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The Growth of Finance is Not Remarkable

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Abstract

An important literature emphasizes that finance grew rapidly after WWII relative to the full economy and the services sector, but these are poor benchmarks because they mask a broad structural shift from low- to high-skill services. We show that i) finance is among the most skill-intensive service industries, ii) the evolution of the finance income share closely tracks other high-skill service industries, and iii) finance grew much slower than the rest of high-skill services in the post-WWII period. The rise of modern finance is not as remarkable as prior research suggests, providing context for debates about the size of finance.

> Is finance different from other service industries? Yes… the other fast growing service industry is health care, but it does not share the U-shaped evolution of finance from 1927 to 2009. (Philippon ((2015), p. 1418))

I. Introduction

The financial sector's share of total compensation in the U.S. economy declined by over 60% during the Great Depression, but then expanded rapidly, growing by more than 250% in the second half of the 20th century. The post-WWII growth in the finance income share has attracted considerable attention (and, in some cases, concern) largely because of its perceived *uniqueness*.[1] For example,

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[1]The first study we know of to document the growth of the finance income share is Philippon (2008). For additional evidence and discussion on the growth of finance as a share of economy-wide income, see

Philippon and Reshef ((2013), pp. 76–77) emphasize that because finance income grows faster than income for the broad services sector after WWII, "explanations for the rise of the services sector are not sufficient to explain the growth of the financial sector." Philippon ((2015), p. 1418) makes a similar point, arguing that health care is the only other fast-growing service industry in the second part of the 20th century. Gennaioli, Shleifer, and Vishny (2014) characterize the rapid growth of the finance income share documented in these studies as "astonishing."[2] We show that the growth and evolution of the finance income share is not nearly as remarkable as this research suggests.

We begin by highlighting the sharp and persistent differences in skill intensity across different segments of the broad services sector. Following Buera and Kaboski (2012), we divide services into "high-skill" and "low-skill" groups based on the share of labor hours accounted for by college-educated workers. By this metric, finance is similar to other skill-intensive service industries, such as legal services, educational services, and professional business services, but very *dissimilar* to a large fraction of the service sector, which is characterized by persistently low skill intensity (e.g., hotels, retail trade, and automobile services). The distinction between the high-skill and low-skill segments of services is important because the two segments have vastly different growth trajectories over the course of the 20th century. For example, between 1940 and 2018, high-skill services' share of economy-wide compensation increases by nearly 300%, while low-skill services' share of income *declines* substantially. This structural shift within services suggests that comparing the growth of finance to the overall service sector (the commonly used benchmark) is not appropriate.

To illustrate how different benchmarks matter, we compare the growth of income in financial services with economy-wide income, income in the broad services sector, and income in the set of other (nonfinance) high-skill service industries. Benchmarking against other high-skill service industries shows that the growth of the finance income share after WWII is not exceptional. In fact, as a group, nonfinance high-skill services grow faster than finance, and several individual high-skill service industries grow *much* faster than finance in both absolute and percentage terms. As a consequence, relative to the Buera and Kaboski (2012) set of high-skill service industries, finance's income share has steadily declined since the early 20th century. Specifically, between 1929 and 2018, the finance share of compensation in high-skill services fell from around 40% to 18%. These broad trends in the growth of finance relative to high-skill services also hold in other developed economies: between 1970 and 2017, the finance share of income in high-skill services declines in 10 of the 11 European countries with consistent coverage in the EU-KLEMS database.

As prior studies emphasize (e.g., Philippon (2015)), the finance sector's share of both economy-wide income and service-sector income declines during the Great Depression and then increases sharply after WWII. These studies explicitly argue

Philippon and Reshef (2012), (2013), Cochrane (2013), Greenwood and Scharfstein (2013), Arcand, Berkes, and Panizza (2015), and Philippon (2015).

[2]Specifically, Gennaioli, Shleifer, and Vishny ((2014), p. 1221) state: "Philippon (2015) documents the astonishing rise of the share of GDP coming from the financial sector since World War II… Financial income rose from about 2% of the total in the 1940s to close to 8% at the time of the financial crisis."

that the evolution of the finance income share is unusual, and they note how important it is to show that these patterns are not explained by general structural changes in economic activity (e.g., Philippon and Reshef (2013)). In contrast, we show that the evolution of the finance income share is not unique: the share of economy-wide income accounted for by the group of other (nonfinance) high-skill service industries has the same general pattern over the 20th century.[3]

Overall, throughout the 20th century, time-series changes in the finance income share and the income share of all other high-skill service industries are correlated at over 90%. Nonetheless, the evolution of the economy shares do differ in some notable ways. Following the 1929 stock market crash, both finance and nonfinance high-skill services shrank as a share of the economy. This trend away from skilled services continued through WWII, as economic activity shifted to manufacturing. In the decades following WWII there is a sharp increase in the economy shares of high-skilled services, and in this post-war period finance actually grows much slower (as a share of the economy) than other high-skill service industries. Most notably, whereas nonfinance high-skill services reaches its 1932 economy share by 1960, finance does not reattain its 1932 peak until 1985. Moreover, the finance economy share stops growing after the 2007–2008 financial crisis, while the rest of high-skill services continues to grow through the end of our sample period.

Economy income shares depend on both employment and wages. Several studies focus specifically on the high wages in finance relative to the rest of the economy (e.g., Philippon and Reshef (2012), Gennaioli et al. (2014)). We show that the magnitude of finance's relative wage, and particularly its evolution over the 20th century, is not unusual compared to other high-skill service industries. For example, in 2018 the finance relative wage is approximately 1.83, suggesting finance wages are, on average, 83% higher than wages in the rest of the economy. This wage premium is above the average for high-skill services but in line with the wage premiums in legal services (64%) and professional business services (88%). More importantly, between 1940 and 2018, finance wages grow *slower* than wages in several other high-skill service industries, including legal services, professional business services, and health services.

We also explore differences within the financial services sector. The Bureau of Economic Analysis reports disaggregated data for three finance subsectors: credit intermediation, insurance, and securities. Securities is the most skill-intensive subsector in finance, and, by 2018, is among the most skill-intensive industries in the economy. Between 1940 and 2018, both credit intermediation and insurance grew much slower than the typical high-skill service industry. Securities, on the other hand, grew faster than the average high-skill service industry, but

[3]Of the 11 distinct high-skill service industries, all but two have a sharply falling economy income share from 1932 to 1944, and a sharply increasing share in the years after WWII. The two exceptions are air transportation (which grows the entire time) and motion pictures (which is the only high-skill service industry that does not grow after WWII). These findings differ from Philippon (2015), who also studies long-run trends in the finance income share. Philippon (2015) points to health care as "the other" fast-growing service industry, but argues that "it does not share the U-shaped evolution of finance from 1927 to 2009." The health services share of economy-wide compensation falls by 39% between 1932 and 1944, before increasing rapidly in the second half of the century.

slower than professional business services and health services, the two largest high-skill service industries as of 2018. Our findings highlight that the growth of securities drives most of the growth in finance's share of economy-wide compensation in the second half of the 20th century, which Greenwood and Scharfstein (2013) also document. Moreover, most of the growth in the securities income share is driven by wage growth, particularly between 1980 and 2000, rather than employment: by 2018, securities accounts for 2.3% of economy-wide compensation but only 0.7% of economy-wide employment. At the end of the article, we discuss potential explanations for the growth of securities, including the rise of the high-tech sector, the enormous jump in stock market wealth, increasing returns to scale, and the complexity and opaqueness of activities in securities.

Our study contributes to three important but largely disconnected literatures: studies on the growth of the financial sector, explorations of historical structural shifts in the nature of economic activity, and the literature on wages in finance. Most importantly, our results question a basic premise that motivates much of the literature on the growth of finance: that the growth of finance is distinct from – or at least much more impressive than – the general rise of the service economy. Notably, the highly influential studies by Philippon and Reshef (2013) and Philippon (2015) emphasize that finance income not only grows as a share of the economy but also as a share of services. From this starting point, subsequent work focuses on understanding why the evolution of the modern financial sector was so unusual and whether or not this unusual growth is concerning. For example, Gennaioli et al. (2014) note that a key reason the growth of finance has been difficult to understand is the fact that finance income has grown relative to other service industries, and the *Journal of Economic Perspectives* has an entire symposium (Spring 2013) discussing the causes and consequences of the growth of finance.

Our contribution is to show that the long-run evolution of the finance income share over the course of the 20th century is not exceptional. Rather, our findings suggest that the rise of modern finance is part of a much broader global shift to high-skill services. In this way, our work relates to the literature emphasizing a structural shift in developed economies to the (market) production of skill-intensive services (e.g., Ngai and Pissarides (2007), Buera and Kaboski (2009)). In particular, Buera and Kaboski (2012) motivate their analysis by noting that a defining aspect of economic development in the 20th century is the shift to high-skill services.[4] This literature has not, however, focused specifically on the rise of finance, one of the most skill-intensive service industries.

Let us also be clear about what our findings do not say. First, we follow prior studies in focusing on long-run trends in the evolution of the finance income share, which is appropriate for studying broad structural changes in the nature of economic activity, such as the decline in manufacturing and rise of high-skill services (e.g.,

[4]See Buera and Kaboski (2012) for theory and evidence on the rise of high-skill services. They do not discuss the implications of this rise for understanding the growth of finance. There are several other related explanations for the rise of high-skill services (see, for instance, Katz and Murphy (1992), Acemoglu (1998), and Autor, Katz, and Krueger (1998) on the role of skill-biased technological change), including that highly developed countries with excellent education systems should have a comparative advantage in the production of high-skill services. Indeed, approximately one-third of U.S. exports consist of services, and nearly all of these exports are high-skill services such as professional business services and finance.

Buera and Kaboski (2012)). Our analysis does not, however, speak to the myriad of other factors that can cause differences in growth rates across industries. As such, our work does not dispute the findings in other studies linking the timing of changes in the finance wage or income share with particular policies and regulations.[5] Second, although our work provides context for policymakers and researchers trying to understand the growth of finance and to evaluate the relative costs and benefits of this growth (e.g., Cochrane (2013), Greenwood and Scharfstein (2013), and Gennaioli et al. (2014)), our analysis has nothing to say about the optimal size of finance or whether the growth of finance has been good or bad (e.g., Philippon and Reshef (2013), Philippon (2015), and Libich and Lenten (2022)).

Finally, although our analysis shows that there is nothing unusual about the growth of the financial sector over the course of the 20th century, this does not mean there are no interesting things going on in financial services that deserve scrutiny and study. For example, wages are high in finance, particularly in the securities subsector (see, e.g., Kaplan and Rauh (2010), Philippon and Reshef (2012), Axelson and Bond (2015), Bolton, Santos, and Scheinkman (2016), Böhm, Metzger, and Strömberg (2018), Boustanifar, Grant, and Reshef (2018), and Célérier and Vallée (2019)). The high finance wages are potentially interesting for multiple reasons, including issues related to brain drain and income inequality. Relatedly, Greenwood and Scharfstein (2013) show that there have been interesting changes in the composition of financial services over time, particularly the increasing importance of nontraditional finance activities (e.g., investment banking). We document similar compositional changes within finance. The main takeaway from our work is simply that the high finance wages and shift to different types of finance occupations have not led to exceptional growth in the financial sector's share of economy-wide income.

II. Data, Measurement, and Heterogeneity Within Services

A. Data Sources and Industry Share Measures

Benchmarking the growth of finance against the entire service sector is misleading due to the considerable heterogeneity in skill intensity across the various service industries. To illustrate this heterogeneity, we start with the skill-intensity measures in Buera and Kaboski (2012). Using Census data from 1940, Buera and Kaboski (2012) define an industry as "skill intensive" if college-educated workers account for at least 12.5% of total hours worked (the median value across the industries in their sample). We merge the information on skill intensity from Buera and Kaboski (2012) with information on employment and total compensation at the industry level from the Bureau of Economic Analysis's National Income and Product Accounts (NIPA).[6] We then classify the 18 different NIPA service

[5]For example, Philippon and Reshef (2012) link changes in the finance relative wage over the course of the 20th century with changes in financial regulation. Our evidence that relative wages in finance and several nonfinance high-skill services increase at similar rates in the second half of the century does not disprove the mechanism emphasized in the Philippon and Reshef (2012) study.

[6]The data on skill intensity from Buera and Kaboski (2012) is available at https://www.aeaweb.org/articles.php?doi=10.1257/aer.102.6.2540. The industry classifications in the BEA data are slightly

industries as either "high-skill" or "low-skill" based on the Buera and Kaboski (2012) classifications.[7]

The NIPA tables use a consistent set of industry definitions through the year 2000. We thus have directly comparable information on industry shares of income and employment from 1929 through 2000. Beginning in 2001, NIPA changes from grouping industries using the Standard Industrial Classification (SIC) system to groupings based on the North American Industry Classification System (NAICS). In most cases, we can cleanly map the (new) NAICS industry groupings to the original SIC service industries, though in a few cases the mapping is unclear or impossible. As a consequence, there is a slight break for some of the time series of interest in the year 2001, but this break has no impact on our inferences about the long-run trends in industry shares of economic activity. Appendix A of the Supplementary Material describes in detail how we map industries and build a continuous time series of industry income and employment shares.

Greenwood and Scharfstein (2013) and Philippon (2015) measure the relative size of the financial sector with nominal value added in financial services divided by nominal GDP. We cannot track value added across the nonfinance subcomponents of services until 1963. We, therefore, measure the relative income share in each service industry by dividing total employee compensation in the industry by employee compensation in the full economy.[8] As we demonstrate in the Supplementary Material, during the period for which we have overlapping data (1963 on), these industry compensation shares are almost identical to the industry value-added shares.[9] Most importantly, all of our conclusions on the evolution of the finance income share in the second part of the 20th century are similar whether we focus on total employee compensation or value added. We also measure the employment share for each service industry by dividing the number of full-time equivalent (FTE) employees in the industry by the economy-wide number of FTE employment.

broader than the Census industry classifications in Buera and Kaboski (2012). We provide a detailed description of how we construct the skill-intensity measures and map them to the BEA data in Appendix A.1 of the Supplementary Material.

[7]Given our focus on the evolution of industry shares over the 20th century, an alternative way to sort industries into high- and low-skill groups is to use the industry's skill intensity in 2000, or the average of its skill intensity between 1940 and 2000. These alternative approaches produce similar groups of high- and low-skill service industries and using them does not affect our inferences.

[8]Philippon (2015) switches between total compensation and value added to measure industry shares from 1929 to 2009. He uses BEA's total compensation data in 1929–1955 and value-added data in 1955–2009 stating (in the Supplementary Material) that the two variables follow each other closely. We show in Figure B1 in the Supplementary Material that this indeed is the case; time series changes in total compensation and value-added are correlated at 0.986.

[9]See Figures B1 and B2 in the Supplementary Material. One sector for which the total compensation and value-added shares differ sharply is real estate. In Figure B2 in the Supplementary Material, we plot the evolution of value-added shares for all nonfinance high-skill service industries with and without real estate included. Including real estate increases the level of the share of value-added accounted for by nonfinance high-skill service industries, but all of the trends in industry shares are very similar. Time series changes in the nonfinance high-skill share of compensation and nonfinance high-skill share of value added (with and without real estate) are correlated at over 0.99.

B. Skill Intensity in Services

Table 1 reports skill intensity in the 18 BEA service industries for 1940 and 2000. The first column lists the different service industries in order of their skill intensity in 2000. The second column classifies the industries as high- or low-skilled based on Buera and Kaboski (2012). The next 2 columns report the share of hours accounted for by college-educated workers for each service industry in both 1940 and 2000.

There are sharp differences in skill intensity across high- and low-skill segments of the service sector. The bottom of Table 1 shows that across the seven low-skill service industries, the average share of hours worked by college-educated graduates is 8.3% in 1940 and 38.1% in 2000. In contrast, the corresponding values across the 11 high-skill industries are 19.9% in 1940 and 66.5% in 2000.[10]

The last 2 columns of Table 1 show the rank of each service industry based on skill intensity in 1940 and 2000. The seven industries Buera and Kaboski (2012) classify as low-skill are the least skill-intensive service industries in both 1940 and 2000. Although there is an increase in skill intensity across all of the service industries between 1940 and 2000, the relative ordering within the service sector is quite stable, particularly among the low-skill service industries.

TABLE 1

Skill Intensity in the Service Sector in 1940 and 2000

Table 1 reports skill intensity across 18 service industries. Data is from Buera and Kaboski (2012). High (low) skill services include all industries where college-educated workers account for at least (less than) 12.5% of total hours worked in 1940 (following Buera and Kaboski (BK) (2012)). Skill intensity in 1940 and 2000 is the ratio of hours worked by college-educated workers to total hours worked in each industry in 1940 and 2000. Rank 1940 and 2000 is the relative position of each industry in term skill intensity in 1940 and 2000, respectively.

Service Industry	Buera and Kaboski (2012) Classification	Skill Intensity 1940	Skill Intensity 2000	Rank 1940	Rank 2000
Legal services	High-skill	0.257	0.816	2	1
Educational services	High-skill	0.247	0.766	3	2
Financial services	High-skill	0.146	0.722	9	3
Professional business services	High-skill	0.231	0.694	5	4
Health services	High-skill	0.158	0.693	8	5
Telecommunications	High-skill	0.139	0.661	11	6
Transportation by air	High-skill	0.260	0.651	1	7
Real estate	High-skill	0.141	0.630	10	8
Membership organizations	High-skill	0.237	0.624	4	9
Amusement and rec services	High-skill	0.209	0.548	6	10
Motion pictures	High-skill	0.167	0.511	7	11
Wholesale trade	Low-skill	0.121	0.476	13	12
Personal services	Low-skill	0.087	0.412	14	13
Hotels and other lodging places	Low-skill	0.125	0.411	12	14
Retail trade and auto services	Low-skill	0.082	0.410	15	15
Transportation excl. air	Low-skill	0.069	0.344	17	16
Miscellaneous repair services	Low-skill	0.073	0.340	16	17
Private households	Low-skill	0.023	0.274	18	18
All services		0.154	0.555		
High-skill services		0.199	0.665		
High-skill services excl. finance		0.205	0.659		
Low-skill services		0.083	0.381		

[10]Using the Buera and Kaboski (2012) classifications, there are more unique skill-intensive industries than low-skill industries in 1940, but the set of low-skill industries initially account for a larger share of both compensation and employment, as we discuss below.

Among high-skill services, financial services is the third most skill-intensive industry by 2000, with over 70% of hours accounted for by college-educated workers. Skill intensity in finance is broadly similar to skill intensity in health services, professional business services, educational services, and legal services. By the end of the 20th century, these high-skill service industries are around *twice* as skill intensive as the average low-skill service industry.[11]

III. The Growth of Finance and Other High-Skill Service Industries

A. Industry Shares of Total Compensation over Time

Table 2 reports the share of economy-wide compensation accounted for by each of the service industries in 1940, 2000, and 2018. As in Table 1, we order the industries from highest to lowest skill intensity in 2000. It is clear from the table that the typical high-skill service industry grew rapidly over the 20th and early 21st centuries. In sharp contrast, almost all of the low-skill industries contracted as a share of the economy. In both absolute and percentage terms, professional business services expanded faster than any other service industry, growing from 1% of economy-wide income in 1940 to over 14% by 2018. Health services had the next largest absolute expansion (from 1% of income in 1940 to 10% by 2018). Transportation by air also expanded rapidly, but it started from an almost nonexistent level in 1940 and represents just a little over 1% of total compensation at the end of 2018.

Table 2 shows that financial services increases from under 4% of income in 1940 to around 7.5% by 2000, in line with the values in prior studies (e.g., Greenwood and Scharfstein (2013), Philippon (2015)). However, the table also shows that this expansion was far less impressive than the expansion of several other high-skill service industries, most notably professional business services and health services. In an absolute sense, the expansion of financial services between 1940 and 2018 ranks third among the different service industries, while in percentage terms its expansion ranks eighth. Moreover, whereas most other high-skill service industries continued to grow as a share of economy-wide income through the end of the sample period, the finance income share is almost exactly the same in 2018 as it was in 2000.

Table 3 reports aggregated income shares for various industry groupings in 1940, 2000, and 2018. Panel A reports shares of total compensation, and Panel B reports shares of employment. Consistent with Table 2, as a whole, the high-skill service industries grew much faster than the low-skill service industries. In 1940, low-skill service industries accounted for a much larger share of compensation and employment than did the high-skill industries (e.g., 31.3% compared to 11.6%

[11] We are not able to reproduce these industry-level results using the share of hours accounted for by workers with post-graduate degrees, but the information we have from occupation-level data suggests there is a similar overall pattern. The vast majority of lawyers, healthcare workers, and educators have advanced degrees (in many cases as required by law). Workers in finance and insurance occupations are similar to workers in professional, scientific, and technical service occupations: around 35% have a Bachelor's degree, and another 14% to 18% have a post-graduate degree.

TABLE 2

Share of Total Compensation in the Service Sector in 1940, 2000, and 2018

Table 2 reports the share to total compensation for individual service industries. Data is from National Income and Product Accounts (1929–2018). High (low) skill services include all industries where college-educated workers account for at least (less than) 12.5% of total hours worked in 1940. Compensation share refers to the share of each industry in total compensation, where total compensation is measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees in 1940, 2000, and 2018. * indicates industries that cannot be tracked separately in the BEA data after 2000. For these industries, the change in economy share in the last 2 columns of the table is from 1940 to 2000.

	Compensation Share				
	1940	2000	2018	Change 1940–2018	% Change 1940–2018
High-skill services					
Legal services	0.003	0.013	0.013	+0.010	359
Educational services	0.007	0.013	0.018	+0.011	174
Financial services	0.039	0.075	0.075	+0.035	89
Professional business services	0.010	0.116	0.136	+0.126	1,272
Health services	0.010	0.074	0.103	+0.093	958
Telecommunications	0.015	0.019	0.010	−0.004	−30
Transportation by air	0.001	0.011	0.011	+0.010	1,178
Real estate	0.010	0.011	0.015	+0.005	50
Membership organizations*	0.011	0.023		+0.012	111
Amusement and recreation services	0.005	0.009	0.011	+0.006	134
Motion pictures	0.007	0.004	0.003	−0.003	−49
Social assistance			0.011		
Low-skill services					
Wholesale trade	0.064	0.066	0.059	−0.005	−8
Personal services*	0.013	0.006		−0.008	−58
Hotels and other lodging places	0.008	0.009	0.008	0.000	4
Retail trade and automobile services	0.114	0.097	0.077	−0.037	−33
Transportation excl. Air	0.072	0.025	0.024	−0.049	−67
Miscellaneous repair services*	0.002	0.003		+0.001	46
Private households*	0.023	0.002		−0.021	−90
Administrative and support services			0.039		
Other services excl. government			0.029		

TABLE 3

Economy Shares for Various Industry Groupings in 1940, 2000, and 2018

Table 3 reports compensation and employment shares for various groups of service industries. Data is from National Income and Product Accounts (1929–2018). High (low) skill services include all industries where college-educated workers account for at least (less than) 12.5% of total hours worked in 1940. In Panel A, Compensation share refers to the share of each subsector in total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. In Panel B, Employment share refers to the share of each subsector in total number of full-time equivalent (FTE) employment each year. The high-skill services sectors are legal services, educational services, financial services, professional business services, health services, telecommunications, transportation by air, real estate, membership organizations, amusement and rec services, and motion pictures. The low-skill services industries are wholesale trade, personal services, hotels and other lodging places, retail trade and auto services, transportation excl. air, miscellaneous repair services, and private households.

	Economy Share				
Industry Grouping	1940	2000	2018	Change in Share 1940–2018	% Change 1940–2018
Panel A. Compensation Shares					
All services	0.412	0.573	0.641	+0.229	56
High-skill services	0.116	0.366	0.405	+0.290	250
High-skill services excl. finance	0.076	0.291	0.331	+0.254	333
Low-skill services	0.313	0.218	0.236	−0.077	−25
Finance share of services	0.096	0.132	0.117	+0.021	22
Finance share of high-skill services	0.341	0.206	0.184	−0.156	−46
Panel B. Employment Shares					
All services	0.415	0.621	0.699	+0.284	68
High-skill services	0.101	0.336	0.344	+0.243	240
High-skill services excl. finance	0.075	0.290	0.299	+0.224	300
Low-skill services	0.314	0.284	0.355	+0.041	13
Finance share of services	0.064	0.075	0.064	0.000	1
Finance share of high-skill services	0.262	0.138	0.131	−0.131	−50

for compensation share). However, between 1940 and 2000, the share of income accounted for by the low-skill service industries fell by approximately 30%, while the economy-wide shares of income and employment in the high-skill service industries more than tripled. High-skill services continued to expand between 2000 and 2018; there was also some recovery in the share of low-skill services. Overall, between 1940 and 2018, there was a dramatic shift within the services sector from low-skill to high-skill industries.

Table 3 also shows that the growth of the financial services sector is not remarkable when compared to the growth of other high-skill service industries. Including financial services, high-skill services increases from 11.6% of economy-wide income in 1940 to 40.5% in 2018, an expansion of around 250%. If we exclude financial services, the compensation share for all *other* high-skill services increases by around 336% (from 7.6% of the economy in 1940 to 33.1% in 2018).

The last two rows in each panel of Table 3 report the financial services shares of compensation and employment relative to both all services and high-skill services. The finance share of total services increases between 1940 and 2000, a point emphasized throughout the literature (e.g., Philippon and Reshef (2013), Philippon (2015)). Interestingly, there is a decline in the finance share of services compensation and employment between 2000 and 2018. In fact, the finance share of services employment is almost exactly the same in 2018 as it was in 1940 (around 6.4%).

The last row in each panel of Table 3 is particularly important. The finance share of compensation and employment in the high-skill segment of services declines sharply between 1940 and 2018, a consequence of the broad and rapid expansion of the other (nonfinance) high-skill service industries. Between 1940 and 2018, the finance share of compensation (employment) in high-skill services falls by approximately 46% (50%). Thus, the growth of finance is rather modest, and certainly unexceptional, when the benchmark is other high-skill service industries.

B. The Evolution of Financial Services and Other High-Skill Service Industries

We now present year-by-year information about the evolution of finance and other high-skill industries over the last nine decades. A key takeaway is that while the finance share of income and employment evolves over time in a manner roughly similar to what occurs in other high-skill service industries, in the post-WWII time period, nonfinance high-skill services grow much faster than finance.

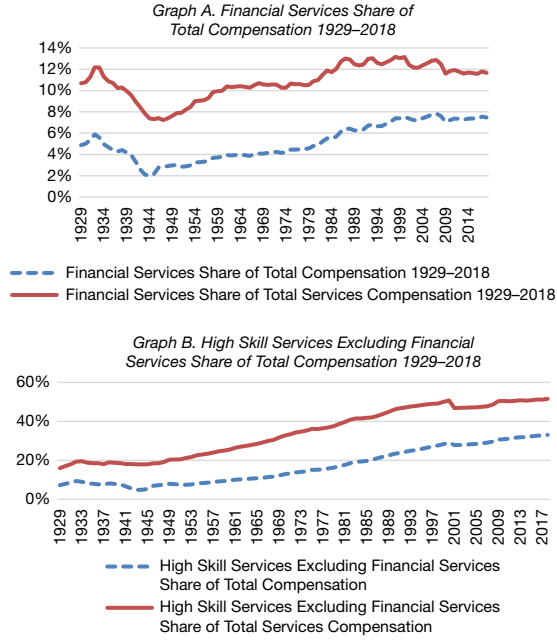
1. Compensation and Employment in Finance and Other Skill-Intensive Service Industries over Time

To link our study with prior work, we begin by showing how the financial services share of compensation in the U.S. economy evolves over the course of the 20th and early 21st centuries. In Graph A of Figure 1, the solid line reflects finance's share of all services, and the dashed line reflects finance's share of the overall economy. Consistent with prior studies, finance's share of economy-wide compensation follows a U-shaped pattern over the course of the 20th century, with the trough just after WWII (at approximately 2% of the economy). Finance's share of both the overall economy and the service sector steadily increases in the

FIGURE 1

Financial Services and Other High Skill Services Share of Total Compensation

Data in Figure 1 are from National Income and Product Accounts (1929–2018). Compensation share refers to the share of each subsector in total economy-wide compensation (solid line) and total services (dashed line), measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. The financial services sector includes the securities, insurance, and credit intermediation subsectors. Graph A plots the financial services share of total economy (dashed line) and total services (solid line) compensation from 1929 to 2018. Graph B plots the nonfinance high-skill services share of total economy (dashed line) and total services (solid line) compensation from 1929 to 2018.



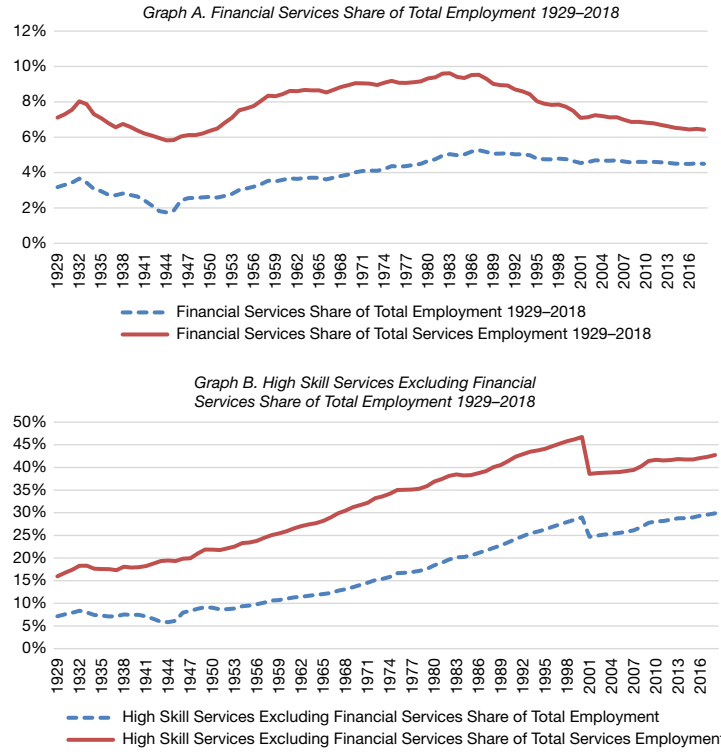
second half of the 20th century, and by the early 2000s, finance accounts for around 7.5% of the economy and 12% of services. However, the relative growth of finance pauses in the early 21st century: In 2018, finance accounts for roughly the same share of economy-wide income, and a smaller share of service income, as it did in 2000.

The growth of finance relative to the economy and the overall services sector leads several prominent studies to conclude that the growth of finance is unusual and even astonishing. Graph B in Figure 1, which plots the evolution of all *other* (nonfinance) high-skill service industries, points to a much different conclusion. As in Graph A, we plot the evolution of compensation in nonfinance high-skill services as a share of total services (solid line) and the total economy (dashed line). There is a slight break in the time series in 2001, which is due to NIPA changing from grouping industries using the SIC system to groupings based on the NAICS classification system. The economy share of nonfinance high-skill services declines from the early 1930s until just after WWII, and then grows rapidly for the remainder of the century. Ultimately, nonfinance high-skill services reach an economy share more than 2.5 times larger than its 1929 level, which is a much greater increase than

FIGURE 2

Financial Services and Other High Skill Services Share of Employment

Data in Figure 2 are from National Income and Product Accounts (1929–2018). Employment share refers to the share of each subsector in total economy-wide number of full-time equivalent (FTE) employment (solid line) and total services (dashed line) each year. The high-skill services sectors excluding financial services are legal services, educational services, professional business services, health services, telecommunications, transportation by air, real estate, membership organizations, amusement and rec services, and motion pictures. Graph A plots the financial services share of total economy (dashed line) and total services (solid line) FTE employment from 1929 to 2018. Graph B plots the nonfinance high-skill services share of total economy (dashed line) and total services (solid line) FTE employment from 1929 to 2018.



what occurs in finance. This is compelling evidence that the growth of finance in the 20th century is not exceptional.

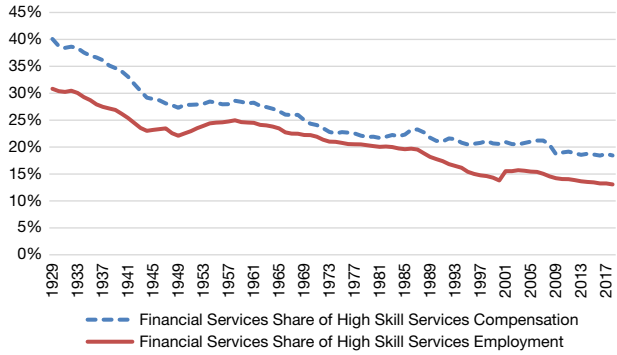
In Graph A of Figure 2, we consider the evolution of finance's share of employment. Finance's share of economy-wide employment fell from 3.66% in 1932 to 1.75% in 1944, then increased steadily over the next four decades. Notably, however, the finance share of economy-wide employment peaks in 1987 (at just over 5%) and then declines slightly over the next 30 years. By 2018, financial services accounts for around 4.5% of economy-wide employment, roughly similar to the employment share it accounted for in 1980. The finance share of services employment also peaks in the mid-1980s, but then declines sharply thereafter, and by 2018 finance accounts for approximately the same share of services employment as it did in the early 1950s (6.4%).

It is notable that the finance share of economy-wide compensation (Graph A of Figure 1) closely tracks the finance share of employment (Graph A of Figure 2)

FIGURE 3

Financial Services Share of High Skill Services Compensation and Employment 1929–2018

Data in Figure 3 are from National Income and Product Accounts (1929–2018). High (low) skill services excluding financial services include all industries except financial services were college-educated workers account for at least (less than) 12.5% of total hours worked in 1940. Compensation share refers to the share of financial services in high-skill services total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. Employment share refers to the share of financial services in high-skill services in total number of full-time equivalent (FTE) employment each year. The high-skill services sectors excluding financial services are legal services, educational services, professional business services, health services, telecommunications, transportation by air, real estate, membership organizations, amusement and rec services, and motion pictures.



from the 1930s through the mid-1980s. For example, in 1985, financial services accounts for 5.6% of compensation and 5% of employment. This suggests that the main reason finance grew as a share of the economy was an increase in the number of finance jobs. After the mid-1980s, however, the compensation and employment shares diverge: finance's share of employment begins a gradual and long-lived decline, while finance's share of compensation continues to increase until the 2008 financial crisis. Because total compensation is a function of employment and wages, these trends indicate that finance wages must have increased at a sufficiently high rate, from the mid-1980s to the mid-2000s, to more than offset the (relative) employment declines.

To complete the comparisons over time, Graph B of Figure 2 plots the employment shares of other high-skill services.[12] From the end of WWII to the end of the 20th century, the employment share of other high-skill services increases approximately sixfold, greatly exceeding the expansion of finance's share of employment (Graph A of Figure 2). Furthermore, whereas finance's employment share is falling at the start of the 21st century, the employment share of other high-skill services continues to grow through the end of the sample period.

Figure 3 provides additional context for the growth of finance by plotting the finance share of high-skill services over time. The figure shows that the finance share of high-skill services is in long-run decline, starting at around 40% of compensation (31% of employment) in high-skill services in 1929 and ending at around 18% of compensation (13% of employment) in 2018.

[12]The switch from using the SIC system to the NAICS has a larger impact on the employment share compared to the compensation share. Starting in 2001, most of the decline in employment share is driven by changes in the classification of professional business services. We describe changes in these industry classifications in Appendix A of the Supplementary Material.

TABLE 4

Change in Share of the Economy: High-Skill Services Leading Into and Out of the Great Depression

Table 4 reports changes in economy shares for service industries leading into and out of the Great Depression. Data is from National Income and Product Accounts (1929–2018). High (low) skill services include all industries where college-educated workers account for at least (less than) 12.5% of total hours worked in 1940. Change in the share of the economy refers to the share of each subsector in total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. The high-skill services sectors are legal services, educational services, financial services, professional business services, health services, telecommunications, transportation by air, real estate, membership organizations, amusement and rec services, and motion pictures. The low-skill services industries are wholesale trade, personal services, hotels and other lodging places, retail trade and auto services, transportation excl. air, miscellaneous repair services, and private households.

	Percentage Change in Economy Compensation Share:	
	Peak to Trough (1932–1944)	Trough to End of Century (1944–2000)
Legal services	−68	891
Educational services	−61	235
Financial services	−66	276
Professional business services	−28	1,596
Health services	−39	987
Telecommunications	−49	101
Transportation by air	143	871
Real estate	−44	101
Membership organizations	−58	218
Amusement and recreation services	−56	225
Motion pictures	−44	−3
All services	−44	111
High-skill services	−55	433
High-skill services excl. finance	−48	498
Low-skill services	−40	4

2. U-Shaped Evolution of Other Skill-Intensive Service Industries

Prior studies emphasize the U- or V-shaped pattern in finance's share of both economy-wide income and service-sector income over the course of the 20th century (e.g., Philippon and Reshef (2013), Philippon (2015)). To explore how widespread this pattern is among high-skill service industries, Table 4 reports the percentage change in the income share of each high-skill service industry from i) the peak to the trough (1932–1944), and ii) the trough through the end of the century (1944–2000). Table 4 shows that the income share of almost every high-skill service industry falls between 1932 and 1944. Indeed, most of the services sector (both high- and low-skill) contracts during this period, in part because of increased manufacturing activity during WWII. On the other hand, the share of income accounted for by almost all high-skill service industries expands rapidly between 1944 and 2000. The only high-skill service industries that do not have the general U- or V-shaped pattern are air transportation (which grows in both periods) and motion pictures (the only high-skill service industry that does not grow after WWII). Even health and professional business services, which have (by far) the fastest expansion in the post-WWII period, have a falling economy share in the 1932 to 1944 period.

Beyond the general pattern, the magnitude of the changes in finance is also not unique. Overall, the share of economy-wide compensation in nonfinance high-skill service industries falls by 48% from 1932 to 1944, and increases by 498% from 1944 to 2000; the corresponding values for finance are −66% and 276%. Thus, although the decline in the finance income share starting in the Great Depression

is somewhat more severe than the decline for the set of other high-skill service industries, it is very similar to the contractions that took place in legal services (−68%) and educational services (−61%). The percentage increase in the finance income share between 1944 and 2000 is also not exceptional: it is just above the median value across high-skill service industries, but well below the average, and, as with the decline, falls between the contemporaneous changes taking place in legal services (891%) and educational services (235%).

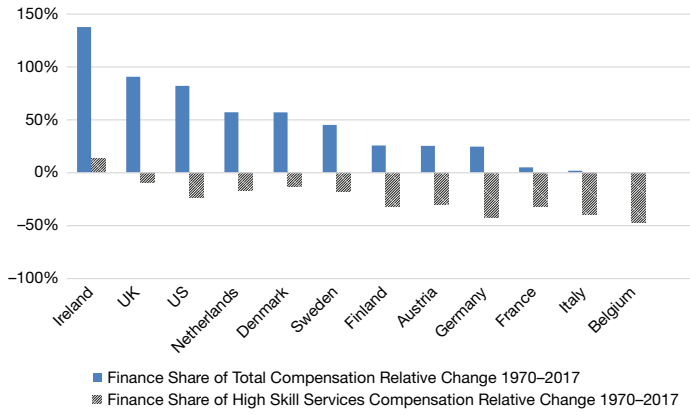
C. International Evidence

Figures 4 and 5 present evidence on the growth of finance relative to high-skill services in a broader sample of countries. Using data from EU-KLEMS, we can benchmark changes in finance income relative to a consistent set of high-skill service industries for 11 non-US countries between 1970 and 2017. In Figure 4, we present the overall change in finance income as a share of total income (solid dark bar), and as a share of high-skill service income (lined light bar). Although the magnitudes differ, between 1970 and 2017, finance grows as a share of total compensation in every country except Belgium. This evidence is generally consistent with Philippon and Reshef (2013), who highlight an increasing income share in finance (of varying degrees) in several industrialized economies.[13] More importantly for our purposes, however, Figure 4 also shows that finance *declines* as a share of high-skill service income in every country except Ireland.

FIGURE 4

International Evidence on the Growth of Finance Relative to High-Skill Services, 1970–2017

Data in Figure 4 are from EU-KLEMS. Data covering the period 1970–1994 is from the 2008 release and for 1995–2017 is from the 2019 release. Bars with solid (dashed) fill represent the relative difference in the financial sector's share out of total economy-wide (high-skill services) compensation between 1970 and 2017. Data for the UK ends in 2016. The high-skill service industries are air transportation, information and communication, financial and insurance activities, real estate activities, professional, scientific, technical administrative and support service activities, education services, health and social work, and arts, entertainment, and recreation.

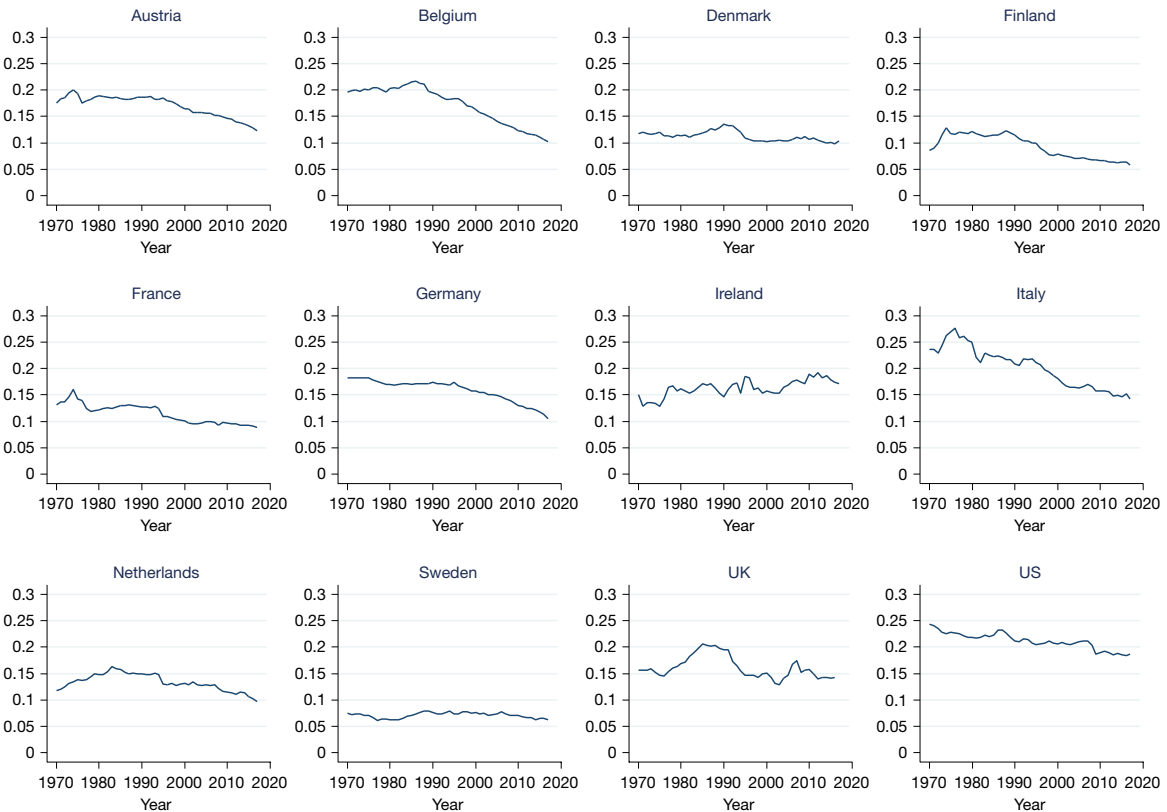


[13]Philippon and Reshef (2013) provide evidence on the finance income share in Belgium, Finland, Spain, Norway, Italy, Australia, the Netherlands, the United Kingdom, Canada, and the United States between 1850 and 2007.

FIGURE 5

Financial Services Share of High Skill Services Compensation in 12 Countries, 1970–2017

Data in Figure 5 are from EU-KLEMS. Data covering the period 1970–1994 is from the 2008 release and for 1995–2017 is from the 2019 release. Data for the UK ends in 2016. The high-skill service industries are air transportation, information and communication, financial and insurance activities, real estate activities, professional, scientific, technical administrative and support service activities, education services, health and social work, and arts, entertainment, and recreation.



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To provide a more complete picture of the evolution of finance in the international sample, Figure 5 plots yearly changes in the finance share of high-skill service income for each of the individual countries. Although there are clearly differences across countries in the average size of finance relative to other high-skill service industries, in all of the countries except Ireland, finance is either stable or declining as a share of high-skill service income. Overall, Figures 4 and 5 show that the key finding we have focused on for the U.S. – unexceptional growth of finance in the second part of the 20th century relative to other high-skill service industries – is also the norm in most European economies.

IV. Other Measures of the Growth of Finance

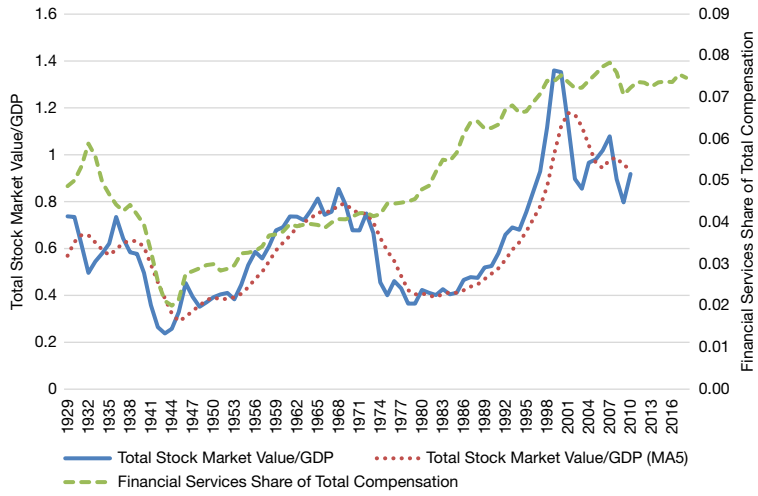
A. Aggregate Measures

We have focused primarily on the share of total compensation to measure the growth of financial services. A potential concern is that other (broader) measures of the financial sector might better capture any remarkable growth in finance in the post-WWII period. To address this concern, we use the data series file accompanying Philippon (2015) on different measures of credit and equity market development.[14] We report the time series evolution of these measures in Figures 6 and 7.

FIGURE 6

Stock Market Value to GDP and Financial Services Share of Total Compensation 1929–2018

Data in Figure 6 are from National Income and Product Accounts (1929–2018) and Philippon (2015). Total stock market value/GDP is from Philippon (2015). Total stock market value/GDP (MA5) is a moving average over five years of Total stock market value/GDP. Financial services share of total compensation refers to the share of the financial services' subsector in total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. The financial services sector includes the securities, insurance, and credit intermediation subsectors.

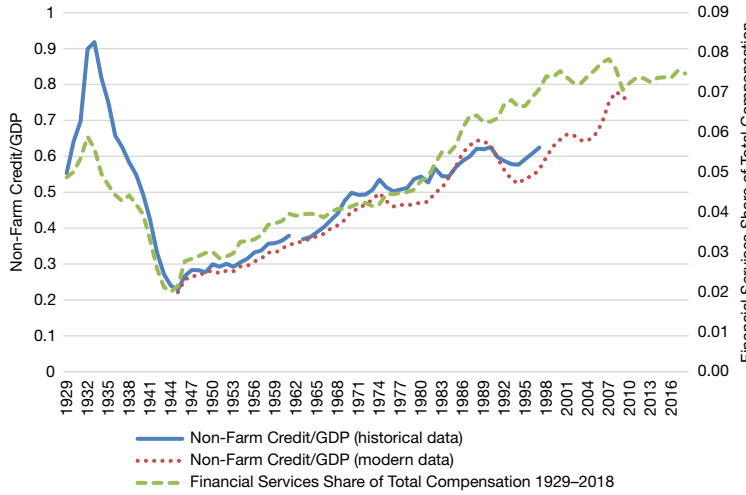


[14]We access the data from Philippon's website: http://pages.stern.nyu.edu/~tphilipp/research.htm. Here, we access the data from an Excel document and also descriptions of the data series from the Data appendix (http://pages.stern.nyu.edu/~tphilipp/papers/Finsize_DataAppendix.pdf). Also, see Bazot (2018) for discussion and evidence on measuring the size of the financial sector in an international setting.

FIGURE 7

Nonfarm Credit to GDP and Financial Services Share of Total Compensation 1929–2018

Data in Figure 7 are from National Income and Product Accounts (1929–2018) and Philippon (2015). Nonfarm credit/GDP is from Philippon (2015). Financial services share of total compensation refers to the share of the financial services' subsector in total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. The financial services sector includes the securities, insurance, and credit intermediation subsectors.



We start by showing how the financial services share of total compensation compares to the evolution of total stock market value divided by GDP. Figure 6 contains three different plots: i) the financial services share of total compensation, ii) the ratio of total stock market value to GDP, and iii) a 5-year moving average of the stock market value to GDP ratio. The most important fact is that starting at roughly the end of WWII, the percentage increase in stock market value to GDP is, if anything, somewhat smaller than the percentage increase in the financial services share of total compensation.

Figure 7 repeats this exercise for the size of credit markets. Specifically, the figure contains three different plots: i) the financial services share of total compensation, ii) the ratio of non-farm credit to GDP using historical data, and iii) the ratio of non-farm credit to GDP using modern data. Again, starting at roughly the end of WWII, the percentage increase in the ratio of non-farm credit to GDP is similar to the percentage increase in the financial services share of total compensation. Most importantly, the time series patterns in the credit-to-GDP and financial services-to-total compensation ratios are almost identical (the correlation coefficient is 0.95). We conclude that our primary measure of the size of the financial sector does not appear to miss any major changes in the evolution of finance when the expansion of finance is measured by either credit or stock market value.

B. Relative Wages

In addition to changes in the *size* of the financial sector, several related studies focus on changes in relative wages in finance (e.g., Philippon and Reshef (2012)).

TABLE 5

Relative Wages in the Service Sector in 1940, 2000, and 2018

Table 5 reports relative wages across different service industries. Data is from National Income and Product Accounts (1929–2018). High (low) skill services include all industries where college-educated workers account for at least (less than) 12.5% of total hours worked in 1940. Relative wage refers to the total compensation per worker in sector *i* by total compensation per worker across all other (nonfarm) private industries in 1940, 2000, and 2018. * indicates industries that cannot be tracked separately in the BEA data after 2000. For these industries, the change in relative wage in the last 2 columns of the table is from 1940 to 2000.

	Relative Wage				
	1940	2000	2018	Change 1940–2018	% Change 1940–2018
High-skill services					
Legal services	0.860	1.595	1.648	0.788	92
Educational services	0.890	0.733	0.781	−0.109	−12
Financial services	1.460	1.705	1.826	0.366	25
Professional business services	1.370	1.735	1.880	0.510	37
Health services	0.640	0.977	1.008	0.368	57
Telecommunications	1.260	1.507	1.503	0.243	19
Transportation by air	1.640	1.213	1.011	−0.629	−38
Real estate	0.840	0.931	0.994	0.154	18
Membership organizations*	1.005	0.598			−40
Amusement and recreation services	0.920	0.804	0.789	−0.131	−14
Motion pictures	1.410	1.431	1.328	−0.082	−6
Low-skill services					
Wholesale trade	1.290	1.050	1.007	−0.283	−22
Personal services*	0.740	0.648		−0.092	−12
Hotels and other lodging places	0.720	0.648	0.620	−0.100	−14
Retail trade and automobile services	0.870	0.544	0.491	−0.379	−44
Transportation excl. Air	1.320	0.989	0.952	−0.368	−28
Miscellaneous repair services*	1.140	0.873		−0.267	−23
Private households*	0.370	0.355		−0.015	−4
All services	0.917	0.810	0.832	−0.085	−9
High skill services	1.126	1.204	1.480	0.354	31
Low skill services	0.939	0.707	0.575	−0.365	−39

A natural question is how the evolution of relative wages in other high-skill service industries compares to changes in the finance relative wage. To measure an industry's relative wage, we follow Philippon and Reshef (2012) and divide total compensation per worker in each industry by total compensation per worker across all *other* (nonfarm) private industries.[15] This measure shows how average pay in a given industry compares to the average in the rest of the economy.

Table 5 replicates Table 2 with relative wages instead of total compensation shares. As with total compensation, all of the growth in relative wages in services comes from the skill-intensive part of the sector. In particular, in *every* low-skill service industry, relative wages decline between 1940 and 2018. On average, relative wages increase by 31% in high-skill services and decline by 39% in low-skill services.

Table 5 shows that finance wages are consistently higher than wages in the rest of the economy, but this wage premium (between 46% and 83%) is similar to the premium in other high-skill service industries (e.g., professional business services). More importantly, the growth of finance wages after WWII is unexceptional when compared to other high-skill service industries. Between 1940 and 2018, relative wages in finance grow *slower*, in both absolute and percentage terms, than wages in

[15]Compensation to employees consists of all monetary remuneration and is defined as wage and salary accruals and supplements to wages and salaries. Full-time equivalent employees equal the number of full-time and part-time employees converted to a full-time basis.

legal services, professional business services, and health services. Thus, our inferences about the (unexceptional) growth of finance are similar if we focus on relative wages rather than compensation shares.

V. Heterogeneity Within Financial Services

The NIPA tables separate financial services into three subsectors: credit intermediation, insurance, and securities. It is important to note that all three finance industries are more skill-intensive than the average high-skill service industry. The securities subsector is particularly skill intensive: in 2000, individuals with a college degree accounted for over 83% of the labor hours in securities, a higher share than any of the high-skill service industries listed in Table 1.

Economy Shares and Wages in the Components of Financial Services

Table 6 shows how the three components of financial services compare in terms of economy shares and relative wages over time. For comparison purposes, we report the corresponding information for high-skill services at the bottom of each panel in Table 6. Panel A shows that between 1940 and 2018, the securities share of economy-wide compensation increases from 0.003 to 0.023 (667%). This (percentage) increase is faster than legal and educational services, but slower than professional business services and health services (shown in Table 2). In sharp contrast, the credit intermediation share increases from 0.016 to 0.025 (56%), and the insurance share increases from 0.020 to 0.026 (30%), much lower percentage increases compared to high-skill service industries. Clearly, the growth of securities

TABLE 6

Heterogeneity Within Financial Services

Table 6 reports compensation shares, employment shares, and relative wages in the three finance subsectors. Data is from National Income and Product Accounts (1929–2018). Skill intensity 2000 is the ratio of hours worked by college-educated workers to total hours worked in each industry in 2000. Compensation share refers to the share of each subsector in total compensation, measured as the total income (both wages and salaries, and supplements to wages and salaries) earned by employees each year. Employment share refers to the share of each subsector in total number of full-time equivalent (FTE) employment each year. The high-skill services sectors are legal services, educational services, financial services, professional business services, health services, telecommunications, transportation by air, real estate, membership organizations, amusement and rec services, and motion pictures.

	1940	2000	2018	Change 1940–2018	% Change 1940–2018
Panel A. Compensation Share					
Securities	0.003	0.022	0.023	0.020	667
Credit intermediation	0.016	0.029	0.025	0.009	56
Insurance	0.020	0.024	0.026	0.006	30
High-skill services	0.116	0.366	0.405	0.290	250
Panel B. Employment Share					
Securities	0.002	0.006	0.007	0.005	250
Credit intermediation	0.011	0.023	0.019	0.008	73
Insurance	0.014	0.018	0.019	0.005	36
High-skill services	0.101	0.336	0.344	0.243	241
Panel C. Relative Wage					
Securities	2.030	3.740	3.730	1.700	84
Credit intermediation	1.510	1.208	1.405	−0.105	−7
Insurance	1.350	1.360	1.450	0.100	7
High-skill services	1.126	1.204	1.480	0.354	31

drives most of the growth of finance after 1940: the financial services share of economy-wide compensation increases by 0.035, and securities accounts for 0.020 (57%) of this expansion.

Panel B of Table 6 reports the trends in employment shares. Securities increases the most (in percentage terms) from 0.002 of employment in 1940 to 0.007 in 2018 (250%), followed by credit intermediation (73% increase), and insurance (36% increase). While the percentage increase in the securities share of employment is substantial, it is not unusual relative to the rest of high-skill services and it is far less than the increase in the securities share of compensation (667%). It is also noteworthy that despite the growth of securities, it nevertheless accounts for only 0.7% of economy-wide employment by 2018.

Panel C of Table 6 shows changes in relative wages for the three finance industries. Relative wages in credit intermediation decline by 7% between 1940 and 2018, and relative wages in insurance increase only modestly (7%). The relative wage in securities, in contrast, increases by 84%. Thus, the securities subsector accounts for essentially all of the relative growth in finance wages in the second half of the 20th century, consistent with findings in Philippon and Reshef (2012). Although the growth in the securities relative wage is well above the average for high-skill services, it is slower than the growth of wages in legal services and not far above wage growth in health services (see Table 5).[16]

In Panel C of Table 6, it is also clear that the *level* of wages in securities is high, relative to both the other finance industries and to the rest of the high-skill services sector. Relative wages in securities are twice as high as the rest of the economy in 1940, and 3.7 times higher in 2018. Thus, to the extent there is something exceptional about finance, it is the high level of wages in securities, an issue we return to at the end of the article.

In Appendix B of the Supplementary Material, we show, for the three finance industries, how compensation, employment, and relative wages evolve between 1929 and 2018. Briefly, we note that i) the compensation shares of both credit intermediation and insurance stop increasing in the mid-1980s, while the compensation share in securities grows rapidly from the mid-1980s until the 2007–2008 financial crisis, ii) the securities share of employment increases only modestly between the late 1980s and mid-2000s, and iii) relative wages in securities increase sharply between 1975 and 2000, consistent with the fact that the securities share of total compensation expands rapidly at the end of the 20th century despite only modest growth in employment.[17] Thus, the growth of finance from the mid-1980s to the financial crisis is due primarily to wage growth in securities.

[16]Ideally, we could compare securities with the most skill-intensive components of legal services, health services, and professional business services (e.g., corporate lawyers, surgeons, and corporate CEOs), but the NIPA data is not sufficiently disaggregated to make this comparison. We expect the growth of the securities relative wage would look even less exceptional if we could pull out the highest skill components of these other broad service industries in the same way we can for finance. Indeed, other studies document extremely high wages (and wage growth) in other narrow segments of the high-skill service sector, such as parts of law, health, and professional business services (e.g., Kaplan and Rauh (2010), Smith, Yagan, Zidar, and Zwick (2019)).

[17]Figure V.B in Philippon and Reshef (2012) also shows the high relative wages in securities. They also document that relative wages in finance increase much faster in the New York, New Jersey, and

VI. Discussion

A. Understanding the Growth of Finance Vis-à-Vis the Rest of the Economy

We show that the growth of finance is unremarkable when viewed in proper context: long-run patterns in the evolution of the finance income share closely track the broader high-skill services sector. In this way, explanations for the rise of the high-skill service economy in the second half of the 20th century are likely useful starting points for understanding the growth of finance. In particular, Buera and Kaboski (2012) develop a model where higher productivity drives increased demand for skill-intensive services, including, but not limited to, the services provided by the finance sector.

The time-series changes we document *within* financial services are also consistent with a general increase in demand for high-skill services after WWII. The fastest growth within finance (by far) is from securities, the most skill-intensive finance subsector and one of the most skill-intensive industries in the entire U.S. economy. Thus, to understand the growth of finance vis-a-vis the rest of the economy, it is useful to consider some of the most important drivers of increased demand for the services provided by securities. Many of these drivers are also useful for understanding the growth of high-skill services more broadly.

B. The Growth of Securities

1. Increased Demand for Nontraditional Finance

The securities portion of financial services, sometimes called "Other finance," includes investment-related activities such as securities trading, commodities, venture capital, private equity, hedge funds, and investment banking (e.g., Philippon and Reshef (2012)). Clearly, there is a sharp increase in demand for these "nontraditional" finance activities in the mid- to late-20th century. For example, the securities subsector includes external equity financing activity, which increased sharply in the 1980s and 1990s. Starting in the 1960s and 1970s, key innovations created new industries, like biotechnology and personal computers (and later the internet), leading to a pronounced increase in the share of high-tech production within U.S. manufacturing (e.g., Brown and Petersen (2010)). Relative to traditional manufacturing, these new high-tech industries were much more dependent on equity finance, as the nature of high-tech investment (e.g., low collateral, high chance of failure) leads to low levels of debt usage (e.g., Brown, Fazzari, and

Connecticut "Tri-State Area" than in the rest of the country, which is also consistent with wages in the securities segment of finance being an important factor behind the increasing finance relative wage. Relatedly, Kaplan and Rauh (2010) show that finance employees in the Wall Street-type activities included in securities represent substantial portion of the top end of the U.S. income distribution over the period of 1994–2004. Bell and Van Reenen (2014) report that the highest-paid workers in banking make up a large, and growing, share of the top 0.1% of all taxpayers in the U.K. They imply that most of these workers are in the securities portion of finance. Boustanifar et al. ((2018), p. 740) report findings, for a large sample of developed countries, that "a large part of the evolution of finance relative wages is driven by trading activities and nontraditional banking."

Petersen (2009)). Indeed, in the U.S., venture capital investment exploded during this period (e.g., Gompers and Lerner (2004)), as did IPOs (over 5,700 in the 1990s), follow-on stock issues, and merger and acquisition activity.

Another important explanation for growth in securities is the dramatic increase in stock market wealth between 1980 and 2000 (a fourfold increase in stock market value to GDP as shown in Figure 6). This arguably created a large increase in demand for professional money managers, an important component of securities. Gennaioli et al. ((2014), (2015)) emphasize that because of investor ignorance, some money managers can obtain "locational" advantages for being particularly trusted, earning informational rents. They emphasize that a key role of money managers is wealth preservation, and because wealth increases faster than GDP, finance's share of income (and potentially employment) can rise faster than its share of GDP.

2. High Wages in Securities

Most of the growth of the compensation share of securities from 1980 to the start of the financial crisis is due to the dramatic growth in relative wages. Although this wage growth is not unprecedented – wages in legal services actually increase at a faster rate during the same time period – it is clearly important for understanding the growth of finance at the end of the 20th century. One explanation is that the nature of the activities in the modern securities industry has become increasingly complex and opaque. Philippon and Reshef (2012) highlight the connection between high wages and the complexity of activities in the overall finance sector. We emphasize that within the finance sector, the activities in securities trading are arguably more complex than those in the more traditional areas of banking and insurance.[18] Relatedly, many of these securities-related activities take place primarily in markets that are both informal and opaque; Bolton, Santos, and Scheinkman (2016) show that in markets with these characteristics there is an opportunity for informed traders to earn informational rents.

Axelson and Bond (2015) also develop a model that leads to rents in the financial sector, but their approach focuses on the intersection of imperfect observability of employee actions and the large-scale nature of financial activities. Their model appears to apply particularly well to the securities component of financial services, especially the focus on large amounts of capital per employee, which grew tremendously in recent decades (e.g., Greenwood and Scharfstein (2013)). Kaplan and Rauh (2010) also emphasize the role of scale in understanding the professions at the top end of the income distribution. They note that improvements in information technology allowed "asset managers, investment bankers, lawyers, and top executives [to] apply their talent to much larger pools of assets" (p. 1007). Célérier and

[18]For example, traditional lenders (credit intermediation) arguably face much less complexity than agents involved in private equity and other equity-linked activities. One key reason is that the nature of the debt contract dictates that lenders do not need to assess the upper tail of a firm's potential value; in addition, they also receive substantial downside protection if the loan is collateralized. In sharp contrast, agents involved in the provision of equity finance, such as venture capitalists and investment bankers, must comprehend the full distribution of potential outcomes of a given firm, a far more complex undertaking.

Vallée (2019) emphasize the complementarity between high returns to talent and scalability for understanding the finance wage premium.

Finally, Philippon and Reshef (2012) and Boustanifar et al. (2018) consider the role of financial market deregulations in understanding the high wages in finance. Many of these deregulations focused specifically on the activities in the securities segment of finance.[19] In a similar vein, Bolton, Santos, and Scheinkman (2016) note that Rule 144A permitted rapid growth in the private placement market, another component of the securities subsector. At a minimum, these deregulations, and others like them, allowed asset flows into the nontraditional segments of finance to increase sharply in the 1980s and 1990s.[20]

C. Should We Care About the Growth of Finance?

Our work shows that the growth of finance was not unusual, which directly challenges the "financial exceptionalism" narrative that exists in much of the literature. But it is beyond the scope of this article to address whether the growth of finance has been, on net, good or bad for society (e.g., Philippon and Reshef (2013), Philippon (2015), and Libich and Lenten (2022)). In particular, even if the evolution of finance is part of a much broader expansion of skill-intensive services – as it appears to be – the resulting size and scale of the financial sector may be concerning. For example, it is plausible that the financial sector contributes significantly to economic fragility (see, e.g., Dell'Ariccia, Igan, Laeven, and Tong (2016), Loayza, Ouazad, and Ranciere (2018)), in which case growth in finance may be much more concerning than growth in health or professional business services. On the positive side, the expansion of key components of the securities subsector was arguably necessary for high-skill sectors like health care (pharmaceuticals) and professional business services (software) to grow as fast as they did at the end of the 20th century (e.g., Brown, Martinsson, and Petersen (2013)). Other key components of securities (e.g., money managers) were arguably important for wealth preservation, a valuable service emphasized by Gennaioli et al. (2014), (2015).

An additional concern is that the very high wages in certain finance occupations, such as investment banking, draw skilled workers away from more socially important parts of the economy, or even from other countries (e.g., Böhm, Metzger, and Strömberg (2018), Boustanifar et al. (2018)). Although our work does not directly address this concern, it does provide some important context for evaluating it. Namely, it is important to know that i) over the past several decades employment growth in finance has been *much slower* than employment growth in other high-skill service industries (see Figure 3), ii) the subsector in finance with

[19]For example, in the online appendix accompanying their main study (see Table A2.C), Philippon and Reshef (2012) find that financial deregulations like the gradual repeal of the Glass-Steagall Act, which permitted an expansion of investment banking, have a far larger effect on wages in securities compared to the other components of finance.

[20]Another example is the 1979 change to the Employee Retirement Income Security Act allowing pension funds to invest up to 10% of their capital in VC. This change substantially increased the capital flowing into VC funds during the 1980s (e.g., Gompers (1994)).

the highest wages (securities) accounts for a very small share of economy-wide employment (see Table 6), and iii) the high wages in certain finance occupations have not led to exceptional growth in the finance share of economy-wide income (see Table 2).

VII. Conclusions

We study the growth and evolution of finance in the 20th and early 21st centuries, focusing on other high-skill service industries as the appropriate benchmark. We show that, in the 20th century, the well-known U- or V-shaped evolution of the finance income share is not unique: it is a common pattern for other high-skill service industries. More importantly, finance's income share actually grows slower than the rest of high-skill services in the post-WWII period. At a minimum, these findings show that patterns in the evolution of the size of finance during the 20th century are not anywhere near as remarkable as prior work suggests. As such, efforts to understand and evaluate the growth of finance should consider the broader underlying shift toward all types of high-skill service activities that took place at the same time (e.g., Buera and Kaboski (2012)).

This point is important because the pioneering studies in this area explicitly argue that general structural changes, such as the growth in services, are not useful for understanding patterns in the growth of finance (e.g., Philippon and Reshef (2013)). Starting from this perspective, the literature focuses exclusively on trying to understand why finance grew so *fast* in the second part of the 20th century. Our work shows the fundamental starting point is incorrect; indeed, if one is looking for puzzles related to the finance economy share, one might just as well ask why finance did not grow *even faster* given the sharp and broad shift toward high-skill services after WWII. It is also notable that finance's share of economy-wide income has been essentially flat for the past 20 years, and finance's share of economy-wide employment is at roughly the same level it was in 1980. Although these findings do not directly settle any of the ongoing academic and policy debates about the desirability of a large and growing financial sector, they do provide some much-needed context for those debates.

Supplementary Material

To view supplementary material for this article, please visit http://doi.org/10.1017/S0022109022001326.

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