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"Left behind?" Financialization and income inequality between the affluent, middle class, and the poor

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"LEFT BEHIND?" FINANCIALIZATION AND INCOME INEQUALITY BETWEEN THE AFFLUENT, MIDDLE CLASS, AND THE POOR

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ABSTRACT: There is increasing scholarly evidence that financialization has contributed to rising income inequality, especially by concentrating income among the affluent and rich. There is less empirical research examining who is losing out to the affluent. This paper fills this gap by examining how three measures of financialization (finance, insurance and real estate or FIRE employment; credit expansion; and financial crises) affect upper-tail (measured as the ratio between the 90th and 50th income percentiles) and lower-tail (measured as the ratio between the 50th and 10th income percentiles) income inequality. Using concepts from economic sociology and the social stratification literature, I develop a perspective that links financialization to income inequality by creating more unequal market incomes while simultaneously reducing redistribution and social transfers. I analyze disposable household income data (after taxes and transfers) from the Luxembourg Income Study (LIS) and other public sources like the OECD from 16 affluent nations between the years 1980 to 2010, and I use an unbalanced panel design due to LIS data coverage. I find that both the middle class and poor are hurt by financialization (strongest evidence tied to FIRE employment); however, incomes of the poor are most sensitive to financialization.

Keywords: financialization; income inequality; income distribution; poverty, poor, low income

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1. INTRODUCTION

In many affluent nations, the rich have become richer while the poor and the middle class have been increasingly left behind (Volscho and Kelley, 2012; Flaherty, 2015; Wright and Rogers, 2015; Piketty and Saez, 2015). One of the main drivers behind rising incomes for the rich and affluent is financialization (Zalewski and Whalen, 2010; Tomaskovic-Devey and Lin, 2011; Lin and Tomaskovic-Devey, 2013; Kus, 2012; Flaherty, 2015), which is defined as a "pattern of accumulation in which profit making occurs increasingly through financial channels rather than through trade and commodity production (Krippner, 2011, p. 4)." Financialization has been shown to fuel rising inequality through three main processes. First, it increases market incomes at the top of the income distribution by strengthening the power of owners and elite workers relative to other workers (Lin and Tomaskovic, 2013), which has subsequently put downward pressure on nonfinancial workers' wages (Tomaskovic-Devey and Lin, 2011). A major factor shaping this project is the rise of the shareholder value conception of the firm (see Fligstein and Shin, 2004, 2007), which places primacy of stock growth over reinvesting profits back into productive technology and workers. Second, stock market growth and volatility has led to huge windfalls for a small group of investors while the costs of economic crises have been placed on the public and national governments, as we saw with the recent global Great Recession (Lapavitsas, 2013). Third, financialization has also decreased redistribution through taxes and social transfers in affluent nations because financialization puts pressure to reduce taxes for top income earners, as well as taxes for capital gains, in a number of affluent nations (Hyde, Wallace, and Vachon, 2018).

While there has been an influx of research on the relationships between financialization and income inequality over the last decade, many questions remain. To date, most research has focused on the Gini index, and there have been few comparative studies using a wide range of affluent

countries to examine how financialization impacts different parts of the income distribution other than the top 1% share (Volscho and Kelly, 2012; Flaherty, 2015) and labor's share of income (Kristal, 2013). While the rich are the winners, it is not clear how the middle class and poor are doing relative to the rich because of financialization. In addition, the mechanisms of financialization that drive lower wages for the middle class and poor are not outlined. To address some of these gaps in the literature, I analyze data from the Luxembourg Income Study and other publicly available data sources on 16 affluent nations between 1980 and 2010.

This paper contributes to the current literature on financialization and income inequality in several ways. First, I examine two parts of the income distribution: a) *upper-tail inequality*, which is measured as the 90-50 income ratio; and b) *lower-tail inequality*, which is measured as the 50-10 income ratio. Second, I use a multidimensional concept of financialization using three different components: finance, insurance, and real estate (FIRE) employment; credit expansion; and financial crises. These three interrelated yet distinct components have been linked to rising income inequality in previous theoretical literature (Lapavitsas, 2013; Dünhaupt, 2016); however, credit expansion and financial crises have been explored less in empirical research other than Hyde, Wallace, and Vachon's (2018) study, which I build upon. As financial employment and value added to the economy has increased, there has been an accompanying expansion of private sector credit and debt (Krippner, 2011; Lapavitsas, 2013). As private sector credit and debt increases and expands into interlocking financial institutions, the risk, frequency, and intensity of crises also increases (Minsky, 1982; Dünhaupt, 2016). Thus, these three interrelated concepts provide a good overview of some of the major components of financialization. Third, I use high-quality income inequality data from the Luxembourg Income Study (described in detail later in the paper). Fourth,

I explore the links between financialization and upper- and lower-tail inequality across a variety of affluent nations over the entire neoliberal period.

In what follows, I provide a brief overview of the definitions and trends in upper- and lower-tail inequality in affluent nations. I then outline the theoretical framework used in this paper. Next, I describe the data and methods used for the analyses and subsequently explore the descriptive statistics and the analytical results. Overall, I find evidence that financialization increases upper- and lower-tail inequality, particularly through FIRE employment. Ultimately, my analyses suggest that the poor are more negatively affected by financialization than the middle class. I then conclude the paper with discussion about the theoretical implications of the research, as well as some limitations and suggestions for future research.

2. DEFINITIONS AND TRENDS IN UPPER- AND LOWER-TAIL INEQUALITY

While the Gini index—the most popular measure of income inequality—is excellent for describing what is going on in the middle of the income distribution, it is not very effective at capturing changes in the tails of the distribution (Atkinson, 1970; Volscho and Fullerton, 2005, p. 1328). In an effort to capture other dynamics of the income distribution, researchers are increasingly embracing different measures of income inequality. I explore two of these measures in this study. Upper-tail inequality represents inequality between the affluent, measured as the 90^{th} income percentile, and the median worker, measured as the 50^{th} percentile. The 50^{th} percentile serves as an approximation of middle class income. Lower-tail inequality represents inequality between the median worker and the poor, measured as the 10^{th} percentile.

It is important to distinguish the differences between the top 1% and top 10%, or the 90^{th} percentile, of the income distribution. In his 2013 documentary film *Inequality for All*, Robert Reich effectively captures this distinction in his discussion of the occupations and income sources

of different parts of the income distribution. The top 1% represent CEOs, top managers, financiers, athletes, and pop culture icons and tend to acquire most of their income through capital gains. The 90th percentile, or the top 10%, also includes professionals such as doctors, lawyers, and dentists, as well as managers in small and large firms. While some of their income is derived from capital gains, the top 10% of earners make most of their money from salaries and bonuses.

The differences in occupations and income sources for the 50th and 10th percentiles relative to the 90th percentile is more dramatic. The 50th percentile, or the median worker, represents the middle class (Wright and Rogers, 2015). These households tend to hold white-collar jobs that require a college degree. In nations where unions are strong, the 50th percentile may also be in blue-collar manufacturing jobs. The 10th percentile represents the poor. These individuals may work in jobs with low-skill requirements and low pay and may depend on government assistance to make ends meet. By examining the three parts of the income distribution, we gain a more comprehensive view of what parts of the income distribution are impacted by changes in inequality.

While upper-tail inequality increased in many nations during the neoliberal era, there is variation across countries. In Figure 1, I present trends in upper-tail inequality. There are three important things to note from this figure. First, there are relatively few data points in these scatterplots due to the small sample size of the Luxembourg Income Study (LIS) data (120 total observations), and there are different numbers of observations by nation due to the unbalanced coverage of the data. Second, there are dramatic differences in the levels of inequality by nation. For example, countries like the United States, United Kingdom, and Australia have relatively high levels of upper-tail inequality. Countries like France, Germany, and Canada are in the middle range. Finally, nations like Sweden, Denmark, and Norway had relatively low levels of upper-tail

inequality. Among the 16 nations, Australia, Austria, Belgium, Canada, Finland, Germany, Sweden, the United Kingdom, and the United States all experienced upward trends in upper-tail inequality. Other nations, like Denmark, France, and Netherlands had relatively stable levels of upper-tail inequality during the period. Italy ended the period with approximately the same level of upper-tail inequality as when it began despite fluctuation in the intervening years. Ireland and Switzerland saw decreasing levels of upper-tail inequality. Overall, the variation in inequality is largely between nations; however, there is also substantial within country variation. Additionally, the affluent have increasingly left the median worker behind in many affluent nations; however, there was fluctuation between nations. Finally, on average, there appears to be a positive curvilinear relationship of upper-tail inequality over time.

[Insert Figure 1 here]

There is a different pattern for lower-tail inequality in the 16 nations from 1981 to 2011, which is presented in Figure 2. First, there is greater between country variation in lower-tail inequality compared to upper-tail inequality. The United States had by far the most lower-tail inequality over the period followed by Canada and Australia. Italy, Ireland, and the United Kingdom were in the middle range. The rest of the nations tended to have lower values, with Sweden, Netherlands, and Finland having the lowest values. Lower-tail inequality actually decreased in the United States from 1981 to 2011 partially due to several increases in the minimum wage, which have boosted incomes for those at the bottom of the income distribution (Neckerman and Torche, 2007). Despite decreasing lower-tail inequality, the United States still had the highest lower-tail inequality of the neoliberal era. Several other nations, like Denmark and France, also saw decreasing lower-tail inequality over the period. Nations like Australia, Canada, Netherlands, Norway, Sweden, and Switzerland saw lower-tail inequality stay relatively stable over the period. Other nations like Austria, Ireland, and the United Kingdom experienced rising lower-tail

inequality leading up to the mid-1990s and decreasing inequality afterwards. Finally, nations like Finland, Italy, and Germany saw rising lower-tail inequality during the neoliberal era. Overall, there appears to be a positive curvilinear pattern in these data; however, this pattern varies by country.

[Insert Figure 2 here]

While there are a variety of factors shaping income inequality, financialization has gained increasing attention in the literature. Below, I briefly outline the definitions and trends in financialization, as well as their links to upper- and lower-tail inequality.

3. FINANCIALIZATION AND UPPER- AND LOWER-TAIL INEQUALITY

In this paper, I build upon previous research by Hyde, Wallace, and Vachon (2018) by examining three measures of financialization to tap into its multidimensional nature. The first is finance, insurance, and real estate employment (FIRE) employment, which is the most common measure used in research on financialization and income inequality, represents the social, economic, and political power of finance. Over the past few decades, the percent of workers employed in FIRE industries increased rather dramatically. In 1970, no OECD nation had more than 10% employment; however, 23 of the 34 OECD countries had above 10% FIRE employment by 2008 (Assa, 2012). The second measure is credit expansion, which represents the rapid growth of speculative activities by financial institutions and private enterprises through highly leveraged investments in deregulated financial markets (Davis, 2009; Krippner, 2011; Lin, 2016). Much like was seen with FIRE employment, private sector credit and debt has also increased dramatically in affluent nations over the last few decades (Dobbs et al., 2015). Third, I consider financial crises. As debt and speculative activities are more common in national economies, they can lead to financial crises with disparate impacts on different parts of the income distribution (Heathcote,

Perri, and Violante, 2010). In the next section, I describe the theory and hypotheses linking these components of financialization to upper-tail and lower-tail income inequality.

3.1. FIRE Employment

Finance, insurance, and real estate (FIRE) employment is the first component of financialization and represents both the relative size of employment in finance, insurance, and real estate industries, as well as more generally the economic and political power of finance. FIRE employment has also increased rapidly in several affluent nations (Assa, 2012) and is often correlated with the share of value added provided by the financial sector (Hyde, Wallace, and Vachon, 2018). There are several ways that the growth of FIRE employment can affect upper-tail and lower-tail inequality.

First, FIRE employment can boost the incomes of the 90th income percentile. FIRE employment has spurred the growth in financial incomes that have vastly exceeded income growth for nonfinancial workers, even after controlling for productivity and human capital (Tomaskovic-Devey and Lin, 2011). Outside of the financial sector, financial managers in nonfinancial firms have also experienced disproportionate wage growth (Lin and Tomaskovic-Devey, 2013). Additionally, top management pay became linked to stock options rather than long-term market shares, sales, or production-based profits in an effort to increase stock values and prevent hostile takeovers and to make (Fligstein and Shin, 2007; Tomaskovic-Devey and Lin, 2011). As a result, nonfinancial firms began to increasingly focus on shareholder value to the detriment of productive investments. Indeed, Orhangazi (2008) found that increased financial payments to managers resulted in significantly less capital investments in nonfinancial firms. These practices did not necessarily lead to increased profitability, however. Any profits were simply reinvested into the stock market instead of focusing on investing in new factories, workers, or innovation. The

shareholder value conception of the firm also led to increased connivance within firms. Firms that prioritized shareholders over stakeholders were also more likely to engage in financial manipulation of their corporate accounts (Prechel and Morris, 2010). While deregulation allowed managers and CEOs to manipulate financial markets and do risky activities, the shareholder value conception of the firm provided increased incentives for this manipulation to occur (Tomaskovic-Devey and Lin, 2011). As a result, the shareholder value conception of the firm has implications for the growth of finance in the neoliberal era, as well as rising income inequality.

Second, the growth of finance more generally can reduce the 50^{th} and 10^{th} income percentiles by putting downward pressure on labor's share of income (Kristal, 2013). As finance becomes more influential in shaping the economy and shareholder value becomes a larger priority for firms, there is increased pressure to reduce labor costs, which can include management measures to reduce or eliminate the influence of unions in wage determination (Tomaskovic-Devey and Lin 2011). To satisfy shareholder interests and attract investors, firms increasingly used mergers, layoffs, and laborsaving technology (such as automation), which led to reduced employment and pay, particularly in unionized workplaces (Fligstein and Shin 2007). This undercuts wages for workers in the middle of the income distribution.

The incomes of the 10^{th} percentile may be particularly vulnerable because individuals at this income level tend to have less education, skill, and bargaining power: thus, their compensation packages tend to be more at risk as management can easily find replacements if these workers demand higher compensation. Further, as the financial sector grows in relative size, there is increased demand for low-wage, low-skill work to cater to the needs of the elite, which increases the proportion of individuals in the bottom of the income distribution (Moller, Anderson, and Nielsen, 2009; Sassen, 2001). Overall, I predict that:

Hypothesis 1: The percent of workers employed in FIRE industries will be positively associated with upper-tail and lower-tail inequality.

3.2. Credit Expansion

The second component of financialization is credit expansion in the private sector, specifically the amount of credit extended to private sector firms relative to a country's economic output. Credit expansion taps into several important processes related to financialization that are difficult to measure across nations (Hyde, Wallace, and Vachon, 2018). First, credit expansion connects to the deregulation of finance, which loosened credit restrictions and accelerated speculative investment (Krippner, 2011; Wright and Rogers, 2015). Second, credit expansion taps into the increasing use of leveraging, or the practice of banks and financial institutions of using borrowed assets for their investments. Private sector credit expansion and leveraging primarily benefit the affluent as they are afforded opportunities to boost their incomes and profits for corporations through speculation (Lapavitsas, 2013). Leveraging and speculation can lead to tidy profits that benefit the incomes of the wealthy; however, they can lead to major losses if prices fall. The wealthy can hedge their risky investments by using derivatives and other forms of securities to provide partial insurance if a deal goes bad (Guttman, 2008); however, the poor and middle class rarely have the capital to take advantage of these opportunities, assuming they are privileged enough to invest at all. While the top 1% are more heavily dependent upon capital gains and investments for their income (Atkinson, Piketty, and Saez, 2010; Wright and Rogers, 2015), the 90^{th} percentile tends to be more reliant on salaries and bonuses. As a result, private sector credit may not benefit the 90^{th} percentile as much as it does the top 1%.

Finally, credit expansion tends to be associated with lower economic growth and value added of nonfinancial industries (Lin, 2016) and simultaneously increases profits and incomes in

the financial sector (Bank for International Settlements, 2001; Evans, 2003). This process may add pressure to decrease wages for the middle class (50^{th} percentile) and the poor (10^{th} percentile) in nonfinancial industries in an effort to minimize labor costs and to maximize profits and shareholder value (Tomaskovic-Devey and Lin, 2011). While the middle class is vulnerable to wage stagnation or decline in this scenario, the poor may be particularly vulnerable due to their weak bargaining power, threat of being fired by replacement workers or automation. Therefore, since private sector credit expansion mainly serves the interests of the wealthy I offer the following hypothesis:

> *Hypothesis 2: The share of domestic credit provided to the private sector will be positively associated with upper-tail and lower-tail inequality.*

3.3. Financial Crises

The final component of financialization is financial crises. As previously stated, I conceptualize financial crises as a part of financialization because the expansion of credit and debt in national economies can lead to quick and lucrative profits for investors; however, the risk for financial crisis increases as leveraging practices grow and debt becomes interlocked among financial institutions (Minsky, 1982; Harvey, 2010; Lapavitsas, 2013). Ultimately, this type of risky speculative activity was influential in the 2007-2008 recession that affected many affluent nations (Wright and Rogers, 2015).

It is unclear from the literature how financial crises will affect upper-tail and lower-tail inequality. The top 1% share takes a major hit in incomes relative to everyone else during financial crises as their incomes are dependent on capital gains (Atkinson, Piketty, and Saez, 2010; Wright and Rogers, 2015). The 90^{th} income percentile as a whole will tend to have a higher percentage of their income derived from capital gains than parts below them in the income distribution income.

Despite this, they are much more reliant on salaries and bonuses than the top 1%. Thus, while the 90th percentile may receive pay cuts or job losses due to financial crises, the losses that they experience are less tied to financial markets than major losses that the top 1% experiences through depleted capital gains income. The middle class and the poor tend to take large hits in income during financial crises because many lose jobs through unemployment, face pay cuts, or see reductions in their hours worked (Heathcote, Perri, and Violante, 2010). As shown in Hyde, Wallace, and Vachon (2018), the welfare state does reduce inequality created during financial crises through automatic stabilization of social services and programs that supplement income losses for the middle class and poor (Dolls, Fuest, and Peichl, 2012); however, it does not necessarily stave off all the inequality caused by financial crises. It is unclear from the literature whether the poor or middle class take a bigger hit during financial crises, however. Income losses for the middle class and poor are likely dependent upon the welfare generosity of the state, particularly unemployment insurance, which is highly variable across countries. Given the previous discussion, I predict that:

> *Hypothesis 3: Financial crises will be associated with greater upper-tail and lower-tail inequality.*

4. DATA AND METHODS

4.1. Data Sources and Descriptions

The primary data source for the dissertation is the Comparative Welfare States (CWS) dataset, compiled by Huber, Ragin, and Stephens (1997), updated by David Brady, Evelyne Huber, and John H. Stephens (2014), with further additions and updates by myself and colleagues at the University of Connecticut. I use data from the Luxembourg Income Study (LIS) to examine how financialization affects upper-tail and lower-tail inequality. The LIS data are appended to the CWS

file to link them with the key independent variables and controls. In Table 1, I present the countries and years that are available in the LIS. In total, there are 16 countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Sweden, Switzerland, the United Kingdom, and the United States) and 120 country-years that are available. Due to the nature of the data, the analyses will require the use of an unbalanced panel design, which means that each country will not have the same number of observations and years represented. In this data, Italy has the most observations (11) while Switzerland has the least (5).

[Insert Table 1 here]

4.1.1. Dependent Variables

I use the Luxembourg Income Study (LIS) to derive two measures of income inequality based upon the income shares of different percentiles. *Upper-tail inequality* represents the income disparity between the rich and the median worker. This is operationalized as the income ratio between the 90^{th} percentile and the median (i.e., the 50^{th} percentile). *Lower-tail inequality* represents the income disparity between the median worker compared to the poor. This is measured as the income ratio between the median of the income distribution and the 10^{th} percentile. These data are collected from the *LIS Inequality and Poverty Key Figures* (LIS, 2016) dataset provided by the LIS, which were derived from calculations using individual-level tax data collected from national tax agencies. These data are derived from disposable household income, or income after taxes and transfers have been accounted. For the analyses, upper- and lower-tail values are multiplied by 100 so that they are on a similar scale to the independent variables.

4.1.2. Financialization Variables

I conceptualize financialization as a multi-dimensional concept with three interrelated yet distinctive characteristics. First, *FIRE employment* is the percent of the labor force employed in

finance, insurance, and real estate industries.[1] The second dimension is *credit expansion*, measured as the stock of domestic credit provided by the banking sector to the private sector as a percent of GDP. Finally, *financial crisis*, derived from Reinhart (2010) and Reinhart and Rogoff (2011), represents the occurrence of stock market crises and their after-effects over time.[2] Reinhart and Rogoff (2009) suggest that the aftershocks of these crises can last for at least three years. I suspect that the after-effects of financial crises on inequality may increase initially before slowly dissipating in subsequent years. As shown in Figure 1, I model this process with a five-year stepwise lag variable that starts at a value of 1 in the year of the crisis, increases to 2 in year 2, increases to 3 in year 3, declines to 2 in year 4, declines to 1 in year 5, and returns to 0 in year 6. When crises occur in adjacent years, the effects are cumulative. That is, the values for crises in adjacent years are added together, which allows consecutive crises to create greater dislocations than solo crises. Hypothetically, the financial crisis variable can vary between 0 and 9, reaching the highest value when there are crises in five consecutive years. Empirically, this variable achieves a value of 9 in two years in the data set, 1981 and 1982 for the U.S. These data are originally created on the full coverage balanced version of the dataset and then observations without LIS data are dropped.

4.1.3. Control Variables

The analyses incorporate several control variables to account for alternative explanations of rising upper- and lower-tail inequality. I include two measures of the business cycle. The first is

[1]An alternative measure, percent of value added by the financial sector, might be preferable, but this measure does not exist for all countries and years. However, for six countries with complete data on value added in the financial sector (Austria, Denmark, Finland, Italy, Netherlands, and Norway), it is correlated, on average, .91 with the employment-based measure I use.

[2] While some of Reinhart and Rogoff's research has come under criticism lately (see Herndon, Ash, and Pollin 2013), these criticisms do not challenge the validity of their stock market crisis measure.

economic growth, which is measured as the annual percent growth rate of GDP at market prices based on constant 2000 U.S. dollars and is collected from the World Bank *National Accounts Data.* If economic prosperity tends to bring equal rewards to all citizens, then we would expect economic growth to decrease income inequality. If economic prosperity tends to benefit the rich over other groups, then we would expect economic growth to increase inequality. The second is *unemployment*, which is the unemployment rate for adult workers collected from the OECD Main Indicators. Unemployment is expected to increase income inequality because it is associated with a greater supply of workers relative to demand, which decreases the bargaining power of labor relative to capital.

Additionally, I use two measures of labor market structure. The first is *government employment*, which his measured civilian government employment as a percentage of total civilian employment and is collected from Cusack (2004). Second is *union density*, which is measured as union density as a percentage of wage and salary workers collected by Visser (2013). Both government employment and union density are predicted to decrease income inequality because they tend to provide more middle-wage jobs with better worker protections.

Previous research has extensively examined the link between globalization and income inequality, so I control for two measures of globalization. The first is *imports*, calculated by dividing the value of imports by Gross Domestic Product (GDP) for each country-year. Past research suggests that import penetration increases income inequality by providing products from low-wage countries that compete with domestically produced products (Alderson 1999). The second indicator is *inward FDI*, which is inward foreign direct investment stock as a percent of GDP. Inward FDI generally reflects the search for lower-cost sources of labor and favorable tax

policies that tend to increase income inequality. All independent variables are lagged one year for causal time ordering.

4.2. Methods

The unbalanced panel design has several important implications for the analyses. To address these concerns, I use several OLS models with lagged dependent variables and cluster robust standard errors (group variable is country). These models address three major problems that are typically present in macroeconomic time series analysis: serial correlation, panel heteroscedasticity, and cross-sectional dependence. Cluster robust standard errors address those three concerns. Additionally, the smaller sample size (120) limits the degrees of freedom, which has implications for hypothesis testing. Given the limitations of the sample size, the analyses in this paper are largely exploratory and caution should be used before drawing strong causal conclusions.

Another issue to consider for this paper is unobserved heterogeneity by country and year, which can lead to omitted variable bias. Determining the proper specification for time is particularly complex for these data. As illustrated in Figures 1, 2, and 3, there was significant country-level variation in the dependent variables, which suggests that country fixed effects are appropriate for these models. Additionally, the time trends appeared to be curvilinear despite moderate variation across countries. As a result, I show a series of different models for each dependent variable using a combination of country fixed effects, year fixed effects, and time trend variables to illustrate the decision-making process with regard to model specification. First, I estimated two separate sets of analyses for the three dependent variables—upper-tail and lower-tail inequality. Within each set of analyses, I ran five separate models with different specifications of year fixed effects, country fixed effects, and time trend variables in order to determine the optimal

model specification for the results. In model 1 of each table, the independent variables are lagged and there are no year or country fixed effects or time trend variables. In model 2, I add *only* year fixed effects to determine if there is unobserved heterogeneity related to year-specific factors and do not include country fixed effects. In model 3, I add *only* country fixed effects to determine if there is unobserved heterogeneity among countries. In model 4, I include *both* year and country fixed effects. This model is the most conservative model, but it is costly in degrees of freedom as there are only 120 observations and 16 country fixed effects and 26 fixed effects for year.[3]

In model 5 of each table, I include country fixed effects and time and time squared. Careful examination of these alternatives reveals that (a) country fixed effects are likely needed to properly specify the model, and (b) time and time squared may perform similarly to year fixed effects but would conserve 24 degrees of freedom. In Figure 3, I present scatterplots of country-centered values for each dependent variable across time and then plot the line of best fit for each scatterplot. Country-centered values for each dependent variable are derived by subtracting each country's observed values from that country's mean values. This process removes the between-country variation from the dependent variables and reveals within-country time trends in each series. As one can see, each of the three dependent variables has a modest positive curvilinear trend, which suggests that time and time squared are appropriate specifications for time. Given these considerations, I show all 5 model specifications in the tables and discussion of results and discuss the implications of each.

Insert Figure 3 here

[3] Only 26 of the 31 years in the full period of 1981 to 2011 are available in the LIS for the 16 countries used in these analyses.

Below, I present the analyses of the relationships between financialization and upper-tail and lower-tail inequality from 1981 to 2011.

5. RESULTS

Descriptive statistics for these analyses are presented in Table 2. There are two dependent variables: upper-tail inequality and lower-tail inequality. Upper-tail inequality, measured as the 90-50 income ratio, has an average value of 1.83, which means that the 90th percentile's income is on average 1.83 times larger than the median worker's income. Upper-tail inequality has a standard deviation of .18 and ranges between 1.51 for Finland in 1987 and 2.19 for the United States in 2010. Lower-tail inequality, measured as the 50-10 income ratio, has a mean value of 1.99. This means that the median worker on average has 1.99 times more income than the 10th percentile. Lower-tail inequality has a standard deviation of .25 and ranges between 1.61 for Sweden in 1981 and 2.72 for the United States in 1986.

Insert Table 2 here

Among the key independent variables, FIRE employment was on average 11.35% of total employment in the sample with a standard deviation of 3.39%. FIRE employment was lowest in Italy during 1986 with a value of 3.43% and highest in the United States during 2010 with a value of 17.84%. Credit expansion, measured as private sector credit as a percent of GDP, had an average value of 116.68% with a standard deviation of 46.64%. Credit expansion ranged between 42.05% for Australia in 1985 and 235.52% for the United States in 2007. Finally, financial crises had a mean value of 2.19 units and a standard deviation of 2.34. This ranged between 0 and 7, which occurred 8 times in the sample.

There are several stages of analyses in this paper. For each dependent variable, I run five models to illustrate how model specification impacts the results. Each dependent variable is

multiplied by 100 to make it easier to interpret the coefficients by bringing them in scale with the independent variables. In Table 3, I present the OLS models with lagged independent variables and cluster robust standard errors predicting the relationship between financialization and upper-tail inequality. For brevity, I will only focus on the key independent variables. Among the financialization variables, FIRE employment is not significant in models 1 and 2, which do not include country fixed effects; however, it has a marginally significant positive effect ($p<0.1$) in models 3 and 4, which *do* include these effects. It was not statistically significant in model 5 with fixed effects and time and time squared included in the model. This is likely because of the small sample size limits the power to find statistically significant results. Overall, these findings provide weak support for *Hypothesis 1*. In model 3, a one-percent increase in FIRE employment is associated with a .870-unit increase in the 90-50 income ratio (x100) the following year. This provides weak evidence that FIRE employment is associated with an increase in the gap between the affluent and the middle class by undermining wages for middle class workers and improving incomes for FIRE employees (Tomaskovic-Devey and Lin 2011).

Insert Table 3 here

Credit expansion is positively associated with upper-tail inequality in models 1 and 2. When country fixed effects are added to models 3, 4, and 5, this effect is no longer significant. These nonsignificant results signal that credit expansion is associated with upper-tail inequality; however, this relationship is caused by unobserved differences among nations. One potential component of financialization that may mediate this relationship is financial deregulation, which is not available for all of the countries and years in this analysis. In sum, these findings provide moderate support for *Hypothesis 2*; however, the association between credit expansion and upper-tail inequality is explained away by unobserved country-level differences. Finally, financial crises

do not have a significant impact on upper-tail inequality in models 1 through 5. The coefficients in models 2 through 5 are in the predicted positive direction, though. Therefore, I find little-to-no support for *Hypothesis 3*.

In Table 4, I present the results for the OLS models with lagged independent variables and cluster robust standard errors predicting the relationships between financialization and lower-tail inequality for 16 nations from 1981 to 2011. Among the financialization variables, FIRE employment is associated with greater lower-tail inequality in models 3, 4, and 5 while there are nonsignificant coefficients in models 1 and 2. In model 5, a one-percent increase in FIRE employment is associated with a 2.821-unit increase in the income ratio of the 50^{th} and 10^{th} percentiles (x100) in the following year. On the whole, these findings provide support for *Hypothesis 1*. As FIRE employment increases creating higher incomes for workers in finance and related industries, there is increased demand for low-wage and low-skill workers to provide services to cater to the financial elite (Moller et al., 2009). Further, financialization puts downward pressure on the wages of the most vulnerable workers, those who are less skilled and near the bottom of the income distribution.

Insert Table 4 here

Credit expansion is associated with greater lower-tail inequality in models 1 and 2; however, the effect is nonsignificant in models 3, 4, and 5, which include country fixed effects, which supports *Hypothesis 2*. The positive association in models 1 and 2 perhaps indicates that increased credit and leverage in the economy can result in greater pressure to reduce low-skill workers' wages in an effort to minimize labor costs; however, this effect seems to be mediated by unobserved country-level characteristics. I encourage future research to explore in greater detail the relationships between the expansion of private sector credit, as well as other types of credit,

and lower-tail inequality. Finally, financial crises are not associated with lower-tail inequality in models 1 through 5; thus, there is litte evidence that these crises impact either the middle class or the poor disproportionately. While the poor and middle class both take hits during financial crises, the relative income ratio between the two is not affected.

6. DISCUSSION AND CONCLUSION

While income inequality has been rising in many affluent nations primarily due to gains by the top 1% (Piketty and Saez, 2015), this paper explores what is happening in different parts of the income distribution as a result of financialization in 16 affluent nations from 1981 to 2010. Previous research examining the determinants of upper- and lower-tail inequality has focused on declining union membership (Card et al., 2004); the shift from manufacturing to services, deregulation in many industries, a rise in contingent labor (Berhardt et al., 2001; Fligstein and Shin, 2004; Morgan and Cha, 2007), and economic globalization (Wallace, Gauchat and Fullerton, 2012). To date, there has been little cross-national research examining the impacts of financialization on upper- and lower-tail inequality in affluent nations during the neoliberal era barring Fligstein and Shin's (2004) study of the impacts of the shareholder value conception of the firm on inequality in the United States. This paper begins to address this gap in the stratification literature.

Turning to specific results, FIRE employment is significant and positive for lower-tail inequality while it is positive and marginally significant for upper-tail in the models with country fixed effects and country and time fixed effects. This suggests that as employment in finance, insurance, and real estate increases, the affluent leave behind both the middle class and the poor, which supports both hypotheses; however, the affluent (measured as the top 10%) do not seem to benefit as much as the rich (the top 1%). Workers in the finance industry paid at a much higher

rate than those in nonfinancial industries (Wright and Rogers, 2015), as well as financial managers and accountants in nonfinancial firms (Tomaskovic-Devey and Lin, 2011). As the financial sector grows in size and economic and political influence, this tends to benefit the affluent and the rich; however, the marginally significant on upper-tail inequality result suggests that perhaps the affluent benefit less than the rich, which is a potentially fruitful avenue for future research.

The middle class and poor are disproportionately disadvantaged when FIRE employment grows for several reasons. First, the shareholder value conception of the firm encourages firms to reduce labor costs to the minimum in order to maximize profits and boost stock prices and shareholder value (Fligstein and Shin, 2007). This hurts middle class jobs and incomes because one strategy used by managers is to target unionized employees, which often have better benefits and pay (Tomaskovic-Devey and Lin, 2011). The poor seem to be more vulnerable in this scenario given that FIRE employment is associated with greater lower-tail inequality, which suggests that the poor are falling behind the middle class. Because lower-income workers have less bargaining power due to a lack of in-demand skills, they may be more vulnerable to cost-cutting efforts associated with shareholder value. In particular, cost-cutting technology, such as automatic checkout lines at grocery stores and automation of various types, used to boost profits and shareholder value may disproportionately impact the poor over the middle class. Indeed, Fligstein and Shin (2007) argue that companies who use cost-cutting technology tend to fire low-to-middle-skilled workers and replace them with fewer high-skilled workers. These changes in workplace practices may disproportionately put low-income workers at risk of income loss.

The analyses provide less robust support that credit expansion has increased upper-tail and lower-tail inequality. Overall, credit expansion was associated with greater upper-tail and lower-tail inequality in models where country-fixed effects were not included; however, it was not

significant in the models that included country fixed effects. This suggests that private sector credit is related to upper- and lower-tail inequality; however, this relationship is mediated by unobserved country characteristics, such as financial deregulation or other factors. While private sector credit expansion does increase inequality and the top 1% share by allowing the rich to use leverage to make speculative moves (Guttman, 2008), those benefits may not extend fully to the affluent, represented by the 90th percentile. I encourage future research to explore the relationship between private sector credit and different parts of the income distribution in greater detail.

Finally, the analyses in this study signal that financial crises, net of other variables, do not have a significant impact on upper-tail and lower-tail inequality. The coefficients for upper-tail inequality are positive and in the correct direction; however, they fail to reach standard significant levels in each model. While it is encouraging that these effects are consistently in the predicted direction, the lack of statistical significance suggests caution, especially considering that financial crises were found to increase market-generated (before taxes and transfers are accounted) and state-mediated (after taxes and transfers are accounted) inequality in Hyde, Wallace, and Vachon (2018). It is possible that the affluent may face income losses in years affected by financial crises; however, this effect may vary significantly across nations thus masking the effect. Alternatively, financial crises may affect upper-tail and lower-tail inequality through unemployment and economic growth, which are used as controls in these analyses. Finally, the effect of financial crises may have been significant if the entire balanced sample of 18 nations from 1981 to 2011 were available or if ECM models were feasible; however, it is impossible to determine this with the data limitations. I encourage future research to explore this finding in greater detail in the future.

While much of the political and scholarly attention focuses on rising incomes for rich and affluent and stagnant (Flaherty, 2015) or declining wages for the middle class (see Leicht and Fitzgerald, 2014 for a summary), there has often been less attention to what is going on with the poor. The analyses show that financialization has likely benefitted the affluent at the expense of both the middle class and the poor; however, the poor have disproportionately fallen behind the middle class, as well. The reduction of social services and public goods (Kotz and McDonough, 2010), as well as the rise of low-wage, low-skill and contingent work in response to financialization (Moller et al., 2009), has caused the poor to see their relative incomes decrease. Individuals without college degrees, who tend to be over-represented in the bottom 10% of income earners, are increasingly at risk of experiencing a loss of income and well-being in affluent nations with higher levels of financialization (The Economist Staff, 2014). Indeed, college wage premiums rose in several affluent nations during the 2000s, including France, the United States, the United Kingdom, and Ireland. In 2011, the college degree premium in the United States was 77%. In other words, the average person with a college degree made 77% more in income than those without a college degree in the U.S. The college premium was typically lower in other nations: 57% in the United Kingdom, 47% in France, and just 25% in Sweden. One should note that the nations with higher college degree premiums tend to also have greater levels of financialization. This may not be a causal relationship, but it does provide grist for future research to explore this connection in detail. While the incomes of the middle class have been targeted by cost cutting initiatives in government programs and financialization through shareholder value, the results in this paper suggest that policy-makers should be more attentive to the poor as they appear to face disproportionate losses in nations with higher levels of financialization.

The use of the LIS data is one of the major strengths of this paper by allowing me to examine different parts of the income distribution other than the Gini index or top 1% share. The LIS data also offers high comparability across countries as they put in much effort to harmonize the data from different sources. Despite the innovations of this paper and use of the LIS data, the biggest limitation is the sample size of 120 observations; however, it cannot be avoided. As a result, I should emphasize again that this research is largely exploratory and looking at associations rather than making strong causal claims. As new data becomes available at the LIS and other sources, I encourage researchers to continue the exploration of the relationship between financialization and inequality in different parts of the income distribution, particularly in less affluent nations. This research not only expands our understanding of the processes that shape inequality within and across nations, it also provides insight for into the formation of policy to reduce economic inequality within nations.

Figure 1: Trends in the Upper-Tail Inequality in 16 Affluent Nations, 1981-2011

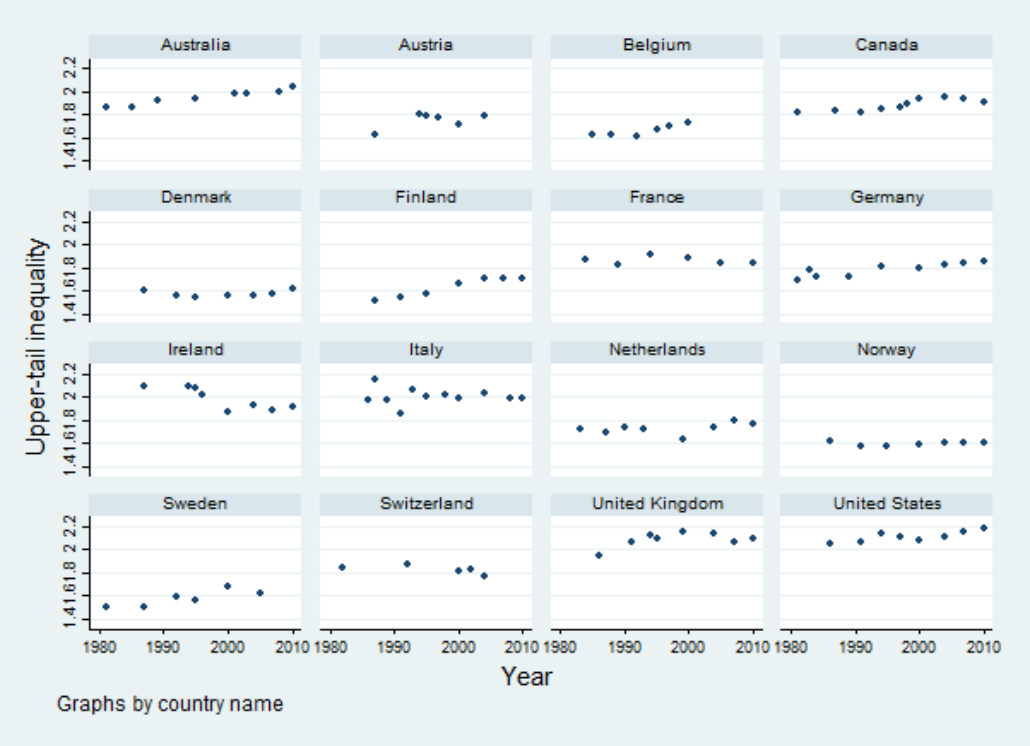
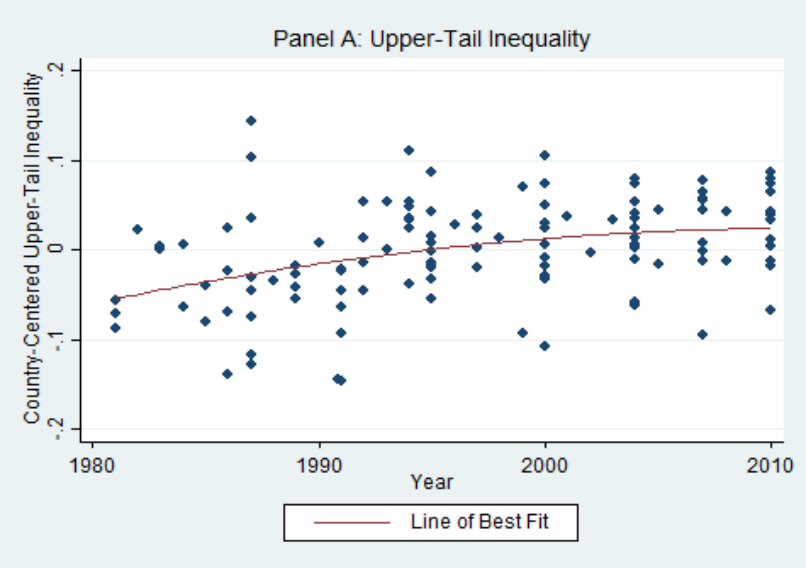


Figure 2: Trends in the Lower-Tail Inequality in 16 Affluent Nations, 1981-2011

Figure 3: Within Country Variation in Upper-Tail and Lower-Tail Inequality in 16 Affluent Nations, 1981-2011.



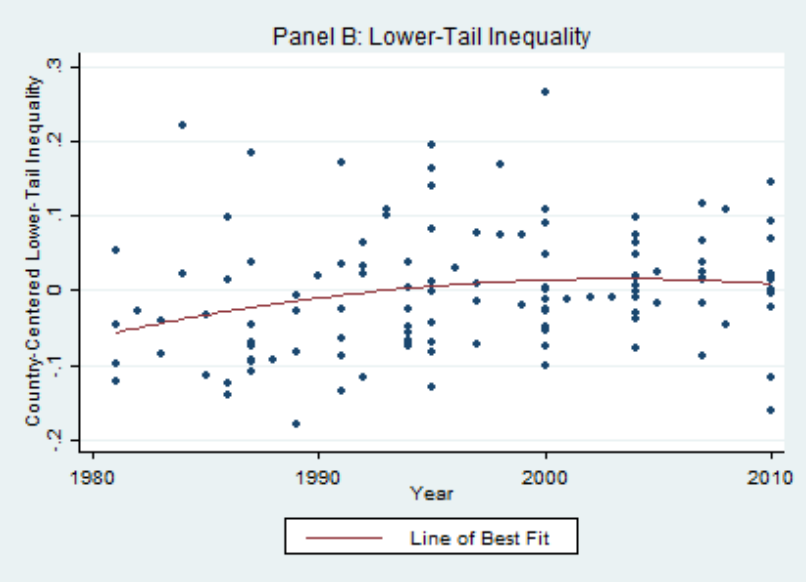


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Table 1: Luxembourg Income Study Data Availability, Countries and Years

Countries	*Number of Years*	*Years Available*
Australia	8	1981, 1985, 1989, 1995, 2001, 2003, 2008, 2010
Austria	6	1987, 1994, 1995, 1997, 2000, 2004
Belgium	6	1985, 1988, 1992, 1995, 1997, 2000
Canada	10	1981, 1987, 1991, 1994, 1997, 1998, 2000, 2004, 2007, 2010
Denmark	7	1987, 1992, 1995, 2000, 2004, 2007, 2010
Finland	7	1987, 1991, 1995, 2000, 2004, 2007, 2010
France	6	1984, 1989, 1994, 2000, 2005, 2010
Germany	9	1981, 1983, 1984, 1989, 1994, 2000, 2004, 2007, 2010
Ireland	8	1987, 1994, 1995, 1996, 2000, 2004, 2007, 2010
Italy	11	1986, 1987, 1989, 1991, 1993, 1995, 1998, 2000, 2004, 2008, 2010
Netherlands	8	1983, 1987, 1990, 1993, 1999, 2004, 2007, 2010
Norway	7	1986, 1991, 1995, 2000, 2004, 2007, 2010
Sweden	6	1981, 1987, 1992, 1995, 2000, 2005
Switzerland	5	1982, 1992, 2000, 2002, 2004
United Kingdom	8	1986, 1991, 1994, 1995, 1999, 2004, 2007, 2010
United States	8	1986, 1991, 1994, 1997, 2000, 2004, 2007, 2010

Table 2. Descriptive Statistics for Dependent and Independent Variables for 16 Affluent Capitalist Democracies, 1981-2011 (N=120)

Variable	Mean	S.D.	Min	Max
Dependent Variables				
Upper-tail inequality	1.83	0.18	1.51	2.19
Lower-tail inequality	1.99	0.25	1.61	2.72
Business Cycle				
Unemployment (t-1)	7.45	3.34	0.18	17.15
Economic growth (t-1)	2.00	2.84	-8.54	9.92
Labor Market Structure				
Government employment (t-1)	17.74	6.32	8.32	31.41
Union density (t-1)	40.17	20.26	7.75	87.44
Globalization				
Imports (t-1)	33.96	15.27	9.97	75.35
Inward FDI (t-1)	27.50	25.75	0.00	140.04
Financialization				
FIRE employment (t-1)	11.35	3.39	3.43	17.84
Credit expansion (t-1)	116.68	46.64	42.05	235.52
Financial crisis (t-1)	2.19	2.34	0.00	7.00

Table 3: The Effects of Financialization on Upper-Tail Inequality in 16 Affluent Democracies, 1981-2011 (N=120)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Business cycle					
Unemployment rate	1.804***	1.854**	0.832**	0.835***	0.810**
	(0.332)	(0.476)	(0.253)	(0.203)	(0.241)
Economic growth	1.162**	1.990*	0.147	0.328	0.102
	(0.382)	(0.720)	(0.221)	(0.387)	(0.277)
Labor market structure					
Government employment	-1.047*	-0.996*	-0.673	-0.620	-0.655
	(0.397)	(0.387)	(0.566)	(0.619)	(0.599)
Union density	-0.178	-0.187	-0.061	-0.129	-0.059
	(0.144)	(0.134)	(0.237)	(0.325)	(0.268)
Globalization					
Imports	-0.784***	-0.788***	-0.280	-0.147	-0.260
	(0.134)	(0.149)	(0.275)	(0.313)	(0.307)
Inward FDI	0.266***	0.266**	0.056	0.135**	0.057
	(0.059)	(0.077)	(0.045)	(0.039)	(0.034)
Financialization					
FIRE employment	0.136	0.206	0.870†	1.625†	0.882
	(0.495)	(0.979)	(0.483)	(0.807)	(0.624)
Credit expansion	0.089**	0.086**	0.007	0.002	0.007
	(0.024)	(0.022)	(0.025)	(0.036)	(0.029)
Financial crisis	-0.334	-0.030	0.086	0.206	0.080
	(0.280)	(0.611)	(0.212)	(0.426)	(0.193)
Year fixed effects	No	Yes	No	Yes	No
Country fixed effects	No	No	Yes	Yes	Yes
Time and time squared	No	No	No	No	Yes
Constant	201.1500***	199.8456***	188.0141***	179.3017***	186.6956***
	(7.904)	(12.857)	(14.856)	(14.872)	(16.158)
Total R^2	0.747	0.787	---	---	---
Within R^2	---	---	0.288	0.522	0.670
BIC	921.003	924.0434	753.631	753.77	763.1

*--p <.05, **--p <.01, *** p--<.001, †-- p< .10 (two-tailed tests).

Cluster robust standard errors in parentheses.

Note: Time trend variables and country dummies are not shown.

Table 4: The Effects of Financialization on Lower-Tail Inequality in 16 Affluent Democracies, 1981-2011 (N=120)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Business cycle					
Unemployment rate	1.746**	1.883*	-0.510	-0.670	-0.526
	(0.584)	(0.833)	(0.431)	(0.476)	(0.435)
Economic growth	2.855*	5.252*	0.451	0.832	0.087
	(1.041)	(2.306)	(0.433)	(1.090)	(0.504)
Labor market structure					
Government employment	-0.484	-0.444	-0.654	0.211	-0.299
	(0.764)	(0.653)	(1.080)	(1.118)	(1.122)
Union density	-0.175	-0.191	0.173	-0.281	0.026
	(0.284)	(0.242)	(0.389)	(0.409)	(0.350)
Globalization					
Imports	-1.129**	-1.130***	-0.105	0.140	0.103
	(0.271)	(0.251)	(0.300)	(0.359)	(0.300)
Inward FDI	0.313**	0.327**	-0.076	0.088	-0.027
	(0.098)	(0.094)	(0.067)	(0.096)	(0.066)
Financialization					
FIRE employment	-0.140	0.489	1.548***	4.467**	2.821*
	(0.623)	(1.105)	(0.380)	(1.129)	(1.138)
Credit expansion	0.212*	0.208*	-0.015	0.001	0.006
	(0.084)	(0.084)	(0.057)	(0.057)	(0.059)
Financial crisis	-0.486	0.423	0.375	-0.025	0.285
	(0.676)	(0.844)	(0.394)	(0.549)	(0.376)
Year fixed effects	No	Yes	No	Yes	No
Country fixed effects	No	No	Yes	Yes	Yes
Time and time squared	No	No	No	No	Yes
Constant	203.2731***	194.6659***	195.2899***	166.0675***	177.8353***
	(13.669)	(18.781)	(14.783)	(26.230)	(23.711)
Total R^2	0.575	0.690	---	---	---
Within R^2	---	---	0.148	0.425	0.181
BIC	1059.5871	1045.5169	873.4102	854.7901	878.181

*--p <.05, **--p <.01, *** p--<.001, †-- p< .10 (two-tailed tests).

Cluster robust standard errors in parentheses.

Note: Time trend variables and country dummies are not shown.