A on top income shares different whenever systematic banking crises occur. Albeit M&A activity slows down in terms of frequency and valuation levels during times of economic downturn, this study assumes that M&A activity might still stably generate and provide enormous income opportunities. This is because a crisis offers opportunities to acquire financially weakened competitors or even financially sound companies at generally lower valuations that offer higher leverage potential in the future. Hence, this study tests:

Hypothesis 4: *The effect of M&A activity on top income shares is larger in years of systematic banking crises and less strong in years of regular economic development.*

Section 3 | **Data & Measurement**

This section explains the key independent and dependent variables included in the subsequent analyses, and transparently describes the data measurement of M&A activity. To provide details related to the data construction process, the definition and source of each variable as well as the corresponding summary statistics are portrayed below.

3.1 M&A Activity as Key Independent Variable

Information concerning M&A activity is obtained from Thomson One (www.thomsonone.com), a financial database collecting all relevant details of M&A transactions around the globe, and often referred to in empirical research (see Harford, 2005, Gugler et al., 2012).[14] This paper focuses on completed M&A deals with a transaction value of at least one million US Dollar. Based on a plethora of more than 328,000 reported M&A transactions that meet these two criteria, annual deal value aggregates are calculated to exploit country-year M&A activity.[15] The specification of M&A activity includes mergers, acquisitions, tender and exchange offers, as well as equity carveouts. Excluded are uncoordinated open market repurchases which do not necessarily rely on involvement of expensive intermediaries. Loan modifications are also excluded as these have rather the character of a financial

[13] The pattern of the working rich residing within the top 1% is primarily observed in the United States. The United Kingdom and the other four Anglo-Saxon countries tend to be between the characterized patterns of the United States and Continental Europe (Atkinson and Piketty, 2007).

[14] M&A data at the transaction level is most often only collected by private data organisations and not available at governmental institutions. Aside from deals conducted by publicly listed companies at the stock markets, not all privately executed M&A activity is always reported and made available to the public. Hence, the Thomson One database provides a comprehensive and reliable M&A data collection that mirrors real M&A activity but cannot be considered as being complete.

[15] Initial amount of M&A data was ca. 865,800 of which around 492,800 transactions did not report a transaction value, and another 44,600 only a had negligible transaction value below one million USD.

service with a payment structure for intermediaries that is not necessarily linked to the underlying loan volume.

Each transaction usually involves professional advisors on both sides, known as sell-side and buy-side teams. For intra-country M&A deals, it seems reasonable to assume that the acquiring and selling party primarily engage the services of domestic intermediaries to successfully complete a transaction. Fees paid to both advising teams, can thus be fully accounted for an impact on the domestic income distribution. In contrast to this plausible case, cross-border mergers and acquisitions need a more careful consideration. The target company might prefer to work with an experienced sell-side team with related industry knowledge, high expertise in the domestic market, company prices and valuations, and the juridical environment. From a practical perspective, a strong cultural fit, a wide interconnected network, geographical vicinity, and the absence of language barriers are also an advantage when hiring a domestic sell-side team. The same reasons are likely to influence the choice of the acquiring company in favour of their respective buy-side team. Hence, fees received from cross-border M&A deals are likely to affect the income distribution in the domestic and the foreign country, respectively. Built on these assumptions, transaction values of interconnected cross-border M&A deals are equally split between the countries involved.[16] The primary variable of interest is the relative M&A activity that expresses the country-year transaction value as a share of GDP to account for overall economic cycle developments and size of the economy.

3.2 Top Income Shares as Dependent Variable

Atkinson and Piketty (2007) provide evidence for a very heterogenous dispersion of income even within the top decile of income earners. Following their rationale, this paper examines top income earners at different levels, defining the top 0.1% and the top 1% of income earners as narrow and broader group of the superrich while determining the bottom nine percentiles of the top decile (P90-99), also called the next 9%, as the rich.[17] The share of the bottom nine deciles presents income of the remaining population. Further, to obtain a comprehensive picture of the distributive consequences of M&A activity, this paper does not only estimate potential effects on top income shares at different levels but also on income share ratios. The latter one relates income shares to each other, like the "top 1% to next 9%" income share ratio ((P90-P99)/P99), thus measuring the distribution of income directly within the top income share groups. Pro-rich effects on income due to M&A would be described by a positive relationship between M&A activity and both top income shares and income share ratios, respectively.

Data related to income shares and ratios is taken from the World Inequality Database (WID, www.wid.world) and refers to pre-tax and transfer income. The WID provides a systematic framework to derive income share data from different data sources, including national income accounts, household income surveys and fiscal data from taxes on income.[18]

In addition, the most frequently applied measures of economic inequality, the disposable income and market income Gini coefficients, are used to estimate the impact of M&A activity on overall economic inequality.[19] A positive relationship would be interpreted as inequality-increasing effects. For the Gini coefficients, the data is retrieved from the Standardized World Income Inequality Database (SWIID, www.fsolt.org/swiid/).

[16] A pure target company approach would ignore the cross-border M&A activity of domestic acquirers abroad, and hence underestimate the potential effects on the income distribution in country's whose companies acquire foreign companies (M&A outflow). Further, the potential effect on the income distribution would be overestimated in countries whose companies are acquired by foreign companies (M&A inflow).

[17] Roine et al. (2009) define the top 1% income share as "the rich", the next 9% within the top decile of the income distribution as "the upper middle class", and the bottom 90% of income earners as "the rest".

[18] See official website (https://wid.world/methodology/#library-working-papers), accessed on 27/11/2020.

[19] The market income Gini Coefficient reflects pre-tax and transfer income.

3.3 Control Variables and Overview of Variables

The review of previous empirical research results and economic theories has identified a set of potential determinants for rising top income shares. These explanatory control variables need to be specified by using sourced data. While data availability of M&A activity constraints the time horizon and length of the panel, data on top income shares define the limitation of country coverage and thus the panel data's width. Given these constraints, the panel data set is of unbalanced nature to maximize the number of observations. However, variables related to technological change and top income tax rates show many missing observations and further restrict the sample size. Thus, this study constructs a baseline equation and starts the analysis by relying on measures with complete annual data availability to stabilize the sample size, and to exploit data variation from them. If all variables were entered in only one equation, the analysis would be left with only a small fraction of observations. Entering variables with related loss of observations remains meaningful to the robustness analysis in terms of examining additional theoretical channels and validating robustness of the formerly included variables.

Operational definitions, original data sources and the hypothesized relation to top income shares for all used variables are provided in table 1. For the purpose of this study, economic development is defined as the logarithm of GDP per capita in constant 2010 US dollar, and as such it controls for any distributional effect due to different income levels. The main variable to capture effects of financial development is the stock market capitalization measured as market value of publicly listed stocks as a percentage of GDP. Due to high annual financial market-based fluctuations, this measure is well suited to analyzing data variation in the short run. This variable also represents income opportunities from dividends and therefore is the primary measure of market-based financial development in this study. Additionally, the variable of private credit measures the bank-based financial development. In the robustness analysis, both measures are combined as a measure of total financial development. To access effects of the level of government involvement in the economy, the final government consumption expenditures as a share of GDP is used. As demographic changes could also impact the income distribution, the age dependency ratio is the preferred measure since it has the advantage to directly relate the share of working population with the share of dependent non-productive population. This more precisely captures the influence of income inequality rather than sheer population size. Data for all these variables are retrieved from the World Bank (www.data.worldbank.org).

For measuring trade openness, this study first applies a standard de facto measure that is the sum of exports and imports of goods and services as share of GDP. An alternative way to measure openness is to use a sub-indicator of the KOF globalization index for trade weighted by several de facto (i.e. trade partner diversity) and de jure (i.e. trade regulations and trade agreements) variables. On a scale from one to one hundred, higher index values show greater trade globalization. Data is obtained from the KOF Swiss Economic Institute (www.kof.ethz.ch/en). The unemployment rate accounts for shifts in market power resources. It relates unemployment persons to total workforce and is drawn from the International Monetary Fund (www.imf.org/en/Data).

The next potential determinants with effects on the income distributions are technology change and top income taxes. I follow Roine et al. (2009) and apply two alternative proxies that are the agricultural share and the logarithmized number domestic patent applications of residents and non-residents. Both are not added to the baseline equation as their inclusion translates into a loss of observations.[20] Consequently, both are solely used to control for technology change in the robustness check analysis. To proxy top income tax rates, this paper follows Piketty (2014) and Neal (2013) and uses the top statutory tax rate sourced from the OECD (www.data.oecd.org) for the period from 2000 to 2016. Given this decisive data constraint, this measure is only applied in the robustness check analysis. Other determinants potentially contributing to changes in income inequality are binary dummy variables for years of systematic banking crises and for the government ideology of the ruling party.

[20] The top statutory income tax rate is only measured from 2000 to 2016.

3.4 Descriptive Statistics

Table 2 presents the summary statistics of all variables used in the specification of the baseline equation and in sensitivity analyses. By starting to describe statistics related to the set of dependent variables, the combined mean values for the bottom 90%, the next 9% and the top 1% approximately add up to one, even though the number of observations slightly differ from each other. Put together these variables represent the entire income distribution. Interestingly, the standard deviations grow larger relative to their respective means, the closer the income share defines income earners at the very top. For example, whereas a one standard deviation from the mean of 36.7% of the top 10% income share is 22.9% (or around 8.4 percentage points), an equivalent dispersion from the mean of 12.3% of the top percentile of income earners is about 39.0% (4.8 percentage points).[21] Thus, top income shares seem to exhibit relatively more year-to-year variation than other income share measures further down the distribution. As expected, Gini coefficients based on disposable income are consistently lower than the ones based on market income, signifying that on average the redistribution of income reduces inequality by 0.13 Gini coefficient points.

Table 1. Variable definitions and sources

	Definition	Original Data Source
Dependent Variables		
Inequality Measures I. (Shares)		
Top 0.1% Income Share	Income share accruing to the top 0.1% of earners (P99.9-100)	World Inequality Database
Top 1% Income Share	Income share accruing to the top 1% of earners (P99-100)	World Inequality Database
Next 9% Income Share	Income share of the earners with the highest 10% less the top 1% share (P90-99)	World Inequality Database
Bottom 90% Income Share	Income share earned by those with the 90% lowest incomes (P0-P90)	World Inequality Database
Inequality Measures II. (Ratios)		
Top 1% to Next 9%Ratio	Income share of the top 1% divided by income share of the next nine percentiles under the top 1 percentile	Own Calculation based on WID
Top 1% to Bottom 90% Ratio	Income share of the top 1% divided by income share of the bottom 90%	Own Calculation based on WID
Inequality Measures III. (Gini)		
Disposable Income Gini	Gini coefficient for disposable income inequality, post taxes and transfers	SWIID, Vers. 8.0
Market Income Gini	Gini coefficient for market income inequality, pre-taxes and transfers	SWIID, Vers. 8.0
M&A Independent Variables		
Relative M&A Activity	Aggregated transaction value as percentage of GDP	Thomson One, World Bank
Log Real Transaction Value	Aggregated nominal transaction value divided by the consumer price index, logarithmized	Thomson One, World Bank
Number of Transactions	Aggregated number of M&A transactions	Thomson One
Control Variables		
Economic Development	Real GDP per capita (in constant 2010 US dollar), logarithmized	World Bank
Financialization		
(a) Stock Market Capitalization	Market capitalization of listed domestic companies as percentage of GDP	World Bank
(b) Private Credit	Private credit by deposit money banks and other financial institutions as percentage of GDP	World Bank
(c) Financial Development	Total capitalization defined as sum of private credit and stock market capitalization	
Economic Globalization		
(a) Trade Openness	Sum of exports and imports of goods and services as percentage of GDP	World Bank
(b) Trade Globalization Index	Weighted percentage index comprising de facto and de jure measures regrading trade regulations, agreements and volumes, tariffs, trade partner diversity	KOF Globalization Index, ETH Zurich
Government Spending	National accounts general final government consumption expenditures as percentage of GDP (sum of collective consumption goods, services, and employee compensation)	World Bank
Market Power Resources	Number of unemployed persons as percentage of total labour force	International Monetary Fund
Demography	Ratio of dependents (people younger than 15 or older than 64) to the working-age population (those ages 15-64)	World Bank
Technology Change		
(a) Agricultural Share	Agricultural production as percentage of GDP (including forestry, hunting, fishing, cultivation of crops, and livestock production)	World Bank
(b) Patent Applications	Patent applications of residents filed through the Patent Cooperation Treaty procedure or with a national patent office for exclusive rights for an invention, logarithmized	World Bank
Banking Crises	Dummy variable for years of systematic banking crises	Worldbank
Government Ideology	Dummy variable representing the ideology of a government (ruling political party)	Database of Political Institutions (2017)
Top Income Tax Rate	Top statutory income tax rate	OECD

[21] The pattern also applies to the top 0.1% income share where a one standard deviation from the mean of around 4.4% is 52.3% (or around 2.3 percentage points).

Turning to the key independent variable, relative M&A activity has a mean of 4.6%, ranging from 0% if there is no deal in a specific country-year observation to a maximum of 395.0%, a value almost four times larger than that country-year's GDP.[22] When describing the summary statistics for Anglo-Saxon countries only, the mean of the relative M&A activity amounts to higher levels of around 7.4%. Quantitatively, the magnitude of dispersion is lower compared to the one obtained from the entire country set. With regards to the binary dummy variables, systematic banking crises and their ripple effects occurred in about 11.3% of the country-year pairs and parties with left-orientated ideology ruled in 41.6% of country-years.

Table 2 Summary Statistics for main Variables

	Obs.	Mean	Std. Dev.	min	max
Dependent Variables					
0.1% Top Income Share	1,420	0.0438	0.0228	0.0054	0.1648
1% Top Income Share	1,420	0.1231	0.0475	0.0363	0.3204
Next 9% Top Income Shares	1,408	0.2445	0.0457	0.1530	0.4587
10% Top Income Shares	1,408	0.3667	0.0838	0.1965	0.6508
Ratio Top 1% to Next 9%	1,408	0.1765	0.0810	0.0272	0.7417
Ratio Top 1% to Bottom 90%	1,403	0.2096	0.1245	0.0474	0.8472
Gini coefficient (disposable)	1,429	0.3363	0.0850	0.2050	0.6350
Gini coefficient (market)	1,429	0.4680	0.0600	0.3070	0.7250
Key Independent Variable					
Relative M&A Activity (all) [in % of GDP]	1,489	0.0461	0.1154	0.0000	3.9503
Relative M&A Activity (Anglo-Saxon) [in % of GDP]	222	0.0744	0.0517	0.0009	0.3332
Control Variables (Baseline)					
Stock Market Capitalization [in % of GDP]	1,284	0.6087	0.5324	0.0001	3.2836
Real GDP per capita [in US Dollar]	1,489	28,472.32	21,791.31	505.18	111,968.40
Government Spending [in % of GDP]	1,479	0.1764	0.0441	0.0091	0.2794
Trade Volume [in % of GDP]	1,481	0.8493	0.6587	0.1258	4.3733
Unemployment Rate	1,430	0.0752	0.0463	0.0000	0.2905
Age Dependency Ratio	1,493	0.5084	0.0818	0.2699	0.8859
Control Variables (Robustness Check)					
Systematic Banking Crises [Binary Dummy, 0 = no crisis]	1,401	0.1128	0.3164	0.0000	1.0000
Private Credit [in % of GDP]	1,384	0.7217	0.4168	0.0425	2.6070
Financial Development [in % of GDP]	1,273	1.3362	0.8014	0.0567	4.4527
KOF Trade Globalization Index	1,249	62.58	17.66	17.34	96.97
Government Ideology [Binary Dummy, 0 = left]	1,116	0.4158	0.4931	0.0000	1.0000
Agriculture Share [in % of GDP]	1,337	0.0497	0.0538	0.0003	0.3697
Top Statutory Income Tax Rate	660	0.4277	0.1039	0.1500	0.6228
Patent Applications [number of patents]	1,359	24,772.48	94,588.12	4.00	1,393,815.00

Section 4 | **Econometric Estimation**

To investigate the impact of M&A activity on the distribution of income at the very top, this study utilizes an unbalanced panel design with country-year observations for 46 countries from 1979 to 2017. The unevenly distributed data availability across countries and across the set of income inequality measures constraints the cross-sectional unit dimension N. Further, the data collection process on M&A activity restricts the time dimension T as it only dates back until the early 1980's. Although improving the efficiency of econometric estimates and accurate inference of model parameters, panel data estimations are characterized by more complex error structures (Hsiao, 2014, Baltagi, 2005).[23] These complications might violate standard OLS assumptions about the error process, including those that all errors should have the same variance and presumably exhibit cross-sectional and temporal independency of unknown form.

Indeed, conventional testing methods performed on the underlying sample confirm the presence of heteroskedasticity and cross-sectional dependence (see appendix A.II.). Erroneously ignoring standard error correlation over time and between units can lead to biased statistical inference (Hoechle, 2007). For valid statistical inference, this study employs the Driscoll-Kraay estimator that produces standard

[22] The observation refers to Luxembourg 2015. The second to the fourth largest values also relate to Luxembourg but show lower values ranging between 48-52% in terms of GDP.

[23] For a detailed discussion on the benefits of using panel data please see Baltagi (2005) and Hsiao (2014).

errors consistent to general forms of cross-sectional and temporal dependence, without the necessity of parametrically specifying the exact correlation structures of the standard errors without prior knowledge about them.[24] Driscoll and Kraay (1998) show that their nonparametric standard error correction method constructs a consistent covariance matrix estimator that is independent of the cross-sectional unit dimension N. Thereby, the Driscoll-Kraay estimator remedies the deficiencies and restrictions of other estimators with large-T asymptotics.[25] The Driscoll-Kraay estimator assumes a heteroskedastic error structure and can handle an unbalanced data set with $N > T$.

Mindful of issues related to the presence of non-stationarity, calculating the first difference is applied to stabilize the mean over time, and to transform a unit root variable in levels into a stationary variable in differences.[26] Each variable is differenced once over time, at the cost of reducing the time dimension of the panel data by one year, to alleviate the risk of spurious regression results. Thus, it is worth highlighting that this study effectively analyses and estimates the relationship between changes of variables rather than between their levels.

An additional source of potential biasedness of the estimation coefficients refers to endogeneity issues in form of unobserved heterogeneity. In fact, observable and unobservable factors which are summed up in the error term could be correlated with variables included in the regression model so that omitted variable bias would result. To address endogeneity issues stemming from observed time-varying omitted variable bias, a qualified set of control variables is included to effectively minimize such a potential bias of the estimation coefficients. Nevertheless, unobserved time-invariant heterogeneity across countries rooted in non-measurable differences in social and cultural norms, history, psychological and irrational behaviour patterns, or formal institutions could remain as an origin of omitted variable bias. This is solved for by applying a fixed-effects estimator which eliminates any time-invariant effects due to soaking up all between country variation. Instead, the fixed-effects estimation method focuses on obtaining multiple observations of each country, and on analysing the variation within countries.[27] According to De Hoyos and Sarafidis (2006), the fixed-effects estimator remains consistent when plausibly assuming that the cross-sectional dependence is caused by the presence of unobserved common factors which are uncorrelated with the included explanatory variables. In addition, the inclusion of year fixed-effects accounts for the potential influence coming from time trends and temporal shocks such as economic growth spurts or recessions. Unlike Roine et al. (2009) or Scheve and Stavasage (2009) who rely on five-year averaged data with focus on relationships over the long run, the year dummies used in this study correspond to the underlying annual data.[28]

In summary, this study uses a fixed-effects regression model with Driscoll and Kraay standard errors that are robust to heteroskedasticity and cross-sectional and temporal dependence. The estimation analysis starts with the following proposed baseline model specification:

[24] The number of lags used for the estimation of the Driscoll-Kraay covariance matrix is defined by applying a simple heuristic proposed in Newey and West (1994) that is $[4(T/100)^{2/9}]$ also known as "Bartlett".

[25] To better understand the conceptional advantage of the Driscoll-Kraay estimator in comparison to other alternative estimators please see appendix A.III.. This explains why the Driscoll-Kraay estimator is preferred.

[26] According to Breuer et al. (2002), panel unit root testing methodologies are restricted by their respective rejection definition of the null hypothesis that only allows the conclusion that at least one panel is stationary. Researchers are left without information on how many, or even which panels are stationary. Thus, this paper investigates the presence of stationarity based on separate analysis of each panel. Results are reported in appendix A.IV..

[27] Theoretically, the FE-estimator does not completely eradicate potential omitted variable bias. This would be the case when unobservable time-varying factors within each country would correlate with the explanatory variables. This study does not deny the possibility that some uncontrolled factors might affect both the dependent variable and the respective independent variables.

[28] As the theoretical mechanism of interest is working directly in a short-run framework, long periods of more than three or five years would be an imprecise measure when top income shares and M&A activity would change in the meantime. Additionally, Dorn and Schinke (2018) argue that results based on averaged data might be sensitive to the choice of the starting year.

$$\Delta y_{it} = \alpha_0 + \beta \Delta x_{it} + \gamma' \Delta Z_{it} + \delta_t + \mu_i + \varepsilon_{it} \qquad (1)$$

In the above-presented equation, y presents the dependent variable of the respective income inequality measure for *country i* in *year t*. The main dependent variable of interest is the top income share at the one percent level. The measure of M&A activity defines the key variable x_{it}. Z is a vector that represents the basic set of control variables formerly identified as other determinants of top income shares, including real GDP per capita (log), stock market capitalization, government spending, trade volume, the age dependency ratio, and the unemployment rate. [29] Further, country- and year-specific effects are modelled by μ_i and δ_t, respectively.

The model assumption of a linear relationship between x and y might impose a restriction which is too narrowly defined so that the analysis also includes testing of non-linearities in the data by adding a squared term of M&A activity to the baseline equation. In that case the adjusted model and the marginal effect of M&A activity on the dependent variable can be expressed as follows:

$$\Delta y_{it} = \alpha_0 + \beta_1 \Delta x_{it} + \beta_2 (\Delta x_{it})^2 + \gamma' \Delta Z_{it} + \delta_t + \mu_i + \varepsilon_{it} \qquad (2)$$

$$\frac{\delta E(\Delta y_{it})}{\delta \Delta x_{it}} = \beta_1 + 2\beta_2 \Delta x_{it} \qquad (3)$$

Before moving on to the next section, some cautionary remarks regarding this study's empirical estimation limitations are warrantable. Albeit controlling for common trends and time-invariant country factors, another potential source of endogeneity that is simultaneity cannot be fully eradicated. For example, Roine et al. (2009) consider the possibility that individuals located at the top of the income distribution could be capable of exploiting financial market opportunities more profitably. In that case top income shares would affect the development of stock market capitalization and the strict exogeneity assumption of a relevant control variable would be violated. According to Wintoki et al. (2012), the dynamic GMM model provides consistent results in the presence of various endogeneity sources including simultaneity. Nevertheless, given the presence of cross-sectional dependence in the error structure in a short panel, dynamic GMM estimation methods are inconsistent (Sarafidis and Robertson, 2009). This is because the large-N asymptotics of these estimators rely on the crucial assumption that errors are uncorrelated across cross-sectional units (Sarafidis and Robertson, 2009). As the existence of cross-sectional dependence has been confirmed by conventional testing and the issue of simultaneity is only based on theoretical ground, this study gives priority to correct for the former. As a consequence, issues of potential simultaneity remain unsolved so that all results subsequently presented in the next section should be interpreted as associations between the variables of interest rather than causal effects. Despite this limitation, this study contributes to existing literature by being the first systematic approach to investigate the relationship between the transactional side of M&A and top income shares by exploiting panel data.

Section 5 | **Results & Robustness Analyses**

This section starts with the presentation of results obtained from the baseline equation specification and moves on investigating non-linear relationship patterns and potential differential effects in Anglo-Saxon and other countries. The results are complemented by applied robustness analyses to substantiate associations between the variables of primary interest.

[29] Some control variables are added or substituted by similar measures when performing robustness checks. For example, measures of top marginal income taxation and a proxy for technological progress are added, while the KOF globalization index serves as an alternative proxy for globalization instead of trade volume.

5.1 Results

5.1.1 Main Results

For ease of comparability and to efficiently investigate the validity of the first hypothesis and the hypotheses formulated under two, the preferred estimation method is used to perform a series of regressions with varying income inequality measures as dependent variables. Table 3 looks at the effects of M&A activity on top income shares (column one to four), income share ratios (column five and six), and Gini coefficients (column seven and eight). All coefficients possess a positive sign which provides a first indication of the existence of a positive association between income inequality and M&A activity, even though not all of them are statistically significant.

Table 3 FE OLS Model with Driscoll and Kraay standard errors

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Key Independent Variable								
Δ rel. M&A Activity	**0.00106***	**0.00202***	0.00021	**0.00226***	**0.00983***	**0.00351***	0.00030	0.00019
	(0.00062)	(0.00105)	(0.00050)	(0.00125)	(0.00537)	(0.00183)	(0.00029)	(0.00017)
Control Variables								
Δ Stock Market	**0.00847****	**0.01314****	-0.00007	**0.01289****	**0.06010****	**0.02404****	**0.00148*****	0.00109
Capitalization	(0.00415)	(0.00583)	(0.00145)	(0.00532)	(0.02845)	(0.01147)	(0.00047)	(0.00065)
Δ log real GDP per	**0.02525*****	**0.03065****	-0.02062	0.00976	**0.15570*****	0.04879	**-0.01216****	**-0.01492*****
capita	(0.00640)	(0.01414)	(0.01823)	(0.03084)	(0.03856)	(0.03863)	(0.00505)	(0.00455)
Δ Government	**-0.10156*****	**-0.17360*****	0.01073	**-0.18954*****	**-0.88077*****	**-0.37750*****	-0.00699	0.00136
Spending	(0.02865)	(0.03542)	(0.03966)	(0.04071)	(0.20572)	(0.06612)	(0.00705)	(0.00776)
Δ Unemployment Rate	0.00452	0.00095	-0.00150	0.00078	-0.00341	-0.00290	**0.02585*****	**0.04212*****
	(0.01010)	(0.01748)	(0.01910)	(0.03214)	(0.05744)	(0.04245)	(0.00843)	(0.01433)
Δ Trade Volume	0.00101	0.00489	0.00158	0.00603	0.00769	0.01138	-0.00154	-0.00030
	(0.00331)	(0.00492)	(0.00625)	(0.00948)	(0.01962)	(0.01188)	(0.00105)	(0.00085)
Δ Age Dependency	-0.00774	-0.02609	-0.09309	-0.12350	0.10761	-0.08123	-0.04471	-0.01724
Ratio	(0.04326)	(0.07433)	(0.05744)	(0.09463)	(0.32568)	(0.15503)	(0.03196)	(0.04095)
Constant	**0.00211*****	**0.00256****	**-0.00220*****	0.00026	**0.01678*****	0.00310	**0.00322*****	0.00037
	(0.00062)	(0.00103)	(0.00073)	(0.00126)	(0.00458)	(0.00217)	(0.00065)	(0.00080)
Observations	1159	1159	1147	1147	1147	1142	1215	1215
R-squared (within)	0.08534	0.10678	0.03913	0.09178	0.11263	0.08188	0.12417	0.19601
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1*

In line with hypothesis one, the relationship between the estimation coefficients of M&A activity and three out of four top income share measures is positive and statistically significant at the 10% significance level. The group of the next 9% of income earners constitutes to be without any relevant effect, confirming the prevalence of variation patterns of the top 0.1% and top 1% income shares in forming the income share group of the top decile. In support of hypothesis two (part a), the estimated effects are different in magnitude across the top income share measures. When putting in context of respective mean values, the pro-rich impact of M&A activity grows larger for income shares closer to the top of the income distribution. Regarding the income share ratios, there is evidence for income share shifts from the next 9% and the bottom 90% to the more affluent income earners at the very top. This would suggest that the superrich have benefitted disproportionally in times of higher M&A activity – a result in line with hypothesis two (part b). Further, there is no statistical evidence for an impact on the Gini coefficients, indicating a lack of confirmation for hypothesis two (part c) that theorized an inequality increasing effect coming from M&A activity. Putting all results together, M&A activity demonstrates to be pro-rich in the short run.

Findings related to financial development and economic growth have a positive and statistically significant association with the top income shares and income share ratios, supporting previous empirical results (see Roine et al., 2009). Indeed, financial development and economic growth validate to be pro-rich, although the latter one is linked with reducing inequality measured by the Gini coefficients and hence not enforcing overall income inequality levels. Additionally, increasing government spending seems to be an efficient policy to reduce top 1% and top 10% income share levels, and to reduce the distribution of income from the income share group of the next 9% to earners residing within the top 1%. Other control variables seem to be of lower relevance and only allow limited statistical inference, with the unemployment rate being positively related to both Gini coefficients.

Trade is statistically insignificant but with a positive sign that, if all, could be beneficial for income earners within the top income shares. Results for the age dependency ratio are insignificant with an unexpected negative sign.

With regards to economic significance and effect size, a one-percentage point increase in relative M&A activity resonates with a rise of 0.00202 percentage points in the top 1% income share. Applied to the mean annual change in M&A activity, which is around 2.9 percentage points, the top 1% income share is expected to increase by 0.048%. Quantitatively, such a magnitude could be misleadingly interpreted as diminutive as it lacks accounting for the volatile behaviour of the M&A variable. Indeed, changes by two standard deviations might present more appropriately present the underlying patterns of annual changes. When incorporating the high volatility, the impact of M&A activity surges to economically meaningful levels. Table 4 compares the impact of M&A activity, stock market capitalization and government spending on the top 1% income share and the top 1% to next 9% income share ratio.

Table 4 Effect Size Comparison of Selected Independent Variables on Top 1% Income Share and the Top 1% to Next 9% Income Share Ratio in Two Case Scenarios

	Mean Change			***Change by two standard deviations***		
Definition of the X variable	Change of X (in PP)	Change of Y (in PP)	Change of Y (in %)	Change of X (in PP)	Change of Y (in PP)	Change of Y (in %)
Set A *– Top 1% Income Share*						
M&A Activity	2.92	0.0059	**0.048%**	28.371	0.0573	**0.466%**
Stock Market Cap.	9.04	0.118	0.965%	22.682	0.298	2.421%
Govern. Spending	0.54	-0.094	-0.763%	1.328	-0.230	-1.872%
Set B *- Top 1% to Next 9% Income Share Ratio*						
M&A Activity	2.92	0.0287	**0.162%**	28.371	0.279	**1.580%**
Stock Market Cap.	9.04	0.543	3.079%	22.682	1.363	7.723%
Govern. Spending	0.54	-0.477	-2.701%	1.328	-1.169	-6.625%

Notes: The abbreviation PP denotes percentage points as a unit to measure changes. The mean value of each selected independent variables is the basis to calculate the percentual change.

Two different scenarios are created. The first refers to the quantitative effects of a mean annual change in each independent variable. The second scenario applies a two standard deviation change to estimate the influence of M&A activity, respectively. A change of this magnitude correlates with a rise in the top 1% income share by almost 0.5%. As expected, accounting for volatility substantially reduces the large differences in the estimated coefficient sizes between M&A activity and government spending. For an annual mean change, the effect of government spending on the top 1% income share is 16 times higher than the effects of M&A activity. The difference in effect size drops to a multiple of 4 when applying a two standard deviation change. This is because the changes by two standard deviations in government spending (1.328) are stable and small due to strict budget planning compared to the ones observed in changes in more volatile market environments (28.371). Nevertheless, the comparison also reveals a smaller impact running from M&A activity in relation to the effects stemming from stock market capitalization and government spending developments. That does not come with surprise as scope and scale of stock markets is significantly larger than those of the M&A markets, and hence the impact on the income generation process is more comprehensive. Government spending is also supposed to affect more people than M&A activity does. Unsurprisingly, its effect size is larger. As it primarily benefits those at the bottom of the income distribution, the direct impact at the top of the distribution is of a negative nature. Nonetheless, despite being relatively small, the pro-rich impact of M&A activity remains economically non-negligible.

The linearity assumption for the relationship between M&A activity and income inequality might be violated if higher changes in M&A activity have a disproportionately higher impact. To elaborate non-linearity, the squared term of the relative M&A activity measure is included in the baseline equation. Numerous clear and interesting results are shown in Table 5.

Table 5 FE OLS Model with Driscoll and Kraay standard errors and squared relative M&A activity term

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Key Independent Variable								
Δ rel. M&A Activity	**0.00102***	**0.00194***	0.00018	**0.00216***	**0.00955***	**0.00337***	**0.00026****	0.00016
	(0.00060)	(0.00100)	(0.00049)	(0.00117)	(0.00527)	(0.00177)	(0.00010)	(0.00012)
Δ rel. M&A Activity	**0.00020***	**0.00041****	**0.00013****	**0.00053*****	**0.00153****	**0.00077****	**0.00025*****	**0.00013*****
(squared)	(0.00010)	(0.00015)	(0.00006)	(0.00019)	(0.00067)	(0.00031)	(0.00004)	(0.00005)
Control Variables								
Δ Stock Market	**0.00849****	**0.01319****	-0.00006	**0.01295****	**0.06029****	**0.02413****	**0.00151*****	**0.00110***
Capitalization	(0.00416)	(0.00584)	(0.00144)	(0.00532)	(0.02848)	(0.01149)	(0.00046)	(0.00065)
Δ log real GDP per	**0.02524*****	**0.03063****	-0.02063	0.00972	**0.15560*****	0.04872	**-0.01220****	**-0.01494*****
capita	(0.00639)	(0.01412)	(0.01823)	(0.03082)	(0.03855)	(0.03858)	(0.00504)	(0.00455)
Δ Government	**-0.10116*****	**-0.17280*****	0.01101	**-0.18839*****	**-0.87743*****	**-0.37582*****	-0.00661	0.00156
Spending	(0.02851)	(0.03513)	(0.03975)	(0.04052)	(0.20505)	(0.06552)	(0.00699)	(0.00776)
Δ Unemployment Rate	0.00441	0.00073	-0.00156	0.00051	-0.00420	-0.00331	**0.02572*****	**0.04205*****
	(0.01006)	(0.01741)	(0.01909)	(0.03206)	(0.05746)	(0.04232)	(0.00831)	(0.01427)
Δ Trade Volume	0.00107	0.00503	0.00163	0.00621	0.00822	0.01164	-0.00146	-0.00026
	(0.00329)	(0.00486)	(0.00626)	(0.00947)	(0.01940)	(0.01180)	(0.00105)	(0.00083)
Δ Age Dependency	-0.00445	-0.01936	-0.09093	-0.11474	0.13293	-0.06813	-0.04080	-0.01517
Ratio	(0.04445)	(0.07608)	(0.05752)	(0.09606)	(0.33385)	(0.15849)	(0.03047)	(0.04074)
Constant	**-0.00359*****	**-0.00589*****	**0.00245*****	**0.00321****	0.00063	**-0.01199*****	**0.00324*****	0.00038
	(0.00076)	(0.00132)	(0.00068)	(0.00120)	(0.00461)	(0.00277)	(0.00064)	(0.00080)
Observations	1159	1159	1147	1147	1147	1142	1215	1215
R-squared (within)	0.08554	0.10720	0.03925	0.09232	0.11293	0.08219	0.12599	0.19648
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1*

To begin with, the results mainly mirror the results obtained in Table 1 and allow similar statistical inference of a positive association between relative M&A activity across the set of different income inequality measures. Second, the inclusion of the squared term of the M&A measure appears to be meaningful with statistical relevance at the 1% and 5% significance levels.[30] Given the consistent positive sign of the squared term, it can be inferred that in periods of greater changes in relative M&A activity the impact on top income shares, top income share ratios and the Gini coefficients is higher, too.[31] For the top 1% income share, this non-linear relationship unfolds through an increasing effects size, where an increase in M&A activity by one percentage point correlates to a higher income share level by 0.00194 percentage points, while a ten-percentage point increase would leverage the average marginal effect up to 0.00202. For the United States that have a top 1% income share mean value of 15.41%, a ten-percentage point increase in M&A activity relates to a growth in the top 1% income share by 0.1312%. By ignoring the non-linearities and using the corresponding estimate from the baseline model, the top 1% income share would grow by 0.1311%. Although the slope of this non-linearity is all but steep, strong statistical evidence substantiates the inclusion of the squared term of the M&A measure.

5.1.2 Are Anglo-Saxon Countries Different?

As outlined in hypothesis three, it is conceivable that effects of M&A activity and other control variables on top income shares in Anglo Saxon countries systematically differ from those in other countries. Therefore, the model adds an interaction term to its specification. The dummy variable is equal to zero for Anglo-Saxon countries and equals one for all non-Anglo-Saxon countries. Table 6 shows the regression results with the specified interaction term.

When top income shares and top income share ratios are defined as dependent variable, results do not suggest any systematic distributional effects from M&A activity which statistically differs with significance between the two country-groups. This leads to the rejection of hypothesis three. However, the interaction terms between changes in M&A activity and changes in both Gini coefficients indicate with statistical significance at the 5% level that effects of M&A are more strongly related to ascending income inequality in Anglo-Saxon countries. Given the sign and magnitude of the interaction term, effects of M&A activity in the other country-group are close to zero but remain slightly positive without

[30] An exception is the 10% significance level when regressed on top 0.1% income share.

[31] Surprisingly, M&A activity has a significantly positive impact on the Gini Coefficient after income redistribution that is larger than the Gini Coefficient based on market income.

statistical significance. Across all regressions that estimate the effects on top income shares and ratios, such a diverging pattern between both country-groups is observable as well, even though it lacks statistical significance. Aside from this, the effect on income inequality related to M&A activity is surprisingly stronger after the redistribution of income, putting into question the effectiveness and efficiency of redistributive powers in Anglo-Saxon countries.[32]

Table 6 FE OLS Model with Driscoll and Kraay standard errors and interaction term for Anglo-Saxon countries

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Key Independent Variable								
Δ rel. M&A Activity	0.00458	0.01528	0.00917	0.02456	0.04044	0.03726	**0.00985****	**0.00913****
	(0.01098)	(0.01585)	(0.00717)	(0.01820)	(0.07110)	(0.02897)	(0.00391)	(0.00349)
Δ rel. M&A Activity *	-0.00356	-0.01342	-0.00907	-0.02256	-0.03096	-0.03413	**-0.00965****	**-0.00904****
Non-Anglo-Saxon	(0.01088)	(0.01571)	(0.00745)	(0.01838)	(0.07017)	(0.02865)	(0.00392)	(0.00349)
(1=non- Anglo Saxon)								
Control Variables								
Δ Stock Market	**0.00844****	**0.01304****	-0.00013	**0.01273****	**0.05989****	**0.02380****	**0.00142*****	0.00103
Capitalization	(0.00415)	(0.00581)	(0.00147)	(0.00528)	(0.02840)	(0.01141)	(0.00046)	(0.00064)
Δ log real GDP per	**0.02526*****	**0.03068****	-0.02060	0.00981	**0.15578*****	0.04886	**-0.01214****	**-0.01490*****
capita	(0.00640)	(0.01421)	(0.01833)	(0.03106)	(0.03851)	(0.03886)	(0.00513)	(0.00466)
Δ Government	**-0.10143*****	**-0.17312*****	0.01114	**-0.18850*****	**-0.87935*****	**-0.37594*****	-0.00671	0.00163
Spending	(0.02888)	(0.03572)	(0.03955)	(0.04060)	(0.20724)	(0.06637)	(0.00710)	(0.00767)
Δ Unemployment Rate	0.00477	0.00189	-0.00090	0.00227	-0.00137	-0.00066	**0.02652*****	**0.04274*****
	(0.00963)	(0.01723)	(0.01926)	(0.03230)	(0.05595)	(0.04206)	(0.00844)	(0.01440)
Δ Trade Volume	0.00105	0.00505	0.00169	0.00630	0.00807	0.01180	-0.00143	-0.00020
	(0.00329)	(0.00492)	(0.00632)	(0.00958)	(0.01953)	(0.01194)	(0.00106)	(0.00087)
Δ Age Dependency	-0.00811	-0.02748	-0.09410	-0.12600	0.10417	-0.08478	-0.04569	-0.01815
Ratio	(0.04362)	(0.07454)	(0.05797)	(0.09526)	(0.32724)	(0.15546)	(0.03238)	(0.04142)
Constant	**-0.00362*****	**-0.00597*****	**0.00217****	**0.00250***	-0.00041	**-0.01218*****	**0.00319*****	0.00033
	(0.00076)	(0.00131)	(0.00081)	(0.00137)	(0.00523)	(0.00270)	(0.00065)	(0.00083)
Observations	1159	1159	1147	1147	1147	1142	1215	1215
R-squared (within)	0.08541	0.10724	0.03974	0.09282	0.11276	0.08251	0.12697	0.19826
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1*

5.1.3 Are Systematic Banking Crises Pro-rich?

According to hypothesis four, the magnitude of the effects of M&A activity on top income shares in years of regular economic development might systematically vary from those in years of systematic banking crises. To account for such differences, an interaction in form of a dummy variable is added to the baseline equation where the value of one signifies the presence of a systematic banking crisis. The results obtained and presented in table 7 support the validity of hypothesis four.

Most apparently, the interaction is significant and positive across five out of six inequality measures that capture effects at the very top of the income distribution. The only exception is the group of the next 9% of income earners.[33] Thus, the regression results reveal that M&A activity has a stronger and pro-rich impact on top income shares during periods of systematic banking crises. For example, the specific estimate related to the top 1% income share imply that an increase in M&A activity by one percentage point is associated with a respectable surge of 0.056 percentage points. This magnitude is about 28 times the effect size observed in times of regular economic development. Again, considering the mean annual changes of M&A activity of 2.9 percentage point, the impact of the transaction M&A channel on the top 1% income share skyrockets up to 1.318%. A change by two standard deviations leads to a 12.897% increase. As theorized earlier, M&A transactions are still closed in times of collapsing banking systems and attractively realise acquisitions at lower prices in sense of "buying the dip". Whereas others might struggle to generate capital or labour income, working in the M&A sector seems to generate relatively stable and lucrative income. These findings strongly indicate the high relevance of M&A activity in the income generating process of the richer classes during years of

[32] To be fair, the effect after redistribution is also stronger in the more heterogenous country group of non-Anglo-Saxon countries. Though, there is no statistical significance, and the estimate is close to zero.

[33] Despite the lack of statistical significance, the sign of this estimates is negative and thus opposite to the estimates of all other inequality measures.

systematic banking crises. Finally, empirical findings related to other control variable resemble those obtained when the baseline equation is applied.

Table 7 FE OLS Model with Driscoll and Kraay standard errors and interaction term for systematic banking crises

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Key Independent Variable								
Δ rel. M&A Activity	0.00052	**0.00120***	0.00019	0.00144	**0.00598****	0.00223	0.00032	0.00027
	(0.00041)	(0.00067)	(0.00053)	(0.00105)	(0.00254)	(0.00142)	(0.00030)	(0.00018)
Δ rel. M&A Activity *	**0.03849*****	**0.05596*****	-0.00457	**0.05182*****	**0.28291*****	**0.08919*****	0.00012	-0.00111
Sys. Banking Crises	(0.01133)	(0.01420)	(0.00420)	(0.01255)	(0.08375)	(0.02538)	(0.00318)	(0.00347)
(1=Sys. Banking Crises)								
Control Variables								
Δ Stock Market	**0.00724****	**0.01122****	-0.00032	**0.01081****	**0.05152****	**0.02098****	**0.00155*****	**0.00145*****
Capitalization	(0.00348)	(0.00485)	(0.00163)	(0.00415)	(0.02330)	(0.00995)	(0.00045)	(0.00049)
Δ log real GDP per	**0.02755*****	**0.03226****	-0.02613	0.00712	**0.17849*****	0.05152	**-0.01127***	**-0.01105****
capita	(0.00588)	(0.01273)	(0.01856)	(0.02925)	(0.03983)	(0.03586)	(0.00607)	(0.00505)
Δ Government	**-0.09666*****	**-0.16913*****	0.00358	**-0.19185*****	**-0.84577*****	**-0.37219*****	-0.00597	0.00567
Spending	(0.03033)	(0.03661)	(0.04223)	(0.04140)	(0.22131)	(0.06828)	(0.00714)	(0.00754)
Δ Unemployment Rate	-0.00015	-0.00468	0.00226	-0.00215	-0.04206	-0.01244	**0.02539*****	**0.04022*****
	(0.01027)	(0.01871)	(0.01825)	(0.03293)	(0.06436)	(0.04474)	(0.00819)	(0.01407)
Δ Trade Volume	0.00082	0.00484	0.00233	0.00653	0.00530	0.01125	-0.00167	-0.00089
	(0.00332)	(0.00492)	(0.00597)	(0.00926)	(0.01951)	(0.01187)	(0.00103)	(0.00087)
Δ Age Dependency	-0.01900	-0.04266	-0.09378	-0.14116	0.02572	-0.10779	-0.04461	-0.01634
Ratio	(0.04468)	(0.07731)	(0.05876)	(0.09819)	(0.33478)	(0.16080)	(0.03198)	(0.04257)
Constant	**-0.00346*****	**-0.00577*****	**0.00233*****	**0.00291****	-0.00003	**-0.01180*****	**0.00325*****	0.00049
	(0.00075)	(0.00132)	(0.00084)	(0.00133)	(0.00461)	(0.00278)	(0.00068)	(0.00075)
Observations	1159	1159	1147	1147	1147	1142	1215	1215
R-squared (within)	0.09441	0.11614	0.04712	0.09975	0.12562	0.08689	0.12498	0.21085
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1*

5.2 Robustness Analyses

5.2.1 Specification of M&A Data

First, the results may be sensitive on how M&A data is specified. The measure of relative M&A activity puts the annual aggregated transaction values in relation to a country's GDP. The presence of cross-border deals, however, could be a potential source of distortion. In theory, a small country could show significantly and constantly high levels of M&A activity in relation to its actual small GDP due to inbound M&A from company's located in other countries. Similarly, countries with large economies might have lower levels of relative M&A activity due to a greater number of acquisitions abroad. To control for such, it is useful to abstract from the presence of cross-border transactions for a moment, and only incorporate purely domestic M&A deals when calculating the annual aggregated transaction values that are than put into relation with the respective country's GDP. Inferences regarding the domestically specified relative M&A activity do not lead to fundamental changes, allowing further confidence in the integrity of the main estimation results. Table A.8. summarizes the regression results when applying the measure of domestic M&A activity. In fact, the results robustly report positive associations across all income inequality measures, including the Gini coefficients and the income share of the next 9%. The magnitude of the estimates is of similar size but slightly larger in each of the regression specifications when compared to the corresponding model that includes domestic and cross-border M&A transactions.

5.2.2 Alternative and Additional Controls

Alternative Controls. Another set of robustness tests replaces preferred control variables by plausible alternatives. First, the existence of two equally reasonable proxies of financial development demands substitution, with private credit as a measure of bank-based financial development replacing stock market capitalization. To account for bank-based and market-oriented financing, a combination of both is used to capture potential effects coming from total financial development. Second, the de facto trade openness measure aimed to proxy globalization is replaced by the KOF trade globalization index that encompasses de facto and de jure developments. As shown in table A.9., none of the alterations performed exhibits substantially different effects of M&A activity across the set of independent income inequality variables. By focusing on the effect on top income shares and pertinent dispersion ratios, all alternative measures in the panels A (Private Credit), B (Total Financial

Development), and C (KOF Index) turn out to be statistically insignificant. This gives evidence for the minor role of bank-based and higher relevance of market-oriented financial development as an impact factor on top income shares and ratios. Hence, model specifications that include the stock market capitalization provide regression results and estimates more properly suited for valid statistical inference. The index-based globalization measure does not prove to be statistically significant either. In summary, the results presented in this subsection are perceived as affirmative in favour of the main results.

Additional Controls. Economic theory suggests other theoretical channels to influence top income shares such as tax progressivity, government ideology, technological change. Results may be sensitive to the inclusion of additional control variables. To start with, the top statutory income tax rate controls for changes in tax progressivity for a far smaller panel data sample. The results presented in table A.10. are supportive for the assumption that rising tax progressivity through increased taxation of top earners effectively lowers top 0.1% and 1% income shares. Quantitatively, a one-percentage-point change in the top statutory income tax rate is associated with a remarkable decrease of the top 1% income share by almost 0.4 percentage points. The non-linear positive impact of M&A activity on top income shares and ratios remains statistically significant, but with smaller effect sizes across all income inequality measures. Next, the government ideology of the leading party might influence tax policy. To account for that, the tax progressivity variable is interacted with a categorical variable that defines three different governmental ideologies. Except for the income share group of the next 9%, all interactions are mostly statistically relevant at the 1% level across the other top income shares and ratios. In times of left-oriented political leadership, an increasing tax progressivity effectively lowered the share of top income earners. In contrast to this, changes towards higher taxation of top incomes under the leadership of a government with centre- or right-oriented ideology even facilitated the rise of top income shares.[34] The variables of M&A activity possess the same results as before, confirming their robustness.

To control for annual changes in technological progress, proxy variables such as the agriculture share or the patent applications are added to the model specification. When proxied by the former, technological change has a statistically significant and negative association with both top 0.1% and 10% income shares, and the top-1%-to-next-9% income share ratio. The estimates of patent applications as a proxy for technological progress, however, lack statistical significance across the entire set of dependent variables. Again, estimates of M&A activity remain mostly unaffected in their algebraic sign, effect size and statistical significance. Overall, inferences regarding M&A activity are shown to be robust to changes in tax progressivity, government ideology, and technology.

Section 6 | **Conclusion**

Only recently, economic literature has theorized transactional effects of M&A activity to influence the income generation process of the working rich by offering lucrative income opportunities to deal-facilitating intermediaries residing at the top of the income distribution. This study empirically investigated the impact of M&A activity on top income shares, assuming a positive correlation. Results confirm this hypothesis' validity and document a positive and statistically significant association between changes in M&A activity and changes in top income shares at different specification levels. More specifically, empirical evidence supports a positive non-linear relation, suggesting that larger changes in M&A activity relate to slightly greater changes in top income shares. It is found that the effect's magnitude rises with higher ranks of the income share. A complementing analysis on top income share ratios suggest a pro-rich impact stemming from M&A activity at the cost of income groups

[34] A deeper investigation on potential mechanisms behind these differential effect in dependence of government ideology is beyond the scope of this study and is left open for future research.

ranked below the top 1% income share threshold. The results are robust to an adjusted specification of domestic M&A activity. Across model specifications, the effects on top income shares running from control variables like economic growth or financialization are in line with previous research results obtained from Roine et al. (2009) or Neal (2013).

In addition to these findings, systematic banking crises seem to provide a window of opportunity in which dealmakers involved in M&A activity could benefit extraordinarily. Indeed, in times of systematic crises, which is when most income flow opportunities run dry such as dividend payments, the quantitative impact of M&A activity on top income shares becomes a multiple of its regular magnitude. Assumingly, this could be driven by relatively stable M&A activity in times of financial shocks which offer opportunities to buy companies at lower valuations with high upside or restructuring potential. However, despite of the increased impact during systematic banking crises, the quantitative effect of M&A activity on top income shares is relatively small compared to other statistically significant determinants.

The lack of statistical significance on different systematic distributional effects between Anglo-Saxon and other countries, leads to rejection of the hypothesis that the effect of M&A activity on top income shares could be more pronounced in Anglo-Saxon countries. Nevertheless, by relaxing the formulation of the hypothesis to allow testing for differences using a more general measure of income inequality, M&A activity gives insight into the different experiences that Anglo-Saxon countries had compared to other countries. So, when regressing on the Gini coefficient, the effects of M&A activity are systematically and significantly different and more pronounced in Anglo-Saxon countries. Admittedly, the theoretical channel of transactional M&A effects does not play out at the very top so that other theoretical channels such as post-acquisition restructuring measures in more neoliberal economies might explain these country-group differences. Future research is necessary to unravel the mechanism behind this finding.

Finally, some limitations to my analysis should be borne in mind. First, in most economies, only those deal values of completed transactions involving a listed company need to be published. Private deals do not have to report corresponding deal values. Owing to that type of data constraint, the M&A activity measure is most probably undervalued and prone to attenuation bias even by relying on one of the world's most reliable and comprehensive M&A databases. Second, while the estimation method primarily addresses issues of cross-sectional dependence and endogeneity stemming from omitted-variable bias, this approach does not solve potential endogeneity rooted in reverse causality. As such, the results should be interpreted as associations rather than effects that indicate causality, even though results from control variables are in line with findings from other studies that attempted to establish causality (see Roine et al., 2009, Neal, 2013).

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Appendix

Appendix A.I. – Inequality in the United States (1980-2019)

Using the United States as an example, the development of all income inequality measures used in this research approach are displayed in the following figures (A.1. to A.4.). Compared to all other measures that show significant increases since the 1980's, the measure of the next 9% has remained relatively stable around the 25% level. This might be a first indication that recent rises in income inequality at the very top of the distribution could be driven by income earning opportunities for the rich elites.

Figure A.1. Top Income Shares (0.1% and 1%)

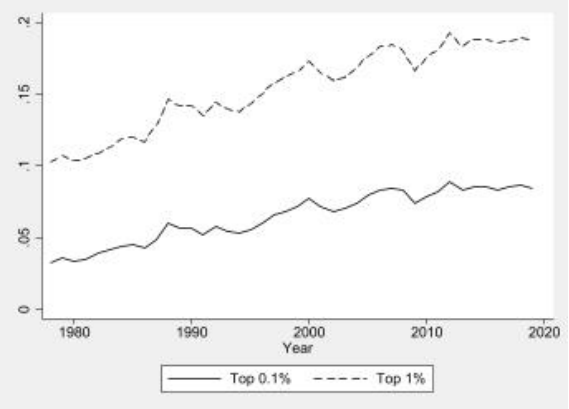


Figure A.2. Next 9% and Top 10% Income Share

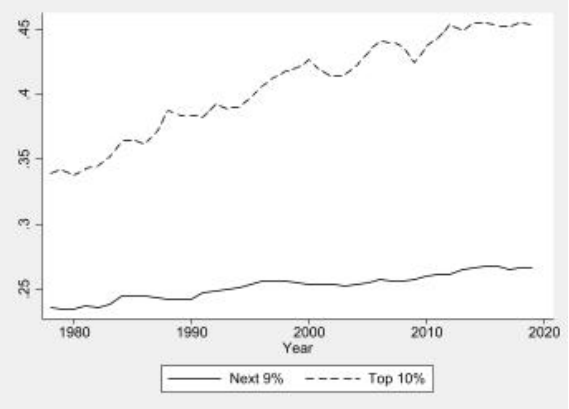


Figure A.3. Income Share Ratios

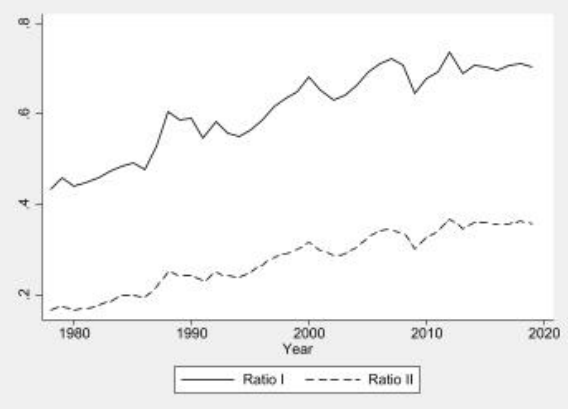
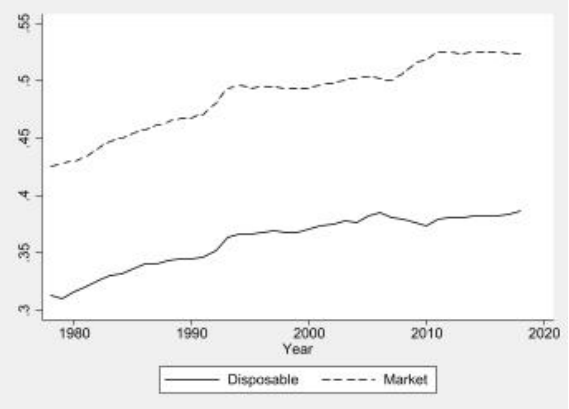


Figure A.4. Gini Coefficients



This hypothesis finds additional support through increases in the income share ratios. Whereas the ratio between the richest one percent and the next 9% of income earners (ratio I) was around 0.4 in 1980, the current level is close to hit the 0.7 threshold. A similar pattern is observable for the ratio between the richest one percent and the bottom 90% of income earners (ratio II). Finally, the Gini coefficients also indicate increasing levels of income inequality.

Appendix A.II. – Testing for Heteroskedasticity and Cross-sectional Dependence

Heteroskedasticity. By using a modified Wald test for groupwise heteroskedasticity, this subsection focuses on testing the restrictive assumption of homoskedasticity which presumes the same variance across time and cross-sections in the error structure. The error structure suffers from groupwise heteroskedasticity if the error term differs across units (cross-sections). Technically, the *xttest3* Stata command is applied according to which the resulting test statistic is distributed chi-squared under the null hypothesis of homoskedasticity. As presented in table A.1, the results show strong evidence of persistent presence of heteroskedasticity across all regressions.

Table A.1. Modified Wald test for groupwise heteroskedasticity in fixed-effect regression models

Regression # Dependent Variable	(1) Δ Top 0.1% Income Share	(2) Δ Top 1% Income Share	(3) Δ Next 9% Income Share	(4) Δ Top 10% Income Share	(5) Δ Ratio Top 1% to Next 9%	(6) Δ Ratio Top 1% to Bottom 90%	(7) Δ Gini Disposable Income	(8) Δ Gini Market Income
Chi-squared	**23373.54**	**6422.20**	**9820.78**	**4397.31**	**9696.75**	**18465.26**	**5182.94**	**7908.83**
Prob>chi-squared	**0.0000**	**0.0000**	**0.0000**	**00.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
# Countries	46	46	46	46	46	46	46	46
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The xtreg, fe Stata command uses the baseline regression specification with all control variables. Then, the xttest3 Stata command is applied.

Cross-sectional Dependence. Panel data models (*xtreg*) are built on the assumption that the error terms are independent across cross-sectional units. This assumption of cross-sectional independence is rather restrictive due to the increasing economic and financial integration of countries that inherently imply interdependencies between cross-sections. Given the underlying panel structure where N > T, the Breusch-Pagan test is not valid (De Hoyos and Sarafidis, 2006). To test for the presence of cross-sectional dependence in panels with many cross-sectional units and few time-series observations, the *xtcsd* Stata command is appropriate. The unbalanced panel structure requires to apply the *pesaran* option which follows a standard normal distribution of the pertinent statistic under the null hypothesis of cross-sectional independence. The *abs* option completes the testing results by providing the average absolute value of the off-diagonal elements of the cross-sectional correlation matrix of the error terms. According to De Hoyos and Sarafidis (2006), this specification is advantageous to identify cases of cross-sectional dependence where correlations can have changing signs. In addition, the *xtcdf* Stata command is used to test each variables panel structure separately. Its distribution is standard normal, and the null hypothesis is cross-sectional independence.

Table A.2. Post-estimation test for cross-sectional dependence in fixed-effect panel data models

Regression # Dependent Variable	(1) Δ Top 0.1% Income Share	(2) Δ Top 1% Income Share	(3) Δ Next 9% Income Share	(4) Δ Top 10% Income Share	(5) Δ Ratio Top 1% to Next 9%	(6) Δ Ratio Top 1% to Bottom 90%	(7) Δ Gini Disposable Income	(8) Δ Gini Market Income
Pesaran	-0.744	**-1.837***	-0.834	**-2.207****	-1.436	-0.707	**-3.107*****	**-2.940*****
	(0.4570)	(0.0662)	(0.4043)	(0.0273)	(0.1509)	(0.4799)	(0.0019)	(0.0033)
Average Absolute Value	**0.196**	**0.193**	**0.213**	**0.196**	**0.199**	**0.197**	**0.250**	**0.258**
# Countries	46	46	46	46	46	46	46	46
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The xtreg, fe Stata command uses the baseline regression specification with all control variables. Then, the xtcsd Stata command is applied with pesaran and abs option
**** p<.01, ** p<.05, * p<.1.*

As displayed in table A.2., the test proposed by Pesaran (2004) rejects the null hypothesis of no cross-sectional dependence at different significance levels in four out of eight regression specifications. However, the results presented with this test might fail to reject the null hypothesis even if there is substantial cross-sectional dependence due to adding up positive and negative correlations (De Hoyos and Sarafidis, 2006). This shortage applies in the underlying case since the paper analyses first-differenced data. Hence, the underlying regression variables reflect changes that can be positive and negative. The average absolute correlation constantly ranges between 0.193 and 0.258 across all regression specifications, implying more than just moderate levels of cross-sectional dependence that are not neglectable anymore. To reassure this evidence, a closer look at each variable's cross-sectional panel structure could be helpful to reject or confirm the violation against the assumption of cross-sectional dependence. The following table A.3. presents the results when applying *xtcdf*.

Table A.3. CD-test for cross-sectional dependence

Variables (in levels)	CD-Test	p-value	Variables (first differenced)	CD-Test	p-value
Dependent Variables					
0.1% Top Income Share	**37.327*****	0.000	0.1% Top Income Share	**8.109*****	0.000
1% Top Income Share	**38.678*****	0.000	1% Top Income Share	**9.237*****	0.000
Next 9% Top Income Shares	**23.498*****	0.000	Next 9% Top Income Shares	**1.860***	0.063
10% Top Income Shares	**39.246*****	0.000	10% Top Income Shares	**7.419*****	0.000
Ratio Top 1% to Next 9%	**36.522*****	0.000	Ratio Top 1% to Next 9%	**8.622*****	0.000
Ratio Top 1% to Bottom 90%	**39.409*****	0.000	Ratio Top 1% to Bottom 90%	**8.745*****	0.000
Gini coefficient (disposable)	**20.748*****	0.000	Gini coefficient (disposable)	**11.879*****	0.000

Gini coefficient (market)	**40.160*** **	0.000	Gini coefficient (market)	**20.15*** **	0.000
Independent Variables					
Relative M&A Activity	**46.299*** **	0.000	Relative M&A Activity	**17.491*** **	0.000
Stock Market Capitalization	**67.773*** **	0.000	Stock Market Capitalization	**68.483*** **	0.000
Real GDP per capita (log)	**160.057*** **	0.000	Real GDP per capita (log)	**56.587*** **	0.000
Government Spending	**27.068*** **	0.000	Government Spending	**42.140*** **	0.000
Trade Volume	**91.597*** **	0.000	Trade Volume	**64.234*** **	0.000
Unemployment Rate	**11.813*** **	0.000	Unemployment Rate	**33.503*** **	0.000
Age Dependency Ratio	**41.947*** **	0.000	Age Dependency Ratio	**84.303*** **	0.000
Variables Robustness Check					
Private Credit	**69.091*** **	0.000	Private Credit	**23.724*** **	0.000
Financial Development	**77.939*** **	0.000	Financial Development	**51.884*** **	0.000
KOF Trade Globalization Index	**90.960*** **	0.000	KOF Trade Globalization Index	**29.575*** **	0.000
Agriculture Share	**117.639*** **	0.000	Agriculture Share	**21.907*** **	0.000
Top Statutory Income Tax Rate	**11.399*** **	0.000	Top Statutory Income Tax Rate	**5.052*** **	0.000
Patent Applications (log)	**16.571*** **	0.000	Patent Applications (log)	**3.126*** **	0.002

*Notes: *** p<.01, ** p<.05, * p<.1.*

This general diagnostic test for cross-sectional dependence in panels is applied for all variables used in the analyses above. The test is used for variables in level and in first-differenced format. Except for the first differenced variable of the top income share of the next nine percent, all variables reject the null hypothesis of no cross-sectional dependence at the 1% significance level. This strongly indicates the presence of cross-sectional dependence across panels in each variable that is robust when analysing level or first-differenced data. Combined with the results obtained in table A.2., this leads to the conclusion that the assumption of no cross-sectional dependence is violated. Valid statistical inference requires adequate adjustment of standard errors.

Appendix A.III. – Discussion on Selecting the Preferred Regression Estimation Method

If only violations of the homoskedasticity and serial correlation assumptions were present, the prominent cluster-robust standard errors would appropriately and robustly estimate the covariance matrix. However, this estimation method cannot adjust the standard errors for cross-sectional dependence and would provide misleading inferential statistics (Hoechle, 2007), with the consequence of not being the preferred choice. Instead, for valid statistical inference, it is either necessary to execute appropriate standard error adjustments to OLS estimations or to apply another estimation method such as the GLS estimator to possibly improve model efficiency. Choosing between these options in a panel data structure with prevalence of the cross-sectional unit dimension N does not come without further complexity, as each of the proposed estimation methods relies on large-T asymptotics (see Parks, 1967, Beck and Katz, 1995, Driscoll and Kraay, 1998, Hoechle, 2007).

To construct standard errors robust to cross-sectional dependence, the GLS estimation method needs to estimate all pairwise covariances between the cross-sectional units and thereby relies on an N x N cross-sectional covariance matrix (Beck and Katz, 1995). As the maximum rank of the N x N cross-sectional covariance matrix is determined by the lesser value of T and N, it becomes invertible when N is larger than T (Beck and Katz, 1995).[35] This mathematical constraint alone makes the GLS estimator technically infeasible for a qualified application in this research's panel data structure with N > T. Furthermore, through analysis of finite sample performances, (Beck and Katz, 1995) argue that the GLS estimator produces inaccurate and overly optimistic standard errors which more generally calls into question the precision of results obtained from the GLS estimation method when N is small. Therefore, they developed an estimation method that still relies on the OLS coefficient estimates but substitutes the corresponding OLS standard errors with panel-corrected standard errors (PCSE) that by default

[35] By constructing and analysing finite sample performances, Beck and Katz (1995) point out that even when T is larger than N, and both are of comparable size, the estimation of the pairwise cross-sectional covariances will be poorly estimated. They conclude that the GLS Parks estimator should only be used if T is sufficiently larger than N.

account for cross-sectional dependence.[36] In brevity, the PCSE method estimates the full N x N cross-sectional covariance matrix but makes the strong assumption that all cross-sectional correlations are identical for every pair of cross-sectional units (Hoechle, 2007). Methodologically, such a constrained cross-sectional correlation matrix is all but immune against misspecification (Hoechle, 2007). With regards to applicability, the PCSE estimator seems to be popular in small samples sizes where the time dimension T is prevalent (Millo, 2017). Indeed, one should be cautious to use the PCSE estimator in a short panel data structure as the finite sample properties are poor when the ratio between T/N is rather small (Hoechle, 2007).

As the GLS estimator and the PCSE correction are inappropriate to correct for heteroskedasticity as well as temporal and cross-sectional dependence when the cross-sectional unit dimension N grows large, Driscoll and Kraay (1998) developed a nonparametric standard error correction method that remedies the deficiencies of these large-T estimators. First, they define aggregated moment conditions by averaging over the cross-sectional units N in each period, so that the cross-sectional dimension collapses into a single time-series. Then, they apply the standard nonparametric Newey-West estimator to the obtained sequence of cross-sectional averages of the moment conditions. This transformation guarantees consistency of the Driscoll-Kraay covariance matrix estimator, independently of the cross-sectional unit dimension N that is also allowed to grow at any rate relative to T ($N \rightarrow \infty$). In this context, Driscoll and Kraay (1998) demonstrate that their estimation produces standard errors consistent to general forms of cross-sectional and temporal dependence, releasing researchers from parametrically specifying the exact correlation structures of the standard errors without prior knowledge about them. This is a clear advantage over the PCSE estimator because the lack of a natural order of cross-sectional dependence makes it difficult to determine a specific form. In conformity with the theoretical asymptotic properties of the Driscoll-Kraay estimator, caution is advised in panel data structures classified as being small in terms of their time dimension T (Hoechle, 2007). However, even in finite sample performances with small time dimensions such as T=10, the Driscoll and Kraay estimator shows respectable accuracy compared to alternatives not taking into account adjustments for cross-sectional dependence (Driscoll and Kraay, 1998).[37] This resonates with the findings of Hoechle (2007) who reports dominance of the Driscoll and Kraay estimator over methods that do not correct standard errors for cross-sectional correlation when the panel data structure exhibits a balanced nature and the time dimension T is rather short with values of T equal to 10, 15 and 25 periods, respectively.

Table A.4. Summary of selected estimation methods that produces robust standard errors

Estimation Method	SE structures that are robust to			Accounting for Endogeneity	Asymptotic Properties	Applicability if N > T
	Hetero-skedasticity	Serial Correlation	Cross-sectional Dependence			
FGLS	Yes	Yes	Yes	No	Large T-Asymptotics	No, N < T required for feasibility
PCSE	Yes	Yes	Yes	No	Large T-Asymptotics	Yes, if the ratio T/N is small
Driscoll-Kraay	Yes	Yes	Yes	No	Large T-Asymptotics	Yes, independent of N. More precise when $T \rightarrow \infty$
GMM	Yes	Yes	No	Yes	Large N-Asymptotics	Yes, due to $N \rightarrow \infty$

Sources: Original version is taken from Hoechle (2007) and extended by further categories such as asymptotic properties.

Carefully considering theoretical asymptotics and finite sample performances of each estimator discussed above and comparing them to the properties of the underlying unbalanced and short panel

[36] When the assumptions imposed to the OLS standard errors are not met, coefficient estimates obtained from OLS are still consistent but inefficient. Therefore, relying on OLS estimates but just correcting their standard errors is a plausible strategy.

[37] This study relies on a panel data structure whose time dimension T ranges between T=13 (Romania) to T=39 (United States). The length of the time dimension of the majority of countries included is T > 20.

data structure, reasonably advocates applying the OLS estimation method adjusted by the covariance matrix consistent Driscoll and Kraay standard error corrections. Table A.4. provides a short summary. For a complete mathematical treatment see Beck and Katz (1995), Driscoll and Kraay (1998), and Hoechle (2007).

Appendix A.IV. – Testing for Stationarity

Due to the restrictive formulation of the null hypothesis of panel unit root testing methodologies, the rejection in favour of the alternative hypothesis does not mean that all the panels are stationary as it is assumed in basic econometric models applied in panel data context. Instead, the rejection only validates that at least one panel is stationary without providing information which panels are stationary and which ones are non-stationary. Only the Hadri LM test assumes that all panels are stationary against the alternative hypothesis that at least one panel contains a unit root and is therefore non-stationary. However, this test is not applicable for unbalanced panel data sets. Given the shortages of panel unit root testing methodologies, this paper separately investigates each panel at the country-level in order to confirm or reject the violation of the assumption that all panels should be stationary.

The Augmented Dickey-Fuller and Phillips-Perron unit root test are performed, using the *dfuller* and *pperron* Stata commands respectively. Both define a null hypothesis that assumes the variable to contain a unit root, whereas the alternative hypothesis states that the variable follows a stationary process. The tests are only performed for the dependent variable and the key independent variable of M&A activity. The variables of interest are first tested in levels, followed by complementary tests of each variables first-differenced format. Results are reported in table A.6. and table A.7.

To begin with, table A.6. analyses the top 1% income share variable. When measured in levels, the majority of panels fails to reject the null hypothesis, and only a few panels show significance at the 1% and 5% significance level. Hence, the top 1% income share variable follows a non-stationary process. Using this variable would produce spurious regression results invalid for correct statistical inference. In such cases, it is often argued that a transformation into first-differenced data helps to widely eradicate this bias. Indeed, when measured in first-differenced format, the problem of non-stationary does not entirely vanish but greatly mitigates the risk of spurious regressions results. The majority of panels can reject the null hypothesis at the highest significance level and only three panels remain classified as non-stationary. This result is consistent for both tests applied.

Table A.6. CD-test for cross-sectional dependence (ADF and PP specification)

1% Top Income Share	# Obs.	ADF Test Statistic	p-value	PP Test Statistic	p-value	# Obs.	ADF Test Statistic	p-value	PP Test Statistic	p-value
	Level Data					*First-Differenced Data*				
Country										
Argentina	22	**-3.491****	0.0404	**-3.520****	0.0373	21	**-8.392*****	0.0000	**-8.751*****	0.0000
Australia	35	**-3.587****	0.0310	**-3.487****	0.0408	34	**-5.922*****	0.0000	**-6.202*****	0.0000
Austria	34	**-3.732****	0.0203	**-3.795****	0.0168	33	**-8.835*****	0.0000	**-10.197*****	0.0000
Belgium	33	**-3.804****	0.0163	**-3.829****	0.0152	32	**-5.167*****	0.0001	**-5.294*****	0.0001
Brazil	18	-2.341	0.4114	-2.417	0.3709	17	**-4.116*****	0.0060	**-4.124*****	0.0058
Bulgaria	26	-1.191	0.9124	-1.445	0.8472	25	**-4.918*****	0.0003	**-5.028*****	0.0002
Canada	37	-2.469	0.3438	-2.440	0.3585	36	**-6.444*****	0.0000	**-6.670*****	0.0000
Chile	19	-2.537	0.3095	-2.658	0.2539	18	-2.317	0.4248	-2.217	0.4804
China	32	-0.222	0.9911	-0.927	0.9532	31	**-3.270***	0.0714	**-3.285***	0.0687
Colombia	26	-2.363	0.3996	-2.406	0.3762	25	**-6.445*****	0.0000	**-6.422*****	0.0000
Czech Republic	28	-2.696	0.2376	-2.562	0.2975	27	**-6.735*****	0.0000	**-7.494*****	0.0000
Denmark	33	-2.633	0.2649	-2.785	0.2026	32	**-6.072*****	0.0000	**-6.110*****	0.0000
Estonia	26	-2.549	0.3040	-2.607	0.2768	25	**-5.350*****	0.0000	**-5.366*****	0.0000
Finland	34	-1.227	0.9048	-1.517	0.8233	33	**-4.776*****	0.0005	**-4.837*****	0.0004
France	35	-1.933	0.6377	-1.815	0.6974	34	**-6.202*****	0.0000	**-6.372*****	0.0000
Germany	34	-1.639	0.7769	-2.155	0.5154	33	**-3.313***	0.0642	**-3.363***	0.0565
Greece	34	-1.533	0.8177	-1.953	0.6270	33	**-3.816****	0.0158	**-3.729****	0.0205
Hungary	30	-2.102	0.5449	-2.021	0.5902	29	**-5.734*****	0.0000	**-5.986*****	0.0000
Iceland	23	-2.539	0.3089	-2.584	0.2872	22	**-5.124*****	0.0001	**-5.146*****	0.0001
India	32	-0.469	0.9846	-0.721	0.9717	31	**-5.042*****	0.0002	**-5.084*****	0.0001
Ireland	33	-1.582	0.7996	-1.846	0.6823	32	**-4.330*****	0.0028	**-4.301*****	0.0031
Italy	34	-2.475	0.3406	-2.506	0.3250	33	**-5.684*****	0.0000	**-5.707*****	0.0000
Japan	34	-2.423	0.3674	-2.699	0.2367	33	**-4.285*****	0.0033	**-4.188*****	0.0047
Latvia	25	**-3.564****	0.0331	**-3.583****	0.0313	24	**-9.500*****	0.0000	**-10.973*****	0.0000

Lithuania	24	**-4.006*** **	0.0086	**-3.971*** **	0.0097	23	**-6.125*** **	0.0000	**-6.395*** **	0.0000
Luxembourg	33	**-3.967*** **	0.0098	**-4.025*** **	0.0081	32	**-8.827*** **	0.0000	**-11.717*** **	0.0000
Malaysia	17	-1.343	0.8769	-1.798	0.7056	16	-2.272	0.4494	-2.317	0.4244
Netherlands	35	-2.707	0.2330	-2.698	0.2371	34	**-7.278*** **	0.0000	**-7.413*** **	0.0000
New Zealand	32	**-3.236***	0.0775	**-3.144***	0.0960	31	**-6.318*** **	0.0000	**-6.647*** **	0.0000
Nigeria	22	-0.207	0.9914	-0.479	0.9842	21	-1.487	0.8335	-1.645	0.7742
Norway	33	-1.380	0.8666	-1.121	0.9254	32	**-7.145*** **	0.0000	**-7.703*** **	0.0000
Poland	30	-2.435	0.3613	-2.451	0.3529	29	**-5.325*** **	0.0001	**-5.331*** **	0.0000
Portugal	32	-3.059	0.1163	-3.046	0.1197	31	**-8.872*** **	0.0000	**-8.935*** **	0.0000
Romania	26	-1.482	0.8351	-1.423	0.8540	25	**-4.884*** **	0.0003	**-4.918*** **	0.0003
Russia	27	-1.655	0.7700	-1.694	0.7535	26	**-3.630** **	0.0274	**-3.645** **	0.0263
Singapore	32	-1.748	0.7291	-2.028	0.5861	31	**-5.551*** **	0.0000	**-5.581*** **	0.0000
Slovenia	35	-2.470	0.3433	-2.499	0.3284	34	**-4.603*** **	0.0010	**-4.596*** **	0.0010
South Africa	29	-0.293	0.9897	-0.425	0.9861	28	**-3.647** **	0.0261	**-3.512** **	0.0382
South Korea	29	-2.152	0.5170	-2.211	0.4838	28	**-5.885*** **	0.0000	**-5.887*** **	0.0000
Spain	34	-1.019	0.9414	-1.072	0.9336	33	**-5.336*** **	0.0000	**-5.373*** **	0.0000
Sweden	34	-2.227	0.4744	-2.390	0.3847	33	**-5.060*** **	0.0002	**-5.019*** **	0.0002
Switzerland	35	-2.627	0.2678	-2.646	0.2590	34	**-4.603*** **	0.0010	**-4.463*** **	0.0017
Thailand	18	**-3.269***	0.0714	**-3.313***	0.0641	17	**-7.527*** **	0.0000	**-7.044*** **	0.0000
Turkey	29	-0.762	0.9688	-1.181	0.9144	28	**-3.973*** **	0.0096	**-3.986*** **	0.0092
United Kingdom	38	-1.502	0.8284	-1.700	0.7509	37	**-6.818*** **	0.0000	**-6.772*** **	0.0000
United States	41	-2.603	0.2785	-2.561	0.2982	40	**-6.399*** **	0.0000	**-6.560*** **	0.0000

*Notes: MacKinnon approximate p-value for Z(t). Trend option is applied to include a constant and time trend. *** p<.01, ** p<.05, * p<.1.*

As can be seen in table A.7., the variable of relative M&A activity is also exposed to the risk of producing spurious regression results when used in econometric models that rely on exploiting its data in levels. The Augmented Dickey-Fuller test and the Phillips-Perron test, both confirm the presence of non-stationary processes in several panels. Again, the transformation into first-differenced data seems to drastically alleviate this risk as all but one panel significantly demonstrate the absence of non-stationary processes. Consequently, this paper follows the strategy to mitigate spurious regression results by applying variables transformed into first-differenced format.

Table A.7. CD-test for cross-sectional dependence (ADF and PP specification)

Relative M&A Activity	# Obs.	ADF Test Statistic	p-value	PP Test Statistic	p-value	# Obs.	ADF Test Statistic	p-value	PP Test Statistic	p-value
		Level Data					*First-Differenced Data*			
Country										
Argentina	30	**-4.450*** **	0.0018	**-4.490*** **	0.0016	29	**-7.648*** **	0.0000	**-7.977*** **	0.0000
Australia	35	-2.641	0.2613	-2.569	0.2946	34	**-6.529*** **	0.0000	**-7.061*** **	0.0000
Austria	34	**-4.783*** **	0.0005	**-4.777*** **	0.0005	33	**-9.108*** **	0.0000	**-11.773*** **	0.0000
Belgium	33	**-5.162*** **	0.0001	**-5.191*** **	0.0001	32	**-9.391*** **	0.0000	**-12.912*** **	0.0000
Brazil	34	**-3.416** **	0.0493	**-3.528** **	0.0365	33	**-10.282*** **	0.0000	**-10.316*** **	0.0000
Bulgaria	26	**-5.199*** **	0.0001	**-5.222*** **	0.0001	25	**-8.303*** **	0.0000	**-10.014*** **	0.0000
Canada	37	**-3.545** **	0.0349	**-3.538** **	0.0355	36	**-8.056*** **	0.0000	**-8.569*** **	0.0000
Chile	32	**-3.575** **	0.0320	**-3.579** **	0.0317	31	**-7.353*** **	0.0000	**-8.865*** **	0.0000
China	32	-3.098	0.1068	-3.115	0.1027	31	**-5.865*** **	0.0000	**-5.888*** **	0.0000
Colombia	32	**-3.405***	0.0508	**-3.298***	0.0666	31	**-5.780*** **	0.0000	**-6.453*** **	0.0000
Czech Republic	28	**-3.707** **	0.0219	**-3.714** **	0.0215	27	**-8.325*** **	0.0000	**-9.652*** **	0.0000
Denmark	33	**-3.757** **	0.0189	**-3.796** **	0.0168	32	**-8.119*** **	0.0000	**-9.198*** **	0.0000
Estonia	26	**-3.805** **	0.0163	**-3.762** **	0.0186	25	**-6.312*** **	0.0000	**-6.560*** **	0.0000
Finland	34	-2.752	0.2151	-2.690	0.2402	33	**-8.145*** **	0.0000	**-8.594*** **	0.0000
France	35	-2.701	0.2356	-2.661	0.2527	34	**-6.996*** **	0.0000	**-7.230*** **	0.0000
Germany	34	-2.524	0.3163	-2.585	0.2870	33	**-6.451*** **	0.0000	**-6.498*** **	0.0000
Greece	34	**-5.698*** **	0.0000	**-5.704*** **	0.0000	33	**-9.280*** **	0.0000	**-11.941*** **	0.0000
Hungary	28	**-6.099*** **	0.0000	**-6.440*** **	0.0000	27	**-9.909*** **	0.0000	**-11.287*** **	0.0000
Iceland	23	-1.426	0.8531	-1.739	0.7334	22	-2.904	0.1611	-2.963	0.1428
India	32	**-3.400***	0.0514	**-3.434** **	0.0470	31	**-6.567*** **	0.0000	**-6.799*** **	0.0000
Ireland	33	**-3.322***	0.0627	**-3.214***	0.0817	32	**-5.559*** **	0.0000	**-5.766*** **	0.0000
Italy	34	-2.319	0.4233	-2.249	0.4622	33	**-5.656*** **	0.0000	**-5.805*** **	0.0000
Japan	34	**-4.154*** **	0.0052	**-4.054*** **	0.0074	33	**-7.033*** **	0.0000	**-8.450*** **	0.0000
Latvia	24	**-3.789***	0.0171	**-3.721** **	0.0210	23	**-12.572*** **	0.0000	**-10.602*** **	0.0000
Lithuania	24	**-4.345*** **	0.0027	**-4.343*** **	0.0027	23	**-6.395*** **	0.0000	**-7.069*** **	0.0000
Luxembourg	33	**-5.785*** **	0.0000	**-5.853*** **	0.0000	32	**-8.989*** **	0.0000	**-11.503*** **	0.0000
Malaysia	32	**-3.507** **	0.0387	**-3.353***	0.0579	31	**-8.139*** **	0.0000	**-10.106*** **	0.0000
Netherlands	35	**-3.975*** **	0.0095	**-3.962** **	0.0100	34	**-7.356*** **	0.0000	**-8.062*** **	0.0000
New Zealand	32	**-5.847*** **	0.0000	**-5.829*** **	0.0000	31	**-10.989*** **	0.0000	**-13.377*** **	0.0000
Nigeria	22	**-4.284*** **	0.0033	**-4.288*** **	0.0033	21	**-7.848*** **	0.0000	**-9.917*** **	0.0000
Norway	33	**-3.980*** **	0.0094	**-3.948** **	0.0104	32	**-8.066*** **	0.0000	**-9.802*** **	0.0000
Poland	29	**-3.759** **	0.0188	**-3.604** **	0.0295	28	**-6.122*** **	0.0000	**-6.973*** **	0.0000
Portugal	32	**-4.413*** **	0.0021	**-4.414*** **	0.0021	31	**-9.480*** **	0.0000	**-11.653*** **	0.0000
Romania	26	-2.835	0.1843	-2.799	0.1975	25	**-4.596*** **	0.0010	**-4.607*** **	0.0010
Russia	27	**-3.842** **	0.0146	**-3.926** **	0.0112	26	**-11.150*** **	0.0000	**-12.295*** **	0.0000
Singapore	34	**-4.414*** **	0.0021	**-4.360*** **	0.0025	33	**-7.841*** **	0.0000	**-9.095*** **	0.0000
Slovenia	25	**-3.483** **	0.0413	**-3.501** **	0.0392	24	**-6.837*** **	0.0000	**-7.139*** **	0.0000
South Africa	29	**-3.236***	0.0775	**-3.178***	0.0888	28	**-6.365*** **	0.0000	**-6.722*** **	0.0000
South Korea	30	-2.743	0.2187	-2.750	0.2158	29	**-6.311*** **	0.0000	**-6.513*** **	0.0000
Spain	34	**-3.232***	0.0781	**-3.156***	0.0935	33	**-7.402*** **	0.0000	**-8.066*** **	0.0000

Sweden	34	-2.590	0.2847	-2.597	0.2811	33	**-5.426*** **	0.0000	**-5.429*** **	0.0000
Switzerland	35	**-4.642*** **	0.0009	**-4.626*** **	0.0009	34	**-8.980*** **	0.0000	**-10.400*** **	0.0000
Thailand	30	**-5.655*** **	0.0000	**-5.656*** **	0.0000	29	**-9.523*** **	0.0000	**-12.027*** **	0.0000
Turkey	31	**-4.299*** **	0.0032	**-4.340*** **	0.0027	30	**-8.625*** **	0.0000	**-10.072*** **	0.0000
United Kingdom	38	-2.388	0.3861	-2.378	0.3914	37	**-5.261*** **	0.0001	**-5.203*** **	0.0001
United States	41	-2.271	0.4498	-2.511	0.3223	40	**-5.040*** **	0.0002	**-4.970*** **	0.0002

*Notes: MacKinnon approximate p-value for Z(t). Trend option is applied to include a constant and time trend. *** p<.01, ** p<.05, * p<.1.*

Appendix A.V. – Results of Performed Robustness Analyses

Table A.8. FE OLS Model (solely based on domestic M&A transactions)

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Key Independent Variable								
Δ rel. M&A Activity	**0.00100***	**0.00206** **	0.00021	**0.00235** **	**0.01041** **	**0.00352** **	**0.00043** **	**0.00031***
	(0.00051)	(0.00077)	(0.00047)	(0.00096)	(0.00398)	(0.00149)	(0.00020)	(0.00017)
Δ rel. M&A Activity	**0.00048** **	**0.00096*** **	**0.00028** **	**0.00121*** **	**0.00360*** **	**0.00178** **	**0.00054*** **	**0.00029*** **
(squared)	(0.00022)	(0.00032)	(0.00013)	(0.00041)	(0.00131)	(0.00066)	(0.00008)	(0.00010)
Control Variables								
Δ Stock Market	**0.00851** **	**0.01321** **	-0.00005	**0.01298** **	**0.06043** **	**0.02418** **	**0.00151*** **	0.00111
Capitalization	(0.00418)	(0.00587)	(0.00145)	(0.00536)	(0.02865)	(0.01155)	(0.00046)	(0.00066)
Δ log real GDP per	**0.02524*** **	**0.03063** **	-0.02063	0.00971	**0.15558*** **	0.04871	**-0.01219** **	**-0.01494*** **
capita	(0.00639)	(0.01414)	(0.01823)	(0.03084)	(0.03862)	(0.03861)	(0.00504)	(0.00455)
Δ Government	**-0.10106*** **	**-0.17268*** **	0.01102	**-0.18824*** **	**-0.87681*** **	**-0.37552*** **	-0.00666	0.00152
Spending	(0.02846)	(0.03503)	(0.03971)	(0.04037)	(0.20465)	(0.06517)	(0.00701)	(0.00774)
Δ Unemployment Rate	0.00445	0.00080	-0.00156	0.00059	-0.00384	-0.00317	**0.02571*** **	**0.04204*** **
	(0.01009)	(0.01746)	(0.01907)	(0.03209)	(0.05788)	(0.04243)	(0.00831)	(0.01427)
Δ Trade Volume	0.00122	0.00526	0.00165	0.00645	0.00930	0.01206	-0.00147	-0.00027
	(0.00329)	(0.00488)	(0.00621)	(0.00945)	(0.01926)	(0.01184)	(0.00105)	(0.00082)
Δ Age Dependency	-0.00415	-0.01888	-0.09092	-0.11421	0.13533	-0.06723	-0.04079	-0.01515
Ratio	(0.04434)	(0.07589)	(0.05751)	(0.09594)	(0.33330)	(0.15812)	(0.03049)	(0.04075)
Constant	**-0.00360*** **	**-0.00589*** **	**0.00245*** **	**0.00323** **	0.00073	**-0.01199*** **	**0.00324*** **	0.00038
	(0.00077)	(0.00132)	(0.00068)	(0.00121)	(0.00459)	(0.00277)	(0.00064)	(0.00080)
Observations	1159	1159	1147	1147	1147	1142	1215	1215
R-squared (within)	0.08532	0.10685	0.03924	0.09200	0.11251	0.08196	0.12600	0.19650
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1*

Table A.9. FE OLS Model with alternative measures

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Panel A – Private Credit								
Δ rel. M&A Activity	0.00118	0.00212	0.00010	0.00224	0.01032	0.00377	0.00024	0.00016
	(0.00087)	(0.00141)	(0.00048)	(0.00150)	(0.00719)	(0.00242)	(0.00015)	(0.00012)
Δ rel. M&A Activity	0.00020	**0.00045** **	**0.00018*** **	**0.00061*** **	**0.00153***	**0.00086** **	**0.00024*** **	**0.00014** **
(squared)	(0.00012)	(0.00018)	(0.00005)	(0.00020)	(0.00085)	(0.00034)	(0.00004)	(0.00005)
Control Variables	-0.00339	-0.00728	-0.00209	-0.00961	-0.02507	-0.01713	0.00191	0.00181
Δ Private Credit	(0.00468)	(0.00755)	(0.00201)	(0.00798)	(0.03610)	(0.01299)	(0.00142)	(0.00171)
Observations	1239	1239	1227	1227	1227	1222	1298	1298
R-squared (within)	0.07093	0.08480	0.03744	0.07230	0.09124	0.06698	0.12475	0.20055
Panel B – Total Financial Development								
Δ rel. M&A Activity	**0.00114***	**0.00208***	0.00015	**0.00226***	**0.01019***	**0.00367***	**0.00027*** **	0.00017
	(0.00067)	(0.00114)	(0.00048)	(0.00130)	(0.00581)	(0.00201)	(0.00009)	(0.00013)
Δ rel. M&A Activity	0.00014	**0.00033***	**0.00013** **	**0.00045** **	0.00115	**0.00060***	**0.00024*** **	**0.00013** **
(squared)	(0.00011)	(0.00017)	(0.00006)	(0.00020)	(0.00074)	(0.00033)	(0.00004)	(0.00005)
Δ Total Financial	0.00510	0.00743	-0.00042	0.00681	0.03579	0.01267	**0.00166*** **	**0.00130** **
Development	(0.00365)	(0.00526)	(0.00127)	(0.00510)	(0.02617)	(0.00996)	(0.00029)	(0.00055)
Observations	1148	1148	1136	1136	1136	1131	1204	1204
R-squared (within)	0.07776	0.09637	0.03962	0.08350	0.10227	0.07371	0.12875	0.20169
Panel C – KOF Trade Globalization Index								
Δ rel. M&A Activity	0.00108	**0.00211***	0.00020	**0.00232** **	**0.00977***	**0.00377***	**0.00019***	0.00015
	(0.00065)	(0.00105)	(0.00027)	(0.00110)	(0.00541)	(0.00186)	(0.00010)	(0.00011)
Δ rel. M&A Activity	**0.00021***	**0.00041** **	**0.00015*** **	**0.00056*** **	**0.00155** **	**0.00078** **	**0.00027*** **	**0.00014*** **
(squared)	(0.00011)	(0.00016)	(0.00005)	(0.00019)	(0.00075)	(0.00032)	(0.00003)	(0.00005)
Δ KOF Trade	0.00004	0.00009	-0.00004	0.00004	0.00025	0.00029	0.00002	**0.00011*** **
Globalization Index	(0.00011)	(0.00016)	(0.00009)	(0.00018)	(0.00078)	(0.00033)	(0.00003)	(0.00003)
Observations	1076	1076	1064	1064	1064	1059	1114	1114
R-squared (within)	0.09233	0.11132	0.03856	0.09664	0.11705	0.08542	0.12513	0.19615

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1. All regression specifications include country- and year-fixed effects.*

Table A.10. FE OLS Model with additional measures

Regression #	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable	Δ Top 0.1% Income Share	Δ Top 1% Income Share	Δ Next 9% Income Share	Δ Top 10% Income Share	Δ Ratio Top 1% to Next 9%	Δ Ratio Top 1% to Bottom 90%	Δ Gini Disposable Income	Δ Gini Market Income
Panel A – Top Statutory Income Tax Rate								
Δ rel. M&A Activity	0.00023	0.00085	0.00017	0.00103	0.00447	0.00088	0.00027	0.00021
	(0.00036)	(0.00058)	(0.00018)	(0.00062)	(0.00259)	(0.00105)	(0.00020)	(0.00014)
Δ rel. M&A Activity	**0.00027****	**0.00051****	**0.00017*****	**0.00067*****	**0.00181****	**0.00104*****	**0.00021*****	**0.00009*****
(squared)	(0.00012)	(0.00018)	(0.00006)	(0.00021)	(0.00069)	(0.00034)	(0.00003)	(0.00003)
Δ Top Statutory Income	**-0.03486****	**-0.03979***	0.00056	-0.03923	**-0.21053****	-0.06642	-0.00202	0.00988
Tax Rate	(0.01313)	(0.01932)	(0.01118)	(0.02610)	(0.08858)	(0.03932)	(0.00327)	(0.00600)
Observations	512	512	512	512	512	512	510	510
R-squared (within)	0.20330	0.22315	0.03405	0.18957	0.22286	0.19184	0.09391	0.23030
Panel B – Taxes and Government Ideology								
Δ rel. M&A Activity	0.00042	**0.00127***	0.00015	**0.00142***	**0.00621***	0.00184	**0.00033***	**0.00028****
	(0.00041)	(0.00065)	(0.00023)	(0.00075)	(0.00295)	(0.00116)	(0.00018)	(0.00012)
Δ rel. M&A Activity	**0.00028****	**0.00049****	**0.00011***	**0.00060****	**0.00185****	**0.00100****	**0.00020*****	**0.00009****
(squared)	(0.00013)	(0.00019)	(0.00006)	(0.00023)	(0.00075)	(0.00037)	(0.00004)	(0.00003)
Δ Top Statutory Income	**-0.10270*****	**-0.14460*****	-0.01695	**-0.16155*****	**-0.57421*****	**-0.32915*****	-0.01881	0.00180
Tax Rate * Government Ideology (left)	(0.02018)	(0.02949)	(0.02515)	(0.04122)	(0.12115)	(0.06039)	(0.01119)	(0.01309)
Δ Top Statutory Income	**0.10534*****	**0.16139*****	0.01949	**0.18088****	**0.64833*****	**0.37507*****	0.01377	-0.00035
Tax Rate * Government Ideology (center)	(0.03048)	(0.04888)	(0.02295)	(0.06556)	(0.18927)	(0.09665)	(0.02172)	(0.01847)
Δ Top Statutory Income	**0.11449*****	**0.16514*****	0.02547	**0.19061*****	**0.63627*****	**0.38452*****	0.01906	0.00789
Tax Rate * Government Ideology (right)	(0.02982)	(0.04021)	(0.02086)	(0.03928)	(0.17801)	(0.08211)	(0.01308)	(0.01928)
Observations	426	426	426	426	426	426	426	426
R-squared (within)	0.24030	0.27559	0.03867	0.24074	0.25658	0.26551	0.12024	0.28621
Panel C – Agriculture Share								
Δ rel. M&A Activity	0.00099	**0.00187***	0.00015	**0.00207***	**0.00944***	**0.00322***	**0.00022****	0.00014
	(0.00062)	(0.00102)	(0.00050)	(0.00120)	(0.00539)	(0.00180)	(0.00009)	(0.00012)
Δ rel. M&A Activity	0.00020	**0.00041****	**0.00015***	**0.00054****	**0.00144***	**0.00076***	**0.00021*****	**0.00007****
(squared)	(0.00013)	(0.00019)	(0.00009)	(0.00024)	(0.00078)	(0.00038)	(0.00003)	(0.00003)
Δ Agriculture Share	**-0.05154***	-0.05886	0.00839	**-0.06646***	**-0.37045***	-0.14152	-0.01077	-0.01095
	(0.02693)	(0.04151)	(0.03025)	(0.03493)	(0.21725)	(0.09049)	(0.00907)	(0.00998)
Observations	1045	1045	1033	1033	1033	1033	1101	1101
R-squared (within)	0.08409	0.10498	0.03528	0.09185	0.11214	0.08180	0.11876	0.19277
Panel C – Patent Applications								
Δ rel. M&A Activity	0.00093	**0.00173***	0.00005	0.00182	0.00898	0.00292	**0.00029*****	**0.00020***
	(0.00061)	(0.00099)	(0.00055)	(0.00114)	(0.00535)	(0.00179)	(0.00009)	(0.00011)
Δ rel. M&A Activity	**0.00020***	**0.00042****	**0.00016***	**0.00056*****	**0.00151****	**0.00078****	**0.00024*****	**0.00010****
(squared)	(0.00011)	(0.00016)	(0.00008)	(0.00021)	(0.00067)	(0.00032)	(0.00004)	(0.00004)
Δ Patent Applications	-0.00080	-0.00194	-0.00186	-0.00397	-0.00426	-0.00482	-0.00064	-0.00074
	(0.00182)	(0.00247)	(0.00150)	(0.00281)	(0.00899)	(0.00571)	(0.00055)	(0.00059)
Observations	1076	1076	1064	1064	1064	1059	1130	1130
R-squared (within)	0.08605	0.10860	0.05131	0.10006	0.11373	0.08483	0.13412	0.18707

*Notes: Driscoll and Kraay standard errors are in parentheses *** p<.01, ** p<.05, * p<.1. All regression specifications include country- and year-fixed effects.*