Identity Economics Meets Financialisation: Gender, Race, and Occupational Stratification in the US Labour Market

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Abstract: Throughout his career Geoff Harcourt has constantly and consistently highlighted the role of social norms and collective decisions in his study of modern economies. In doing so he has put a great deal of emphasis on the distribution of income between different social groups, especially so when concerned with the labour market. This paper attempts to celebrate this particular aspect of his numerous contributions to economics by highlighting the role of social norms in influencing earnings across occupations and demographic groups in the US. Social norms generate hierarchy, economic and non-economic inequalities among ascriptively distinguished groups. Drawing on the stratification and identity economics literatures, this paper proposes a novel theoretical and empirical framework for analysing the effects of financialisation on the earnings dynamics of gender and race groups, a framework that is consistent with discrimination as a source of racial and gender inequality. The empirical methodology utilised in the form of long-run cointegrating relationships of groups' earnings across occupations, assesses whether a pattern of social norms on wage distribution emerges over time. The results of this study show that over the past 30 years social norms have exacerbated the stratification of the US labour market.

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1. Introduction

Geoff Harcourt has constantly highlighted the role of social norms and collective decisions in determining the level of key macroeconomic variables such as inflation, employment, output, and indeed the distribution of income between different social groups. In particular, when considering the labour market, he insists that "money wage levels are ... not the outcome of automatic forces but of bargaining processes which reflect relative bargaining strengths and social, historical, institutional and conventional processes" (1986, p. 233). This paper attempts to celebrate this particular aspect of his numerous contributions to economics by highlighting the role of social norms in influencing earnings across occupations and demographic groups in the US labour market.

Conventionally, the analysis of earnings across occupations and demographic groups is largely driven by an empiricist approach (e.g. Lang and Lehmann, 2011). Regression equations are estimated with earnings or wages as the dependent variable, and various indicator variables representing human capital or individual productivity characteristics (e.g. age, experience, years and quality of education, job tenure, geographic location, etc.) as the independent variables. However, as Darity (1989) lamented long-time ago, a consistent finding of the conventional analysis has been the presence of the so-called unexplained (but not random) residual, i.e. a significant and persistent differential that cannot be described by the included explanatory variables.

This paper proposes an alternative approach to the conventional analysis of earnings based on the idea that in modern, stratified societies there are preferred occupations in terms of social status, income, and security. Therefore, social norms regarding training, job information and assessment, promotional opportunities, and the definition of a job itself are an instrument through which group identities try to capture and hold those preferred

occupations. As a result, social norms, that is the established set of social practices and ideals that shape the behaviour of people generate hierarchy, economic and non-economic inequalities among ascriptively distinguished groups (see, for a similar point about the origin and role of gender norms and race norms, Elson, 2010, and Stewart, 2010, respectively). But social norms are not set in stone. They change over time as a result of several factors. The idea explored in this contribution is that financialisation has set in motion dramatic changes in income distribution in the US, which have in turn triggered and reinforced social practices and ideals in a way that has made worse rather than better the stratification of the US labour market.

In terms of its empirical dimension, the paper employs cointegration analysis. The purpose here is to analyse the long-run positions and short-run dynamics of earnings for different demographic groups and across occupations. Cointegration analysis allows the study of the interdependence between non-stationary variables, i.e. variables with mean and variance changing over time. This theoretically grounded methodology is used in the paper in order to test the potentially unequal effects of social norms on earning dynamics. The data used is provided by the US Bureau of Labour Statistics (BLS) of the Current Population Survey (CPS, 2010), namely a monthly survey of about 60,000 US households. The data covers the period 1983 to 2009, over which consistent data series are available. It offers a breakdown of the annual averages of weekly earnings (wage and salary) of full-time workers of the US labour force by occupations, ethnicity and gender.

2. The Role of Financialisation in Causing the Great Recession

2.1 The Importance of Financialisation

The term 'financialisation' has now entered the lexicon of academics and policy makers (e.g. Palley, 2013, and Turner, 2010, respectively), though there is still no agreement on its meaning and significance. Krippner (2005) has reviewed the origins of the term and its various definitions. The latter paper shows that some contributors use the term 'financialisation' to mean the dominance of 'shareholder value' as a mode of governance. For other writers, the term refers to the rising popularity of market-based over bank-based financial systems. Finally, others use the term to describe the increasing economic and political power of a particular social group, namely the 'rentier' class. Drawing on the sociology literature, Krippner (*op. cit.*) suggests that utilising financialisation can indicate the "pattern of accumulation in which profit-making occurs increasingly through financial channels rather than through trade and commodity production" (p. 181). All these definitions describe some important features of the financialisation process. However, this paper adopts a broader meaning of the term, which allows for a deeper understanding of the income distribution effects of the financialisation process, including the possibility of gender, race and occupational stratification in the labour market. Therefore, financialisation here refers to the growing weight of financial motives, financial actors and markets in the operation of modern economies, both at the national and international level, from the early 1980s until today (see, also, Epstein, 2005).

There are several studies that have tried to capture the salient features of the financialisation process, but very little has been said of the rising inequality over the last three decades in terms of its contribution to the 'Great Recession'. This is especially so from the point of view of the potential role of inequality in making the financial sector more fragile and vulnerable to systematic failure, with deleterious effects on the real economy. There are of course exceptions. Rajan (2010) maintains that during the financialisation period skill-

biased technology changes have caused income inequalities, which in turn have led to political responses that altered the state of finance (e.g. the lending activities of Fannie Mae and Freddie Mac) in a way that helped to generate financial crises. An alternative view suggests that income inequality is due to recent changes in the *global* terms-of-trade away from low-income sectors toward high-income sectors like finance (Galbraith, 2012). In addition, it is argued, the last thirty years have been characterised by the deregulation of the banking system and the evolution of financial exclusion of poor and minority households into their financial exploitation. Dymski (2010), for example, makes this point by pointing to the early 1990s 'predatory' loans, namely loans with unsustainable terms, which have surged the US since then. According to this alternative view, the 'Great Recession' is the outcome of the intersection of these two different trends, inequality on the one side, and financial liberalisation and financial exploitation, on the other side.

PLEASE INSERT FIGURE 1

Figure 1 above shows the national income tree for the United States. It offers a summary of the effects of financialisation on the functional distribution of income in the US. National income can be split into labour income and capital income. In turn, the former category can be broken down into payments to individuals working in different occupations,[1] while the latter category can be decomposed into interest payments and profit payments. Finally, the profits can be split into profits of the non-financial sector and profits of the financial sector. The central features of the financialisation process are displayed in bold on the left side of Figure 1: they are the increased capital share of national income, the increased profit share of capital income, and the increased financial sector profit share of total profits (see, for details, Palley, 2008, 2013).

Drawing on the data provided by the US Bureau of Labour Statistics (BLS) of the Current Population Survey (CPS, 2010), this paper aims to shed light on the labour share of the national income tree in the US. The paper examines the effects of the financialisation process on the distribution of income between the different gender and ethnic groups employed among the main occupations in the US labour market. From this perspective, one of the main objectives of the paper is to explore the possibility that over the last three decades some groups of individuals have taken an increasing portion of the labour share at the expense of other groups of individuals. This theoretical proposition is tested for the stable occupational shares of the US labour market, namely managerial and financial occupations, professional occupations, service occupations, sales occupations, construction occupations, and farming, fishing, and forestry occupations.[2] The original CPS data used in the paper offers a breakdown of US earnings by occupations, ethnicity and gender. This allows for an empirical analysis, which makes explicit the link between the financialisation process, on the one side, and the stratification in the labour market, on the other side.

2.2 Financialisation, Income Distribution Changes and the 'Great Recession'

An important but rarely discussed factor that has contributed substantially to the 'Great Recession' emerged from the steady but sharp rise in the unequal distribution of income between capital and labour, and within labour among different income groups. This is especially the case for the US, but also elsewhere. For instance, in the US the top 1 percent of households accounted for only 8.9 percent of income in 1976, but this share grew to 23.5 percent of the total income generated in the US before the crisis in the summer of 2007 (Rajan, 2010, p. 8). Furthermore, 1 percent of the US households, not necessarily the same 1% as the one referred to above, owned about 35 percent of national wealth in 2006-2007, a far greater share than in most developed countries (Wade, 2012). Atkinson *et al.* (2011) also

show that the share of US total income going to the top income groups had risen dramatically prior to 2007. The top pre-tax decile income share reached almost 50 percent by 2007, the highest level on record. Furthermore, Atkinson *et al.* (2011, pp. 6-7) show that over the period 1976 to 2007 the top 0.1 percent of the top decile increased from 2.6 percent to 12.3 percent.

Arestis and Karakitsos (2013) offer clear evidence of the unequal distribution of income between capital and labour (see, also, Wisman, 2013). The share of national income taken up by the capital share, and within it by profits, had reached a level close to a post-World War II high before the onset of the recession. At the same time, the rate of change of compensation of production and non-supervisory workers had fallen even behind the rate of change of productivity. The declining wage share and rising profits share were compounded by another long-term economic term: the increasing role of the financial sector in the economy. Between 1981 and 2007 the US financial sector as measured by the ratio of private credit to GDP grew from 90 percent to 210 percent, accounting in 2007 for circa 8 percent of GDP in the US (Philippon, 2008). Similarly, during the same period the financial sector recorded a sharp, nearly six-fold increase in their profitability.

This increasing role of the financial sector in the economy went hand-in-hand with the rising earnings in the sector. In their landmark study of the evolution of wages in the U.S. financial sector from 1909 to 2006, Philippon and Reshef (2012) show the pronounced above average rise in the salaries of those employed in financial occupations. Relative wages, i.e. the ratio of the wage bill in the financial sector relative to its full-time-equivalent employment share, enjoyed a steep increase over the period mid-1980s to 2006. What explains this development is financial deregulation in a causal way, followed by financial innovation. The deregulation impact accounts for 83 percent of the change in wages. Indeed,

compensations in the financial sector are higher than in other sectors, even after controlling for education. Another relevant analysis is provided by Goldin and Katz (2008). From 1980 to 2000 the differential awards between those graduating Harvard University and entered finance, and those who went into other professions was more or less zero. By the beginning of this century, Harvard graduates working in finance received almost three times more awards than other Harvard graduates (controlling for grades in college, standardised scores on entry, year of graduation, etc). In 2007, on the eve of financial crisis, 47 percent of Harvard graduating class headed for the financial sector.

The unequal distribution of income between capital and labour, and within labour among different income groups is not accounted for by the prevailing New Consensus Macroeconomic (NCM) theoretical framework and its policy implications. This is essentially monetary policy in the form of interest rate manipulation to hit an inflation target, either implicit or explicit (Arestis, 2009). This explains the struggle of the NCM theory to analyse the nature and origin of the financial crisis and the related Great Recession. By contrast, there is a rich alternative literature that has always been sensitive to the potentially damaging effects of an unequal distribution of income between capital and labour (see, for example, Galbraith, 2012). It has been suggested that it is the rise in inequality together with financial liberalisation and financial innovation that has generated the financial crisis though the mechanisms have differed as between the USA (and in part in the UK) and the continental EU (e.g. Fitoussi and Saraceno, 2010). In the US, the rise in inequality led to a decline in savings and increase in household borrowing as the relatively poor sought to maintain their (relative) living standard. This meant that despite the rise in inequality aggregate demand was stimulated. The empirical evidence showing that, after controlling for income mobility, in the US the rise in income inequality has been much more pronounced than the increase in

consumption inequality supports the above view (e.g. Krueger and Perri, 2006). But the co-existence of rising income inequality and (relatively) constant living standards was maintained at the expense of an unsustainable credit boom, which at the end led to the financial crisis. In the continental EU, the shift to profits tended to raise private savings thereby depressing aggregate demand and then economic activity. Budget deficits could have been increased in order to maintain a stable aggregate demand, but fiscal policy in the EU was constrained by the Stability and Growth Pact. As a result, economic growth in the EU tended to be modest, except for those countries like Germany that could successfully replace domestic demand with foreign demand, essentially with the rest of the Economic and Monetary Union members. In summary, together with financial liberalisation and financial innovation, the structural changes in income distribution that have been going on for the past three decades are at the root of the financial crisis and related Great Recession. These distributional effects have caused a chronic deficiency in aggregate demand, and led to two main results: high but unsustainable growth in the US (and in part in the UK), on the one side, and low and/or export-led growth in continental Europe (possibly with the exception of Spain), on the other side. None of these two growth paths has proven to be sustainable.

A second major factor that is at the root of the financial crisis and related Great Recession is financial liberalization. In the US financial liberalization began in the mid-1970s. There was the deregulation of commissions for stock trading in 1977 to begin with, and subsequently investment banks were allowed to introduce unsecured current accounts. The removal of Regulation Q in the 1980s followed, that is removing the placing of ceilings on retail-deposit interest rates. The repeal of the key regulation Glass-Steagall Act of 1933 in 1999 was one of the most important aspects of US financial liberalization process. The final step in the process was the Commodity Futures Modernisation Act (CFMA) of December

2000, which repealed the Shad-Johnson jurisdictional accord, which in 1982 had banned single-stock futures, the financial instrument that allows selling now but delivering in the future. All these financial liberalization initiatives were important in promoting financial innovations in the US financial markets.

The repeal of the 1933 Glass-Steagall Act in 1999 allowed the merging of commercial and investment banking, thereby enabling financial institutions to separate loan origination from loan portfolio; thus the originate-and-distribute model (as opposed to the previous originate-and-hold model). Indeed, financial institutions were able to use risk management in their attempt to dispose of their loan portfolio. Actually, risk aversion fell sharply. This was fostered by a new financial architecture in the form of securitisation and slicing risk through repackaging subprime mortgages, which were subsequently turned into Collateralised Mortgage Obligations (CMOs) and, more generally, Collateralised Debt Obligations (CDOs). The sale of CMOs and CDOs as well as other relevant securitized assets to international investors made the US housing bubble a global problem and provided the transmission mechanism for the contagion to the rest of the world. The collapse of the subprime market spilled over into the real economy through the credit crunch and collapsing equity markets in August 2007. A breakdown of trust between the financial sector and households occurred, most specifically in the case of the subprime mortgage holders. As the losses on these mortgages and other toxic assets accumulated, banks lost trust among themselves, which led to the freezing of the interbank lending market in the second half of 2007. These problems further constrained the ability of the banking sector to lend to the real economy. Bank failures ensued, which further eroded the ability of banks to lend. Then credit conditions in the real economy tightened further leading to corporate distress due to significant lack of bank credit; trade credit provided between firms also dried up.

In short, it is clear from the analysis in this section that distributional effects lay at the heart of the structural changes that have led to the 'Great Recession'. With this background in mind, the next section examines more closely how these distributional effects relate to the labour market, and more precisely how the financialisation process has affected via income distributional effects the different demographic groups present in the US labour market.

3. Financialisation, Income Redistribution and the Dynamics of Stratification in the US

3.1 Financialisation: codes of colour, codes of gender, and codes of occupations

The previous section argues that the process of financialisation has set in motion a variety of changes in the income distribution in the US, which together with financial liberalisation and the securitisation process have led to the 'Great Recession' and the current high levels of unemployment. Building on the stratification literature (e.g. Darity, 2005; Darity *et al.*, 2006) and the identity economics literature (e.g. Akerlof and Kranton, 2000, 2010),[3] Arestis, Charles and Fontana (2013; ACF henceforth) have highlighted two further striking features of the financialisation period that are often ignored by economists and policy makers alike. First, they uncover a growing wage premium for individuals working in managerial and financial occupations. Secondly, they show that this so-called finance wage premium is not equally distributed among all main demographic groups active in the US labour market. In particular, they show that white men and, to a lesser extent, Hispanic men have taken an increasing share of this wage premium at the expense of black men, white women, and Hispanic women.[4] On the basis of these results, ACF (*op. cit.*) conclude that financialisation has been neither race nor gender neutral. It has exacerbated gender and ethnic stratification in the US labour market.

ACF (2013) assess the validity of this theoretical proposition over the 1983-2009 period by testing empirically the following three hypotheses: 1) the existence of a wage premium for individuals working in managerial/financial occupations, i.e. the existence of a finance wage premium; 2) the unequal distribution of the finance wage premium between different ethnic and gender groups; and 3) the existence of a wage premium for individuals of a particular ethnic or gender group working in all occupations. The results of the cointegration analysis presented in ACF (*op. cit.*) suggest that the first and the second hypotheses are empirically confirmed, while there is inconclusive evidence for the third hypothesis. In effect, the earnings of white men in managerial/financial occupations have increased exponentially in comparison with the earnings of other demographic groups operating in managerial/financial occupations. However, when testing the third hypothesis, ACF (*op. cit.*) do not distinguish between the different occupations present in the US labour market, and take all occupations at the aggregate level. By doing so, the analysis in ACF fails to test for the presence and the evolution of occupational norms that may have interacted with the dynamics of race and gender norms during the financialisation period. In other words, ACF do not account for the possibility that occupational norms may add another layer to the social stratification of the US labour force. This contribution attempts to deal with this issue, among others. The theoretical and empirical analysis of this paper explicitly allows for the existence of a wage premium for some demographic groups at the expense of other demographic groups for all stable occupational shares of the US labour market (main occupations henceforth), namely managerial and financial occupations, professional occupations, sales occupations, service occupations, construction occupations, and farming, fishing and forestry occupations.

3.2 A Theory of 'Socially Acceptable' Identities: Gender, Race and Occupational Layers of Stratification

This paper offers a theoretical framework that may help to explain the evolution of an occupational wage premium for some demographic groups at the expense of other groups (see, also, Charles 2011, 2012). This theoretical framework is consistent with the work of stratification economists who have explained, among other things, that wage (and employment) discrimination is a source of racial and gender inequalities. In this regard, Darity and Williams (1985), and Mason (1996) explain that the concrete historical and economic conditions faced by some race and gender groups, including their prior class position and social background before immigration, is a significant factor explaining the presumed successful (e.g. Eastern-European Jewish immigrants, West Indian immigrants) or unsuccessful (e.g. native black immigrants) integration of minorities in the US society. For instance, Darity (1989, pp. 353-354) argues that the experience of native black Americans is indicative. "Transplanted Africans, stripped of tribe and clan, were denied knowledge of a coherent class history. Africans from various ethnic and class background were brought to these shores as a largely undifferentiated pool of slave laborers … [and] relegated historically to the lowest strata of U.S. society". In other words, gender and race have been historically used as a convenient group identification feature for stratifying the labour market in terms of wage differentials and different employment opportunities.

Building on the work of stratification economists, this paper explores the possibility that the substantial income distribution effects produced over the past three decades by financialisation have triggered and possibly strengthened social norms, including gender, race and occupational norms, already operating in the US economy. These social norms may have

in turn led to the reinforcement of socially acceptable group identities, characterised by divergent income and wealth features.

Social norms, that is the set of social practices and ideals that shape the behaviour of individuals, play a key role in the labour market. They affect job opportunities and wage offers in the labour market. For instance, in most countries in view of the norm at the household level that women have a lower entitlement to paid-work than men, it becomes then socially acceptable that women have fewer opportunities for paid-work in the labour market. This is irrespective of their abilities or education. In a similar way, since the norm is that women have a lower income entitlement than men at the household level, it becomes socially acceptable that they will also have lower wage offers than men for the same paid-work.

The effects of social norms on job opportunities and wage offers in the labour market do not end at the distinction between men and women. They also apply to the different racial groups represented in the labour market. Since racial groups have different income streams and wealth features, it is socially acceptable that they will also have different job opportunities and wage offers. As a result, it becomes socially acceptable to consider some jobs (and pay offers) appropriate for white individuals and other jobs (and pay offers) suitable for say black or Asian individuals. Similarly, in modern, stratified societies there is a hierarchy of occupations in the labour market in terms of their social status, prestige, average income, and wealth features. Group identities compete for high-status, high-income occupations. Social norms are an instrument used, consciously or unconsciously, to capture these preferred occupations at the expense of other groups. For example, some white individuals are likely to use the social norms of their group, including educational and cultural background, when making job or wage offers. As a result, it becomes socially acceptable to consider some jobs (and pay offers) appropriate for say an Oxbridge or Ivy

League-educated white individual and other jobs (and pay offers) suitable for a non-Oxbridge or non-Ivy League-educated white individual. In short, the existence of socially acceptable group identities mediates inter-group conflicts, which are likely to have major effects on job opportunities and wage offers. This means that the existence of socially acceptable group identities may lead to an exacerbation of the gender, race and occupation stratification in the US labour market.

A similar argument could also be made for the credit and financial markets. Social norms play a key role in determining who has access to bank lending and financial instruments and at what terms and conditions (Ladd, 1998). For instance, Fukuda-Parr *et al.* (2013), argue that the creation of CMOs and CDOs during the financialisation period reflected existing patterns of stratification in credit and financial markets. As a result, the creation of CMOs and CDOs increased the relative share of income flowing to the financial institutions through the expropriation of the wealth of minorities (e.g. blacks and Latinos) disproportionately. This argument about the possibility of credit and financial markets being racialised and gendered is thought to be the focus of another paper, and thus not pursued further in the current contribution.

But, how have these socially acceptable group identities been affected by financialisation, and how could they possibly explain the existence of an occupational wage premium for some demographic groups at the expense of other groups? The theoretical hypothesis put forward in this paper is that via substantial income distribution effects, financialisation has affected the socially acceptable identities of the demographic groups operating in the US labour market in a way that has exacerbated the wage premium of the dominant group at the top of the occupational stratification.

4. Empirical Investigation

4.1 Long-run Relationships and Short-run Dynamics of Financialisation

The empirical analysis starts with some descriptive statistics showing the evolution of the demographic composition of the main occupations of the US labour market, namely managerial/financial occupations (manfin henceforth), professional occupations, service occupations, sales occupations, construction occupations, and farming, fishing, and forestry occupations in 1983 (Table 1) and in 2009 (Table 2). These are the starting and ending years of the period under investigation.

<div align="center">**PLEASE INSERT TABLE 1 HERE**</div>

<div align="center">**PLEASE INSERT TABLE 2 HERE**</div>

Tables 1 and 2 highlight three interesting features of the dynamics of the US labour force.[5] First, there is a clear change in the occupational shares of the US economy. While construction, sales, and farming/forestry/fishing record small changes, professional, service, and managerial/financial categories all portray a substantial increase in their occupational shares. Second, there is a considerable fall in the occupational shares of white men across all occupations. This is consistent with the rise in the female labour participation rate and Hispanic immigration over the past thirty years. For the purpose of this paper, it is also worth mentioning that, among the growing occupations, the biggest fall in the white men occupational share is in manfin. Here, white women are the main winners recording a 6.43 percentage point increase in occupational share. Also, as a result of the fall in the occupational share of white men, white women become the largest group in the professional category. Finally, there is a large increase in the occupational shares of the Hispanic group across all occupations. The total occupational share of Hispanic men and women increases

from 5.64 percentage points of the labour force in 1983 to 13.64 percentage points in 2009. It is also notable the nearly four-fold increase in the share of Hispanic men in the construction occupations.

The core of the empirical analysis is a cointegration analysis of the weekly real earnings of white men in manfin with the weekly real earnings of each demographic group across occupations. This follows directly from the descriptive statistics above and the theoretical analysis discussed in previous sections, namely the possibility that the demographic stratification identified in manfin has become a benchmark for the demographic stratification of earnings in all remaining occupations. Therefore the main empirical hypotheses to be tested are:

H1: the existence of a rising wage premium for white men working in manfin over the earnings of white women working in the main US occupations, namely manfin, professional, service, sales, construction, and farming/forestry/fishing;

H2: the existence of a rising wage premium for white men working in manfin over the earnings of black men working in manfin, professional, service, sales, construction, and farming/forestry/fishing occupations;

H3: the existence of a rising wage premium for white men working in manfin over the earnings of black women working in manfin, professional, service, sales, construction, and farming/forestry/fishing occupations;

H4: the existence of a rising wage premium for white men working in manfin over the earnings of Hispanic men working in manfin, professional, service, sales, construction, and farming/forestry/fishing occupations;

H5: the existence of a rising wage premium for white men working in manfin over the earnings of Hispanic women working in manfin, professional, service, sales, construction, and farming/forestry/fishing occupations

The first step of the cointegration analysis is to test whether all earnings variables mentioned in the above hypotheses are non-stationary. Augmented Dickey-Fuller (ADF) tests are performed[6] on real weekly earnings (annual averages in level) to confirm whether or not the null hypothesis of a unit root can be rejected for each demographic group across occupations. Since ADF tests confirm that most variables are non-stationary, i.e. stationary in first-difference or trend-stationary, the cointegration analysis can be performed for the theoretical hypotheses H1, H2, H3, H4 and H5.

Provided that a long-run relationship is identified, the second step of the cointegration analysis is to establish this long-run relationship along with the short-run dynamics that entail the error-correction dimension. Stability issues are also discussed, which would enable to confirm or not the above hypotheses. Following the Johansen procedure (Johansen, 1991), non-stationary earnings variables for white men in manfin and white women across occupations (VECM1), for white men in manfin and black men across occupations (VECM2), for white men in manfin and black women across occupations (VECM3), for white men in manfin and Hispanic men across occupations (VECM4), for white men in manfin and Hispanic women across occupations (VECM5) are tested in order to identify the number of cointegrating vector(s) (i.e. the long-run relationships), if any. Each VECM estimated is then of the form:

$$z_t = \Phi_1 z_{t-1} + \Phi_2 z_{t-2} + ... + \Phi_p z_{t-p} + \varepsilon_t, t = 1,...,T,$$

(1)

where z_t is a $m \times 1$ vector of m non-stationary variables under consideration, Φ_i is a $m \times m$ matrix of unknown coefficients and ε is the error term. The theoretical VEC model (1) of unrestricted intercepts and restricted trends becomes:

$$\Delta z_t = c_0 + c_1 t + \Pi z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta z_{t-i} + \varepsilon_t, t = 1,...,s,...T,$$

(2)

where z_t is an $m \times 1$ vector of m non-stationary variables, with $m=6$ in VECM1, $m=5$ in VECM2, $m=4$ in VECM3, $m=4$ in VECM4, and $m=4$ in VECM5 , as stated with the above variables where Π and Γ_i's are given by

$$\Pi = \sum_{i=1}^{p} \Phi_i - I_m, \ \Gamma_i = -\sum_{j=i+1}^{p} \Phi_j,$$

(2.1)

and I_m is an $m \times m$ identity matrix and where it is assumed that;

$$E(\varepsilon_t) = 0; E(\varepsilon_t \varepsilon_s') = \begin{bmatrix} \Sigma \text{ for t = s} \\ 0 \text{ for t} \neq \text{s} \end{bmatrix}$$

with Σ a $m \times m$ symmetric positive definite matrix.

4.2 Empirical Results

The number of cointegrating equations for each VECM is derived from the Johansen (1991) tests for cointegration. The test identifies no cointegrating vector for VECM5, hence the weekly earnings of Hispanic women are not cointegrated with weekly earnings of white men in manfin. Theoretically, this means that the forces driving the changes in the earnings of white men are different from those producing the changes in the earnings of Hispanic women. Johansen tests also identify one cointegrating vector for VECM1, VECM2, VECM3 and VECM4. If there are r cointegrating vectors between the variables of the VECM and $\prod$ in equation (2.1) has rank r, then $\prod$ will have r non-zero eigenvalues. Johansen (*op. cit.*)

estimates whether the eigenvalues are different from zero via two tests, namely the trace statistic test and the maximum eigenvalue test. The alternative hypothesis for the trace test is an unspecified number of cointegrating vectors in the range *x+1* to *m*, with *m* indicating that all variables are stationary, and the alternative hypothesis for the eigenvalue test is *x+1*. The estimations in this paper utilize the results of the trace statistic, which performs better in small samples.[7]

All empirical results for VECM1, VECM2, VECM3 and VECM4 are presented in Table 3, Table 4, Table 5, and Table 6, respectively. Consistently with the theoretical framework, constraints on all VECMs are defined by the Johansen normalization procedure on the first parameter of the cointegrating equations, i.e. the long-run equations are normalized on the earnings of white men in manfin.[8] At this stage, it is worth mentioning that the number of lags in the short-run equations is imposed by cointegration analysis and the Johansen procedure and not by the theory or ad-hoc judgments. In other words, the number of lags in the short-run equations is purely an empirical issue.

In interpreting the results, it is also worth mentioning that a cointegrating equation between earning variables represents the steady state condition, i.e. the stationary relationship between these earning variables in the long-run. Consistently with Johansen (2002) and Juselius (2006), the sign and size of the long-run coefficients represent the compensating effects between earnings around this steady state condition. Therefore, a cointegrating coefficient should be interpreted as the effect of a long-run change to the earnings of one group on the earnings of another group, *ceteris paribus*. For example, a negative coefficient means that an overshooting in the real earnings of white men in manfin above the steady state has negatively affected the real earnings of another group over the 1983-2009 period. In other

words, a negative coefficient does not show a 'decrease' in real earnings, but simply an increase for that particular variable below its steady state.

PLEASE INSERT TABLE 3 HERE

Table 3 shows the results of VECM1, which estimates one long-run relationship and short-run dynamics of earnings of white men in manfin (wm^{manfin}), and earnings of white women in manfin (wf^{manfin}), professional occupations (wf^{prof}), service occupations ($wf^{service}$), sales occupations (wf^{sales}), and farming/forestry/fishing occupations (wf^{farm}).[9] Diagnostic tests for VECM1 are overall satisfactory.[10]

The results of VECM1 show that the rising wage premium for white men in manfin has negatively affected the earnings of white women in service and professional occupations, and positively affected the earnings of white women in manfin, sales, and farming/forestry/fishing occupations. All the coefficients of the long-run equation are significant at the five percent level. It is noteworthy that the largest coefficient is related to the earnings of white women in services: it suggests that over the 1983-2009 period, on average, when the earnings of white men in manfin increase by circa $7, the earnings of white women in services decrease by $1 below the steady-state relationship, *ceteris paribus*. This result is consistent with the impulse response in Figure 2 of the Appendix, where there is a sharp rise in white men's earnings in manfin in response to a generalized one standard deviation innovation in white women's earnings in services. The result is also consistent with the short-run dynamics in Table 3: changes in the earnings of white women in services at time t-1 are positively associated by a factor of 2.83 with changes in the earnings of white men in manfin at time t. At the same time, when the earnings of white men in manfin increase by $0.7, the earnings of white women in manfin increase by $1.The error correction term (EC1) shows the correct sign. It is though significant at the fifteen percent level only. The

small size of the EC1 coefficient (-0.13) indicates a slow adjustment process from the short run to the long run. The result of the long-run stationary equation VECM1 suggests that the white male premium in manfin over the earnings of the white female segment of the population has had mixed outcomes depending on the occupational background. For instance, it brings extra financial rewards for white women to work in, and be identified with, managerial and financial occupations rather than say service occupations or professional occupations.

PLEASE INSERT TABLE 4 HERE

Table 4 shows the results of VECM2, which estimates one long-run relationship and short-run dynamics of earnings of white men in manfin (wm^{manfin}), and earnings of black men in manfin (bm^{manfin}), professional occupations (bm^{prof}), service occupations ($bm^{service}$), and sales occupations (bm^{sales}).[11] Diagnostic tests for VECM2 are overall satisfactory.[12]

The results of VECM2 show that the rising wage premium for white men in manfin has negatively affected the earnings of black men in manfin (bm^{manfin}) and positively affected the earnings of black men in professional and service occupations (bm^{prof} and $bm^{service}$). The coefficients of bm^{manfin}, bm^{prof} and $bm^{service}$ are all significant at the five percent level. The largest negative coefficient in the long-run equation is related to bm^{manfin}. It suggests that over the 1983-2009 period on average, when the earnings of white men in manfin increase by $5.5, the earnings of their black men colleagues decrease by $1 below the steady-state relationship, *ceteris paribus*. This result is consistent with the impulse response in Figure 2 of the Appendix, where there is a sharp rise in white men's earnings in manfin in response to a generalized one standard deviation innovation in black men's earnings in manfin. The result is also consistent with the short-run dynamics in Table 4: changes in the earnings of black men in manfin at time t-1 are positively associated by a factor of 0.41 with changes in the

earnings of white men in manfin at time t. At the same time, when the earnings of white men in manfin increase by circa \$6, the earnings of black men in services increase by \$1 above the steady state condition. The error correction term (EC2) shows the correct sign, and it is significant at the ten percent level. The small size of the EC2 coefficient (-0.06) indicates a slow adjustment process from the short run to the long run. In summary, the result of this long-run stationary equation confirms that there is a rising white male premium in manfin at the expense of the black male segment of the population working in the same occupations.

PLEASE INSERT TABLE 5 HERE

Table 5 shows the results of VECM3, which estimates one long-run relationship and short-run dynamics of earnings of white men in manfin (wm^{manfin}), and earnings of black women in manfin (bf^{manfin}), service occupations ($bf^{service}$), and sale occupations (bf^{constr}).[13] Diagnostic tests for VECM3 are overall satisfactory.[14]

The results of VECM3 show that over the 1983-2009 period, on average, when the earnings of black women in manfin increase by 1\$, the earnings of their white male colleagues increase by circa \$27, *ceteris paribus*. At the same time, when the earnings of white men in manfin increase by circa \$44, the earnings of black women in services decrease by \$1 below the steady state. Finally, when the earnings of white men in manfin increase by circa \$19, the earnings of black women in sales decrease by \$1 below the steady state. In the short-run dynamics equation, the error correction term (EC3) shows the correct sign, but it is statistically insignificant. Similarly, the coefficients of the variables representing the earnings of black women across occupations are statistically insignificant. Therefore, the short-run equation in Table 5 is of no support in explaining the dynamic relationship between the earnings of white men in manfin and the earnings of black women across occupations in the

short run. In summary, the long-run relationship shows a pattern of income distribution away from the overall black female group toward white men earners in manfin.

PLEASE INSERT TABLE 6 HERE

Table 6 shows the results of VECM4, which estimates one long-run relationship and short-run dynamics of earnings of white men in manfin (wm^{manfin}), and earnings of Hispanic men in manfin (hm^{manfin}), in service occupations ($hm^{service}$), and construction occupations (hm^{constr}).[15] Diagnostic tests for VECM4 are overall satisfactory.[16]

The results of VECM4 show that the rising wage premium for white men in manfin has negatively affected the earnings of Hispanic men in manfin (hm^{manfin}), and in service occupations ($hm^{service}$), and positively affected the earnings of Hispanic men in construction occupations (hm^{constr}). The coefficients of hm^{manfin}, $hm^{service}$ and hm^{constr} are significant at the five percent level. The long-run coefficients indicate that over the 1983-2009 period, on average, when the earnings of white men in manfin increase by circa $3, the earnings of Hispanic men in services decrease by $1 below the steady state condition, *ceteris paribus*. At the same time, when the earnings of white men in manfin occupations increase by circa $0.40, the earnings of Hispanic men in services decrease by $1 below the steady state. Similarly, when the earnings of white men in manfin increase by $3.5, the earnings of Hispanic men in construction increase by $1 above the steady state. These contrasting results in terms of the signs of the coefficients are not straightforward to interpret in the light of the theoretical framework proposed in the paper. However, Table 1 and Table 2 do provide some clues. They show that between 1983 and 2009 construction occupations register by far the largest increase in the occupational shares of the Hispanic group, moving from 6.10 percent to 23.61 percent of the total of all labour force occupied in the construction sector. Furthermore, Table 1 and Table 2 show that this large increase is also highly gender

imbalanced: in 2009 Hispanic women represent a meagre 0.26 percent out of 23.87 percent of all Hispanics employed in construction occupations. This large and gender imbalanced change in the occupational share of Hispanic men in construction is possibly a factor in explaining the positive long-run relationship between the earnings of white men in manfin and the earnings of Hispanic men in construction.

Before concluding, it is worth emphasizing that all empirical results should be interpreted carefully in the light of the different gender-race dynamics taking place at the aggregate occupational level chosen in this paper. Future research should break down the analysis into sub-occupational categories to understand these dynamics. Similarly, future research should also look at the short-run dynamics of earnings for each minority group in order to understand the significance of the long-run redistribution of income in explaining short-run changes in their earnings.

5. Summary and Conclusions

The paper has proposed a novel theoretical and empirical framework for analysing the role of social norms in influencing US earnings across occupations and demographic groups during the last three decades. This novel framework is based on the idea that in modern societies there are preferred occupations in terms of social status, income, wealth and security features. Social norms are an instrument through which group identities try to capture and hold these preferred occupations. But social norms are not set in stone. They evolve over time. The paper has explored the possibility that the income distribution effects produced by financialisation, which have played such a significant role in causing the Great Recession, may also have triggered and reinforced social norms in a way that has affected the gender,

race and occupational stratification of the US labour market. The novel framework adopted in this paper has among other things highlighted two interesting aspects of the last three decades.

First, the income distribution effects associated with financialisation have gone hand in hand with an occupational stratification process that has brought managerial and financial occupations at the top while leaving service occupations at the bottom of the US society. In this regard, the paper has identified a significant relative change in the pattern of distribution of income away from white women, black women, Hispanic men (and to a lesser extent black men) working in service occupations toward white men working in managerial and financial occupations. Second, the role of race norms seems to have been particularly strengthened by financialisation in the high-status managerial and financial occupations. The paper has in fact found that among all demographic groups, black men record the largest below-trend growth in earnings in these high-status occupations. In a similar way, while the earnings of white women in managerial and financial occupations followed a similar rate of increase to the earnings of their white male colleagues, the earnings of black women colleagues grew at a much slower rate than those of white men. Interestingly, the gains of white men vis-à-vis black women across all occupations are considerably larger than any other demographic group. In conclusion, this paper has shown that through the effects on social norms over the past three decades financialisation has exacerbated the stratification of the US labour market.

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[1] For the purpose of this paper, the main occupations in the US labour force are managerial and financial occupations, professional occupations, sales occupations, service occupations, construction occupations, and farming, fishing and forestry occupations (CPS, 2010).

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[2] Following Philippon and Reshef (2012), the criterion used for the choice of the occupational categories is consistency in the occupational shares over the 1983-2009 period. For this reason, the current 'production, transportation and material moving' category is not included in the cointegration analysis: in 1983 no 'production' category existed, while 'transportation and material moving' was part, among many other sub-categories, of category 'operators, fabricators, laborers'; in 1988 a new category labelled 'production and nonsupervisory workers' was created; and finally, in 2000 'production, transportation and material moving' was established, and included two sub-categories, namely 'production' and 'transportation and material moving'.

Similarly, the current sub-category 'sales' is included in the cointegration analysis but the broader 'sales and office' category is not: in 1983, no office category existed, while there was one broad category called 'technical, sales, admin support', and included three sub-categories, namely 'technicians and related support', 'sales', and 'admin support'; starting in 2000, the broad 'sales and office' category was established and included the two sub-categories, namely 'sales and related' and 'office and administrative support'.

[3] Although Akerlof and Kranton (2000) introduce 'identity' into economic analysis, a multidisciplinary notion and as such a very welcomed approach, it has been criticised in that it is introduced in a standard neoclassical utility function and with very limited application to social contexts (Davis, 2007, 2011; see, also, Fine, 2009).

[4] In ACF (2013) the earnings of black women are either included as an exogenous variable (this is the case of VECM3b), or the estimated long-run coefficient is not statistically significant (this is the case of VECM2b). Therefore, ACF (*op. cit.*) cannot derive meaningful conclusions from their empirical analysis on the earnings of black women.

[5] Tables 1-2 need to be interpreted cautiously bearing in mind that compositional segregation may affect the mobility of gender and race groups across occupations (Anker 1998).

[6] All ADF tests mentioned in the text are available from the authors upon request.

[7] The results of the Johansen tests for cointegration mentioned in the text are available from the authors upon request.

[8] The results for three diagnostic tests of each estimated VECM are also presented in the same Tables. The Lagrange-multiplier tests the null hypothesis of no autocorrelation of the residuals for each VECM, up to four lags. We use the probability of obtaining the chi-square statistic if there is no autocorrelation of the residuals when it is significant at the five percent level. The normality test assesses the null hypothesis of residuals being multivariate normal. The White Heteroskedasticity Joint test is utilised to examine the possibility of the null hypothesis of no heteroscedasticity or no misspecification of the residuals.

[9] ADF tests identified the earnings of white women in construction occupations to be stationary. Therefore, they are not entered in VECM1.

[10] The Lagrangean-multiplier test shows no sign of serial correlation in the residuals up to four lags, which is significant at the five percent level. The Skewness test shows that the residuals are multivariate normal, which is significant at the five percent level. The White test shows no sign of heteroskedasticity in the residuals, which is significant at the five percent level.

[11] ADF tests identified the earnings of black men in construction, farming/forestry/fishing occupations to be stationary. Therefore, they are not entered in VECM2.

[12] The Lagrangean-multiplier test shows some signs of serial correlation in the residuals up to two lags, which means that the results of VECM2 need to be carefully interpreted. The Skewness test shows that the residuals are multivariate normal, which is significant at the five percent level. The White test shows no sign of heteroskedasticity in the residuals, which is significant at the five percent level.

[13] ADF tests identified the earnings of black women in professional, construction and farming/forestry/fishing occupations to be stationary. Therefore, they are not entered in VECM3.

[14] The Lagrangean-multiplier test shows no sign of serial correlation in the residuals. The Skewness test shows that the residuals are multivariate normal, which is significant at the five percent level. The White test shows some signs of heteroskedasticity in the residuals..

[15] ADF tests identified the earnings of Hispanic men in sales, and farming/forestry/fishing occupations to be stationary. Therefore, they are not entered in VECM4.

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[16] The Lagrangean-multiplier test shows some signs of serial correlation in the residuals at lag two only. The Skewness test shows that the residuals are not multivariate normal. The White test shows no sign of heteroskedasticity in the residuals, which is significant at the five percent level.

Figure 1: The Effects of Financialisation on US National Income Tree
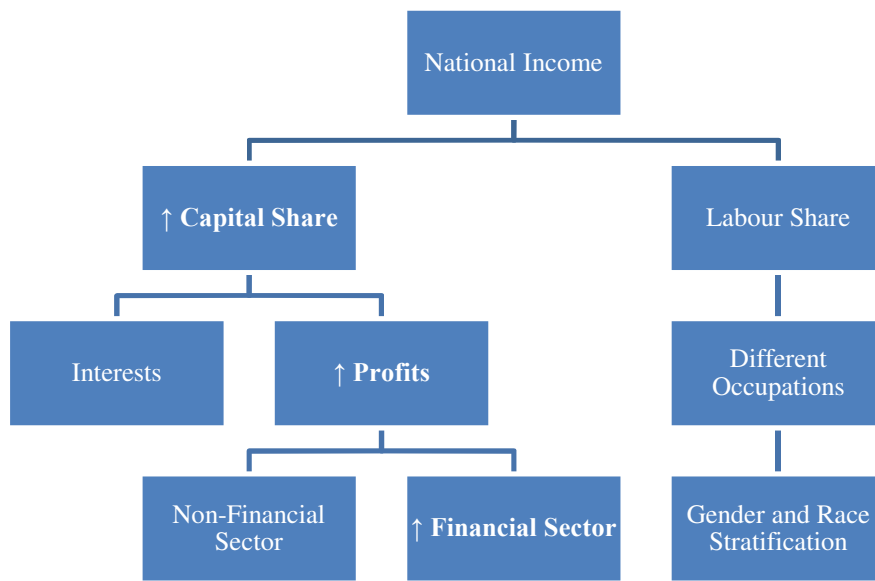
Source: Palley (2008) and authors' elaborations

Appendix.

Figure 2. Impulse responses for VECM1, VECM2, VECM3, and VECM4

Response of white men's earnings in man/fin occupations to Generalized One S.D. Innovations

— white women's earnings in man/fin occupations
--- white women's earnings in professional occupations
--- white women's earnings in service occupations
--- white women's earnings in sales occupations
--- white women's earnings in farm/forestry/fishing occupations

Response of white men's earnings in man/fin occupations to Generalized One S.D. Innovations

— black men's earnings in man/fin occupations
--- black men's earnings in professional occupations
--- black men's earnings in service occupations
--- black men's earnings in sales occupations

Response of white men's earnings in man/fin occupations to Generalized One S.D. Innovations

— black women's earnings in man/fin occupations
--- black women's earnings in service occupations
--- black women's earnings in sales occupations

Response of white men's earnings in man/fin occupations to Generalized One S.D. Innovations

— Hispanic men's earnings in man/fin occupations
--- Hispanic men's earnings in service occupations
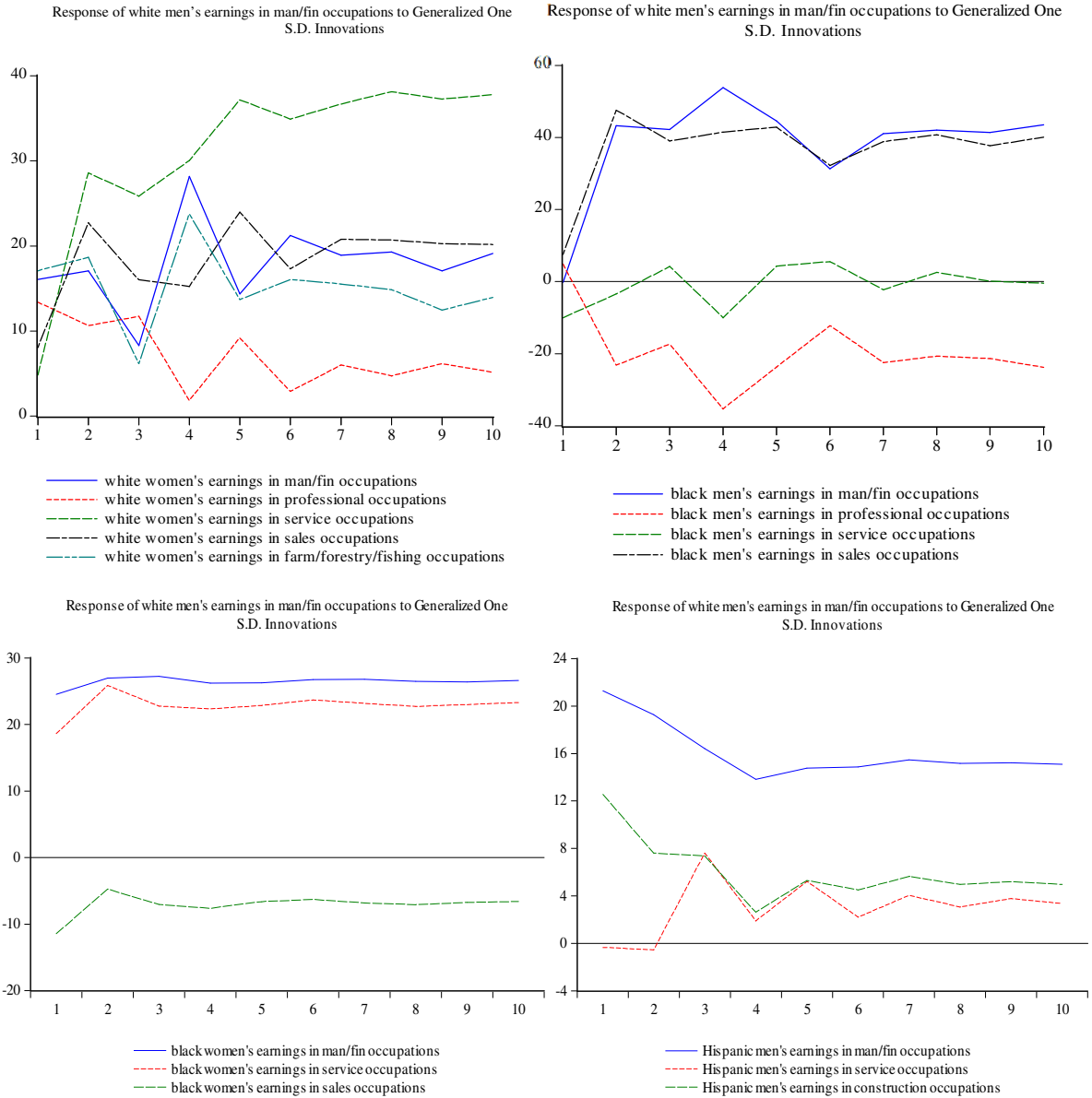--- Hispanic men's earnings in construction occupations

Table 1. Share of demographic groups in US labour force by occupation in 1983

	Managerial/ financial	Professional	Service	Sales	Construction	Farming/ forestry/ fishing	Total
white men	61.38	49.24	38.00	56.23	85.74	65.11	51.03
white women	30.59	40.84	35.10	34.48	1.27	8.30	33.26
black men	2.73	2.53	8.70	2.42	6.57	9.72	5.31
black women	2.47	4.78	10.38	2.88	0.16	0.81	4.76
Hispanic men	1.79	1.32	4.80	2.18	6.10	13.90	3.57
Hispanic women	1.03	1.29	3.05	1.80	0.16	2.16	2.07
Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Occupational share of total labour force							
	11.19	*12.63*	*10.46*	*8.81*	*4.30*	*2.02*	*50*

Source: Current Population Survey (2010) and authors' calculations

Table 2. Share of demographic groups in US labour force by occupation in 2009

	Managerial/ financial	Professional	Service	Sales	Construction	Farming/ forestry/ fishing	Total
white men	46.93	36.81	33.22	45.11	70.17	50.49	42.65
white women	37.02	45.46	30.78	33.83	1.36	11.13	32.78
black men	3.21	3.45	6.53	4.18	4.34	2.73	5.02
black women	4.77	7.09	9.43	5.41	0.26	1.07	5.91
Hispanic men	4.39	3.18	11.28	6.04	23.61	28.03	8.53
Hispanic women	3.68	4.00	8.79	5.42	0.26	6.54	5.11
Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Occupational share of total labour force							
	15.00	*21.06*	*15.31*	*9.37*	*6.18*	*0.95*	*67.87*

Source: Current Population Survey (2010) and authors' calculations

Table 3. Long-run relationships and short-run dynamics of earnings between white men in managerial/financial occupations and white women across occupations (VECM1)

Long-run relations:

Coint. equation VECM1

$$1286 + wm^{manfin} + \underset{0.33*}{0.73} \ wf^{manfin} - \underset{0.35*}{2.52} \ wf^{prof} - \underset{1.40*}{7.24} \ wf^{service} + \underset{0.83*}{1.64} \ wf^{sales} + \underset{0.89*}{1.92} \ wf^{farm} = 0$$

Short-run dynamics:

VECM1:

$$\Delta wm^{manfin} = \underset{11.12}{6.13} - \underset{0.24}{0.29} \ \Delta wm^{manfin}_{t-1} + \underset{0.49}{0.47} \ \Delta wf^{manfin}_{t-1} + \underset{0.56}{0.08} \ \Delta wf^{prof}_{t-1} + \underset{1.47*}{2.83} \ \Delta wf^{service}_{t-1} + \underset{0.63}{0.17} \ \Delta wf^{sales}_{t-1}$$
$$+ \underset{0.58}{0.07} \ \Delta wf^{farm}_{t-1} - \underset{0.12}{0.13} \ EC1$$

R-sq.: 0.26

Notes: Standard errors are below the coefficients with * and ** representing a coefficient significant at the 5 and 10 percent, respectively.

Lagrange-multiplier test for serial correlation of residuals

Lag	LM-stat	Prob
1	25.16	0.91
2	30.84	0.71
3	42.67	0.21
4	35.52	0.49

Residual normality Skewness test (Joint test)

Chi-square	Prob
1.26	0.97

Residual white heteroskedasticity test (Joint test)

Chi-square	Prob
301.88	0.36

Note: The Lagrange multiplier test, up to four lags, tests the null hypothesis of no serial correlation of the residuals at lag order from one and two. Probs from chi-square represents the probability of estimating a Lagrange multiplier test greater than the observed value under the null hypothesis. The normality test assesses the null hypothesis of residuals being multivariate normal. The white heteroskedasticity test assesses the null hypothesis of no heteroskedasticity or (no misspecification) of the residuals, where the nonconstant regressors should not be jointly significant.

Table 4. Long-run relationships and short-run dynamics of earnings between white men in managerial/financial occupations and black men across occupations (VECM2)

Long-run relations:

Coint. equation VECM2

$$wm^{manfin} - \underset{0.49^*}{5.57}bm^{manfin} + \underset{0.34^*}{0.75}bm^{prof} + \underset{1.20^*}{6.10}bm^{service} + \underset{0.43}{0.41}bm^{sales} = 0$$

Short-run dynamics:

VECM2:

$$\Delta wm^{manfin} = -\underset{0.17}{0.20}\,\Delta wm_{t-1}^{manfin} + \underset{0.25^{**}}{0.41}\,\Delta bm_{t-1}^{manfin} - \underset{0.18}{0.02}\,\Delta bm_{t-1}^{prof} + \underset{0.46^{**}}{0.75}\,\Delta bm_{t-1}^{service} + \underset{0.11^*}{0.39}\,\Delta bm_{t-1}^{sales} - \underset{0.05^{**}}{0.06}\,EC2$$

R-sq.: 0.27

Notes: Standard errors are below the coefficients with * and ** representing a coefficient significant at the 5 and 10 percent, respectively.

Lagrange-multiplier test for serial correlation of residuals

Lag	LM-stat	Prob
1	49.61	0.01
2	36.71	0.06
3	23.54	0.55
4	20.84	0.70

Residual normality Skewness test (Joint test)

Chi-square	Prob
1.72	0.88

Residual white heteroskedasticity test (Joint test)

Chi-square	Prob
195.88	0.19

Note: The Lagrange multiplier test, up to four lags, tests the null hypothesis of no serial correlation of the residuals at lag order from one and two. Probs from chi-square represents the probability of estimating a Lagrange multiplier test greater than the observed value under the null hypothesis. The normality test assesses the null hypothesis of residuals being multivariate normal. The white heteroskedasticity test assesses the null hypothesis of no heteroskedasticity or (no misspecification) of the residuals, where the nonconstant regressors should not be jointly significant.

Table 5. Long-run relationships and short-run dynamics of earnings between white men in managerial/financial occupations and black women across occupations (VECM3)

Long-run relations:

Coint. equation VECM3

$$2462 + wm^{manfin} + \underset{4.49*}{27.42}\, bf^{manfin} - \underset{9.11*}{44.22}\, bf^{service} - \underset{6.27*}{18.79}\, bf^{sale} = 0$$

Short-run dynamics:

VECM3:

$$\Delta wm^{manfin} = -\underset{0.26}{0.19}\,\Delta wm_{t-1}^{manfin} + \underset{0.61}{0.11}\,\Delta bf_{t-1}^{manfin} + \underset{0.86}{0.36}\,\Delta bf_{t-1}^{service} - \underset{0.59}{0.11}\,\Delta bf_{t-1}^{sale} - \underset{0.02}{0.01}\,EC3$$

R-sq.: 0.05

Notes: Standard errors are below the coefficients with * and ** representing a coefficient significant at the 5 and 10 percent, respectively.

Residual normality Skewness test (Joint test)

Lagrange-multiplier test for serial correlation of residuals

Chi-square	Prob
8.67	0.07

Lag	LM-stat	Prob
1	11.64	0.76
2	8.85	0.92
3	14.76	0.54
4	23.28	0.11

Residual white heteroskedasticity test (Joint test)

Chi-square	Prob
125.14	0.04

Note: The Lagrange multiplier test, up to four lags, tests the null hypothesis of no serial correlation of the residuals at lag order from one and two. Probs from chi-square represents the probability of estimating a Lagrange multiplier test greater than the observed value under the null hypothesis. The normality test assesses the null hypothesis of residuals being multivariate normal. The white heteroskedasticity test assesses the null hypothesis of no heteroskedasticity or (no misspecification) of the residuals, where the nonconstant regressors should not be jointly significant.

Table 6. Long-run relationships and short-run dynamics of earnings between white men in managerial/financial occupations and Hispanic men across occupations (VECM4)

Long-run relations:

Coint. equation VECM4

$$1427 + wm^{manfin} - \underset{0.23*}{0.40} \, hm^{manfin} - \underset{0.87*}{3.10} \, hm^{service} + \underset{0.36*}{3.55} \, hm^{constr} = 0$$

Short-run dynamics:

VECM4:

$$\Delta wm^{manfin} = \underset{11.52*}{23.4} - \underset{0.25}{0.27} \, \Delta wm_{t-1}^{manfin} + \underset{0.27}{0.14} \, \Delta hm_{t-1}^{manfin} - \underset{0.71}{0.53} \, \Delta hm_{t-1}^{service} - \underset{0.58}{0.34} \, \Delta hm_{t-1}^{constr} - \underset{0.14*}{0.18} \, EC4$$

R-sq.: 0.19

Notes: Standard errors are below the coefficients with * and ** representing a coefficient significant at the 5 and 10 percent, respectively.

Lagrange-multiplier test for serial correlation of residuals

Lag	LM-stat	Prob
1	10.03	0.86
2	30.35	0.02
3	10.42	0.84
4	11.19	0.79

Residual normality Skewness test (Joint test)

Chi-square	Prob
10.32	0.04

Residual white heteroskedasticity test (Joint test)

Chi-square	Prob
94.58	0.63

Note: The Lagrange multiplier test, up to four lags, tests the null hypothesis of no serial correlation of the residuals at lag order from one and two. Probs from chi-square represents the probability of estimating a Lagrange multiplier test greater than the observed value under the null hypothesis. The normality test assesses the null hypothesis of residuals being multivariate normal. The white heteroskedasticity test assesses the null hypothesis of no heteroskedasticity or (no misspecification) of the residuals, where the nonconstant regressors should not be jointly significant.