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From Elitist to Sustainable Earnings: Is there a group legitimacy in financial flows?

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Abstract

Elite occupations are characterised by the magnitude of income accumulation which has been particularly exacerbated in the financialisation process. This paper however shows that the cumulative effects on group earnings is a pattern visible across the labour force. The case studies on the US and UK labour force in the financialisation era in effect show that elitist earnings are a group phenomenon for a dominant group, mainly white male or female, at the expense of other racial, ethnic, and gender groups. Learning from such group behaviour on financial accumulation and drawing on Sen's rules of legitimacy (1981) in market interactions, the discussion then looks at the possibility of "sustainable earning" trends that feed into the financial needs for the green transition. The paper concludes that economic actors should be aware of the group legitimacy to financial flows, but that the group boundaries should be based on ecological-based entitlements rather than social-based entitlements to financial flows.

Keywords: elite, income, inequality, social norms, stratification

JEL classification: J31, J71, C32

1. Introduction

In November 2015, the annual meetings of the Conference of the Parties in Paris (aka COP21) set the tone for future national policies by agreeing that global warming should not increase by more than 2°C above pre-industrial levels. Hence, there is an urgency to support the momentum of a shift towards a low-carbon economy and to target finance towards the green sectors of the economy. However, the 2007-2008 financial crisis and associated social movements brought to light the accumulation of earnings in the financial sector at the expense of the productive part of the economy and population, and revived the debate around income distribution. The accumulation of earning excesses in the financial sector is now widely recognized to be one of the features of the evolution of income distribution over the past century (Piketty and Saez, 2003; Piketty, 2014). One potential explanation put forward by Piketty and Saez (2003) is the role of norms in exacerbating earnings at the top of the income distribution. In effect, identity reinforcement and norms exacerbation at the top of managerial and financial occupations have been essential factors which have led to financial excesses. In the US and in Europe, this movement of income went towards a specific demographic group, namely white men in managerial and financial occupations (Arestis, Charles and Fontana 2014; Denk, 2015). Therefore, it makes us wonder the extent to which elitist earnings exist at the group level, whereby identity groups earn a disproportionate share of income at the expense of other groups across all occupations. As such, the earning behaviour of the elite could be the visible part of the iceberg, given the extent of their earnings, which might not be linked to the behaviour of elitist individuals specifically but rather to a phenomenon of group behaviour across the labour force. In the first part of the paper, we show that the dynamics of income accumulation over time are characterised by group-based rather than individual-based behaviour across the labour force. In the second part of the paper, we question whether elitist earnings can become “sustainable” earning trends that feed into the green transition of the economy and society. In effect, in a COP21 era with rising climate uncertainty and doom prospects for demand led-growth, how can private earnings feed into the financial needs for a green transition? In particular, how can group behaviour on financial accumulation serve the financial needs of the green transition through personal consumption, savings, and investment choices? These questions are crucial for future labour, income and investment policies and they also raise crucial theoretical issues of group versus individual behaviour in the accumulation of capital and labour earnings.

The contribution of this paper is two-fold. First, it characterizes elitist earnings according to the long-run trend of group earnings, and the analysis tests for their existence in the occupations of the US and UK labour forces. As such, the long-run trend of elitist earnings by group at the occupational level is

overshooting (i.e. non-stationary), while the earnings of other groups are constant over time (i.e. stationary or trend stationary), and hence they are not benefiting as much from occupational income growth in the long-run. The literature on identity and stratification (Darity and Williams, 1985; Mason, 1996; Akerlof and Kranton 2010; Davis 2015) has long shown the importance of group identity and group biases in wealth and income accumulation. Starting from such a rich literature as a background, this paper departs from methodological individualism and marginalism by taking a group perspective on individual behaviour and by using a long-run methodology on group earnings. Second, by adopting a long-run perspective on financial flows, the paper goes on to argue that legitimacy rules to financial flows should be socially rather than individual-based and anchored within the ecological system that the green transition seeks to support.

This paper is organised as follows. Section 2 provides a theoretical background on group behaviour in financial accumulation. Section 2.1 describes the role of group behaviour in market interactions and the impact of time on the dynamics of income accumulation through stratification and intersectionality effects in the labour force. Section 2.2 sets up the methodological process used to identify elitist earnings across occupations by moving away from methodological individualism and marginalism towards group-based methodology and analysing the nature of long-run earning trends. Finally, Section 3 offers two case studies showing the existence of elitist earnings in the US and UK labour forces looking at racial, gender, and occupational stratification. Building on these results, Section 4 finally discusses the possibility of group legitimacy in financial flows to move away from elitist earnings to create “sustainable earning” trends that feed into the financial needs of the green transition.

2. Elitist earnings: group behaviour on financial accumulation

Across social sciences, despite the recognition of the importance of group behaviour, the methodology used to measure income inequality is based on the individual, whereby individual income as a dependent variable is regressed against independent variables such as education, experience, gender, race and so on (Tienda and Lii, 1987). In effect, despite being central to the issue of income inequality, membership of individuals to social groups is often ignored (Piketty and Saez, 2003; Atkinson *et al.*, 2011), or group membership excludes professional categories (Schnelder, 2013). Accepting that group behaviour overtakes individual behaviour in the social setting leads us to rethink the way group behaviour influences financial flows across the economy and the society over time.

2.1. Group Behaviour over Time: Stratification and Intersectionality

The elite or “global plutocrats” (Milanovic 2006) emerging from the changes in global income distribution over the past 50 years seems to be increasingly diverse in nature and international in scope,

but most research still focuses on the supremacy of the white, male, Protestant trinity of power (Khan, 2012). The increasing diversity of the elite also means however that individuals within that group experience very different opportunities (Ashley and Empson 2016; Khan, 2012). This section goes back to the literature on identity and stratification to show how such diversity of experiences in the elite reflects, to a large extent, the experiences of individuals with different identities outside the elite group. While this section is not aimed at covering the wide range of literature on identity and group identification,¹ the non-exhaustive literature review presented here enables us to trace the role of social groups in influencing individual decision-making and more precisely in influencing the “self” in the self-interest assumption in methodological individualism. By doing so, we are able to adopt a dynamic view of the individual at the unique intersection of stratified group identities, and whose social and economic positioning depends on the contextual norms in which they evolve. Hence, the behaviour of individuals with diverse identities within the elite group in effect results from the socially constructed group relationships at the societal level.

In behavioural economics, a growing body of literature now distinguishes between group and individual behaviour (Bornstein *et al.*, 2004; Charness and Sutter, 2012; Muehlheusser *et al.*, 2015). For example, through strategic games experiments, Bornstein and Kugler and Ziegelmeyer (2004) provide evidence that groups are more rational than individual players, in the sense of maximising each group player’s own payoff, that they are less pro-social and make less errors than individuals. Groups behave as such by assuming that other groups will behave identically, thus triggering a self-reinforcing norm of behaviour to fulfil the group’s aspiration for higher payoffs. In that instance, it is not clear the role played by the identity of the group players in the decision-making process. The norms of behaviour within identity group however tend to evolve over time and to differ across contexts. In effect, the relative value assigned to groups is mostly historically-determined and culturally embedded. The literature on stratification for example shows how race and ethnic group disparities in market outcomes can be sustained and exacerbated over time (Darity and Williams, 1985; Massey, 2007; Grusky and Weisshaar, 2014). Social norms then serve as rules for reproducing advantages of certain social groups at the expense of others. For instance, at the intersection of context and educational elites, evidence for England and Wales shows that a large number of employers offering the top-paid jobs in the country target an average of only 19 universities in the UK for those jobs (Milburn, 2012, Dorling, 2013). These examples go beyond the issue of statistical discrimination (Bertrand and Mullainathan, 2004) since group productivity has been shown not to be responsible for income inequality across all occupations

¹ Stryker and Burke (2000) provide an exhaustive historical account of the Theory of Identity.

(Tomaskovic-Devey and Skaggs, 1999). Rather, the problem lies on the combined effect of identities on inequality since the sum of identities can lead to worse discriminating outcomes than considering identities separately, as argued by the intersectionality literature (hooks, 1981; Crenshaw, 1989; McCall, 2005). Compared with implicit discrimination (Bertrand *et al.*, 2005) or with Becker's taste discrimination, the concept of intersectionality departs from methodological individualism by questioning the boundaries that can possibly be drawn between groups and by defining individuals at a unique combination of diverse groups. As such, it allows us to assess the multiple layers of discrimination over time. From this perspective, group membership is socially assigned by a dominant convention rather than chosen individually, consciously or unconsciously, and reproduced over time.²

Looking at group behaviour, it seems that group rather than individual decision-making fits much better the neo-classical assumptions of the self-interested, rational homo-economicus and that it influences individual decisions as long as the individual complies to the norms of the group. Whether group decisions are rational according to a standard of payoff maximization, as in the banking industry (Cohn and Fehr and Maréchal, 2014), or according to the prescribed ethical standards in the society, the economy or the environment, the way individual identities are stratified and intersect with one another determines the salient ethical standard ruling the market and social interactions. Therefore, given the importance of group decision in social interactions, we define elitist earnings at a group level rather individual level. As such, we wonder whether some identity groups are more inclined to receive elitist earnings than others and if so, whether such earning pattern spreads to the entire labour force rather than to the top 1% of the income distribution.

2.2. Elitist Earnings Across Occupations

In the context of labour market interactions, ideals of market identities set the criteria of optimality in the allocation of jobs and wages in the labour market. The identity of the profit-maximizing producer or utility-maximizing consumer is essential to understand market behaviours. However, accepting that market agents have multiple identities leads to a more complex view of market agents. If market agents have multiple identities, it follows that the optimality point in the programs of profit-maximization and utility-maximization can be influenced by these multiple identities, and even the programme of the producer can be influenced by his/her own consumer programme. The “dominant” standard of an identity group in the labour market will determine whether the outcome is fair or not according to that

² Based on tracking family names across generations, Clark (2014) also reveals that mobility rates are lower than conventionally estimated, and that inherited advantage remains a deeply entrenched force.

standard. Hence, the persistence of occupational segregation over time by race, ethnicity and gender is well-documented in terms of the sustainability of an occupational norm (Charles, 1992; Chang, 2000; Tomaskovic-Devey *et al.*, 2006). As norms emerge, a dominant ideal sets the criteria of optimal behaviour, which is identity-specific and serves as a basis for social interactions. Belonging to a group sharing a common ideal engender a sense of identity for its group members. Goette *et al.* (2006) show how group membership creates social ties which lead group members to enforce a norm of cooperation between them.

Let us assume a society with two demographic group identities i and j , both belonging to the same occupational group k . Therefore, individuals are composed of group identities i and k , or composed of group identities j and k . The elitist identity is represented by j and received a group premium for group membership while the non-elitist identity is represented by i whose earnings are discriminated against due to group membership. Hence, we assume a ranking of identities $j > i$ dependent upon the context-specificity in which this ranking has been socially and historically determined. At the societal level, the sum of earnings from capital and labour $z = \sum(r + w)$ is then distributed between all identity groups such that $Z = z(i, j, k)$. At the level of the economy, let us assume the following national output production function: $Y = f(K, L, Z) = z(rK + wL)$ with K for capital and r for its marginal product or rate of profit, and with L for labour and w for its marginal product or wage (capital and labour are the only two production inputs and there is no saving in this model). Over time, assuming Z_t follows a trend-stationary process such that $Z_t = \alpha + \beta t + \varepsilon_t$ where α is a constant, t is a deterministic trend, and ε_t is a white noise term, then the nature of the long-run process gives us a classification of elitist versus non-elitist earnings. Starting from a general model of the Dickey-Fuller (DF) unit root test,

$$Z_t = \alpha + \phi Z_{t-1} + \beta t + \varepsilon_t$$

or

$$\Delta Z_t = \alpha + \varphi Z_{t-1} + \beta t + \varepsilon_t$$

where $\varphi = \phi - 1$ and $\Delta Z_t = Z_t - Z_{t-1}$. Earnings are non-elitist if:

$$\Delta z(k)_t = \varphi z(k)_{t-1} + \alpha + \beta t + \varepsilon_t \text{ (if } \varphi < 0 \text{ trend-stationary process),}$$

or; $\Delta z(i)_t = \varphi z(i)_{t-1} + \alpha + \varepsilon_t$ (if $\varphi < 0$ stationary process around a non-zero value),

$$\text{or } \Delta z(i)_t = \varphi z(i)_{t-1} + \varepsilon_t \text{ (if } \varphi < 0 \text{ stationary process around a zero value),}$$

and earnings are elitist if:

$$\Delta z(j)_t = \varepsilon_t \text{ (if } \varphi = 0 \text{ non-stationary process) with } \varepsilon_t \text{ following the random walk of the}$$

evolving inequalities. An overview of the null (non-stationarity) and the alternative (stationarity)

hypothesis of the Dickey-Fuller (DF) unit root test is provide in Table 1, where μ indicates an overall

mean of the process, and δ is a constant growth (drift) in the model of first difference of a non-stationary series (Hill *et al.*, 2011).

Table 1. Autoregressive (AR) Processes and the Dickey-Fuller (DF) Test

	AR processes: $ \phi_1 < 1$	Setting: $\phi_1 = 1$	DF Test
(1)	$Z_t = \phi Z_{t-1} + \varepsilon_t$	$Z_t = Z_{t-1} + \varepsilon_t$	No constant, no trend
(2)	$Z_t = \alpha + \phi Z_{t-1} + \varepsilon_t$ $\alpha = \mu(1 - \phi)$	$Z_t = Z_{t-1} + \varepsilon_t$ $\alpha = 0$	Constant, no trend
(3)	$Z_t = \alpha + \phi Z_{t-1} + \beta t + \varepsilon_t$ $\alpha = \mu(1 - \phi) + \phi\delta$ $\beta = \delta(1 - \phi)$	$Z_t = \delta + Z_{t-1} + \varepsilon_t$ $\alpha = \delta$ $\beta = 0$	Constant and trend

If the earnings variable of an identity group is non-stationary, it means that there is a persistent cumulation of past effects (shocks) (Hendry and Juselius, 2001) leading to sustained changes in earnings. If the earnings variable of an identity group is stationary, it means that their earnings remain constant over the period. Stationary earnings are not benefiting from the increase in occupational earnings over the period and they are assumed to be compensating for a movement of income towards non-stationary earnings. Hence, non-stationary (stochastic trend) earnings are “elitist” in comparison to trend-stationary (deterministic-trend) or stationary earnings in the sense that a percentile of income distribution experiences shocks that cumulate in the long-run while other percentiles do not. In effect, trend-stationary “non-elitist” earnings represent a percentile of income distribution whose long-run trend grow at an arithmetic rate, while stationary “non-elitist” earnings represent a percentile of income distribution whose long-run trend is constant.

3. Identifying Elitist Earnings across Occupations

Despite the recognition of the importance of group behaviour in determining income inequality, the empirical methodology used in the literature is still mainly based on the individual, with individual income used as dependent variable against control variables such as education, experience, gender, race and so on (Tienda and Lii, 1987). Meanwhile, when adopting methodological individualism, the wage premium enjoyed by white men in the US cannot be explained by higher qualifications or more attachment to the labour force (Corcoran and Duncan, 1979). Skill-based technological change remains important in explaining rising inequality at the margin (Borjas 2016), but such explanation do not account for social mobility and unequal access to education and job opportunities by group over time. Departing from methodological individualism requires taking groups at the primary unit of analysis. In the context of the US labour market, racial and gender discrimination remain a prominent feature

regardless of age, experience, or education (Bertrand and Mullainathan, 2004; Schnelder, 2013). Additionally, the US labour market seems a natural case study since half of the people in the global top 1% of the income distribution are American (Milanovic, 2016). Therefore, the main hypothesis tested is whether similar gender and racial identities at the occupational level earn elitist earnings, as defined above, compared to other gender and racial identities. Using Augmented Dickey-Fuller (ADF) tests, the methodology consists of testing whether the earnings of each identity group in each occupation are non-stationary, trend-stationary or stationary over the analysed period. By doing so, we are able to categorise the pattern followed by the earnings of each group across occupations as elitist or not. We use nominal instead of real earnings to account for money illusion including price stickiness, and lack of inflation-indexation on labour contracts and laws. We use means rather than median earnings in order to account for the information provided by outliers. In other words, we are interested in exploring the raw information provided by groups' earnings along the income stratification spectrum.³

3.1. US Occupations (1968-2011)

Using the Current Population Survey (CPS) data (King *et al.*, 2010), this first case study looks at the long-run behaviour of earnings by gender and racial groups across occupations in the US labour force between 1968 and 2011. In accordance with the literature on the US stratification using CPS data (Arestis and Charles and Fontana, 2014), the gender and racial identity group included are white men (wm), black men (bm), Hispanic men (hm), white women (wf), black women (bf), and Hispanic women (hf). We use the current annual weekly earnings of the above mentioned identity groups for 27 consistent occupational groups over the period 1968-2011, as displayed in Tables 2 to 7, respectively. Earnings are the annual average of usual weekly earnings of employed full-time wage and salary workers by group. Apart from health and personal services with 89 and 78 percent female labour force, Table 2 shows that white men experience non-stationary earnings across all occupations. In comparison, Tables 3 and 4 show that black and Hispanic men experience trend-stationary and/or stationary earnings in many occupations, in professional occupations in particular. Black men experience stationary and trend-stationary earnings in a wider variety of occupations than Hispanic men. For example, in managerial occupations, the earnings of Hispanic men are non-stationary while the earnings of black men are stationary. Looking at the female part of the labour force, Tables 5 to 7 show a similar racial and ethnic dichotomy whereby white women experience non-stationary earnings across most occupations, while

³ Focusing on the raw wage differentials has also been echoed by Borjas (2016) who argued that “defining discrimination as the wage differential between observationally equivalent men and women or blacks and whites underestimates the impact of discrimination in the economy” and that “a more complete accounting of the economic impact of discrimination... would focus much more on the raw wage differential.”

black and Hispanic women experience non-stationary earnings in only a few occupations. Here, trend-stationary and stationary earnings for the black and Hispanic groups go beyond professional occupations and affect most part of the labour force. Overall, answering the question whether earnings are elitist at the group level in the US labour force is dominated by the fact that earnings of white workers display cumulative past effects (shocks) across most occupations and gender groups.

3.2. UK Occupations (2001-2014)

Using the Labour Force Survey (LFS) data, this second case study looks at the long-run behaviour of earnings by gender and racial groups across occupations in the UK labour force in the period between 2001 and 2014. The gender and racial identity group included are white women (*wf*), non-white women (*nwf*), white men (*wm*), and non-white men (*nwm*). We use the weekly gross (net) pay in the main job and the data is aggregated from the individual level as means per quarter. The nine occupational groups using SOC 2000 codes “occupation” are consistent over the period 2001Q2-2014Q4. The results for each identity group *wf*, *nwf*, *wm*, and *nwm* are displayed in Tables 8 to 11, respectively.

Starting with the comparison between white and non-white women in Tables 8 and 9, the white female group experiences non-stationary earnings in four out of the nine types of occupations. In comparison, the non-white female group experiences trend-stationary earnings in all occupations. Similarly for the male groups, the white male group experiences non-stationary earnings in four out of the nine types of occupations. In comparison, the non-white male group experiences trend-stationary earnings in all occupations. Overall, answering the question whether earnings are elitist at the group level in the UK labour force is dominated by the fact that earnings of the white labour force display cumulative past effects (shocks) across many occupations and gender groups.

4. Sustainable Earnings: group legitimacy in financial flows

The analysis conducted here shows the extent to which group behaviour overtake individual motives in financial accumulation, and that the norms of dominant groups guide financial flows across the economy and society. This is especially visible in the financial sector due to the magnitude of the flows in that sector but, in the light of these results, it is a phenomenon consistent across the labour force. Financial decisions are in effect not just for entrepreneurs but also reflect daily consumption, saving, and investment decisions made by all social groups. Looking back at the role of animal spirits in financial decisions, i.e. “our innate urge to activity” (Keynes 1936: 163 in Dow and Dow 2011: 7), Dow and Dow rightly point out the importance of group membership,⁴ as well as context, in influencing individual

⁴ For a taxonomy of entrepreneurs showing the heterogeneity of animal spirits, see Lainé (2017).

decision-making. Then, given that individuals belong to multiple groups whose boundaries are socially determined, conventions set by salient groups appear over time as the rules of the game in financial interactions. As such, in the response to Dow and Dow's argument, Skidelsky (2011) clearly spells out that conventions are the actual "context" in which financial interaction take place. Thus, if context is shaped by group relationships, it raises the question of legitimacy in financial flows whereby group norms rather than individual instinct serve as a basis for financial exchanges. In that respect, Kahneman's distinction between experienced utility at time t and remembered utility at time $t+1$ is useful since the difference between the two reflect the bias brought about by peer-comparison and yet individual decisions are made according to remembered utility (Kahneman 2000). Hence, it is tentative to argue that while individual instinct shines through experienced utility, the decisions made by financial actors are biased by group membership and the conventions in place in the context of the decision.

To address the legitimacy issue in future financial flows, the proposition made here is that the legitimacy of financial flows for a new form of capitalism should be group-based rather than individual-based. In Sen's early writings, the rules of legitimacy between sets of ownerships are such that "an entitlement relation applied to ownership connects one set of ownerships to another through certain rule of legitimacy. It is a recursive relation and the process of connecting can be repeated." (Sen 1981: 1). Since Sen's framework applies to market interactions, the rule of legitimacy depends on trade-based entitlement, production-based entitlement, own-labour entitlement, and inheritance and transfer entitlement. However, as the empirical findings of the previous section tend to suggest, if the rule of legitimacy to financial flows over time is based on social interactions, then future trends of capital and labour earnings will also reflect these social rules of legitimacy. In effect, the rules of interdependence between groups in the future are likely to reflect past power relationships⁵ sustained by group behaviour on financial accumulation.

Since the COP21 target has been universally agreed in November 2015, most international institutions signal that much more private funding needs to be invested in order to "green" the economy over the next decades. UNEP (2015) however suggests that the allocation of financial resources is pro-business-as-usual, and that private investors own a substantial part of available finance that could be targeted towards green sectors in the productive economy. In effect, as pointed out by Stockhammer (2008), a finance-dominated system of accumulation means that increased revenues from financial investments are not invested in production but re-invested in other financial assets which then feeds into real wages stagnation for workers in the real economy. Green bond issuance is a major part of green investment

⁵ See Martins (2016) on the relationships of power intrinsic to Sen's capability approach.

worldwide, and they are expected to be a major tool to be able to operate that shift (OECD 2015). There is however no universal agreement of the term ‘green bond’ among international institutions, commercial and investment banks. Consequently, a variety of Green Bond Indices across the financial market have emerged such as the Barclays MSCI Green Bond Index, the Bank of America Merrill Lynch Green Bond Index, the S&P Green Bond Index, or the Solactive Green Bond Index, each with different eligibility thresholds in terms of currency, size, or rating. Such lack of harmonisation leaves room for Keynes’ animal spirits to comply with herd-behaviour on financial speculations and reproduce a financial bubble similar to the one leading to the 2007-2008 crisis. For instance, the share of the financial sector has increased by nearly a third from 2014 to 2015 and if such trend takes momentum, with 67% of climate-aligned bonds going to Transport and 1% to Waste and Pollution Control in 2016 (CBI/HSBC 2016), it is likely that the car industry will flourish in a toxic habitat in the coming decades.

Building on the phenomenon of herd-behaviour in financial decisions, the following proposition of “sustainable earning trends” is anchored in the rationale that group behaviour could have more than a speculative impact on financial flows and serve a basis for financial capacity-building scenarios to finance the green transition. Reasoning in terms of “sustainable” trends of earnings mean that the financial flows encompassing individual consumption, saving and investment choices could respond to the needs for the green transition, identified at the macroeconomic level (e.g., UNEP 2010, 2015). Enabling such sustainable trends would however require rethinking the legitimacy of entitlements to financial flows at the individual level. For that purpose, all economic actors must recognize that, first, there is an element of group behaviour in all individual consumption, saving and investment choices which should make them rethink the boundaries of the groups to which they belong. Second, economic actors should be aware of the context of such group behaviour since it creates a snow-ball effect that can either feed or impede the financial needs for the green transition. Awareness of these group phenomena at the individual level would be a first step to move from social-based to ecological-based entitlements to resources.

5. Conclusion

Methodological individualism and marginalism in neo-classical economics mean that income inequality is still assessed from the perspective of the individual with individual income as dependent variable, individual characteristics as control variables, and a time trend to assess the path-dependency of inequality. The literature on identity, stratification, and intersectionality however has long shown the importance of group identity in explaining the persistence of income inequality over time. By taking a group perspective on individuals, the first contribution of this paper is to define elitist earnings by group

according to the long-run pattern of earnings vis-à-vis other groups and to test for such patterns across the UK and US labour force. The magnitude of earning excesses in the financial sector has been argued to be one of the causes of the 2007 crisis. At the intersection of occupational, gender and racial norms, the two case studies show that elitist earnings is a group phenomenon, not specific to financial and managerial occupations, but it extends to most of the US and UK labour forces. Thus, despite the fact that the elite group is characterised by the magnitude of earning accumulation, the cumulative effects on group earnings is a pattern visible across the strata of the society.

The results then serve as a basis for the second contribution of this paper. Drawing on Sen's rules of legitimacy (1981) in market interactions, the later part of the discussion seeks to understand how a convention can move from social-based to ecological-based entitlements in the legitimacy to financial flows. Learning from group behaviour and the long-run pattern of earnings can in effect enable capacity-building scenarios of sustainable earning trends for the green transition. Keynes' animal spirits are key to financial decisions but, if the rules of financial exchanges are group-based rather than individual-based, they can also serve as a basis for triggering herd-behaviour in financial accumulation. Moving from a current understanding of "individual" to "group" legitimacy in financial flows requires an individual awareness of group behaviour in financial decisions, and that the context in which these decisions are made will create snow-ball effects to feed or impede the financial flows for the green transition.

References

- Akerlof, G. A. and Kranton, R. E. (2010) *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*, Princeton, Princeton University Press.
- Akerlof, G. A. and Yellen, J. L. (1990) 'The Fair-Wage-Effort Hypothesis and Unemployment', *The Quarterly Journal of Economics*, 105, 255-283.
- Arestis, P., Charles, A. and Fontana, G. (2014) "Identity Economics Meets Financialisation: Gender, Race, and Occupational Stratification in the Us Labour Market", *Cambridge Journal of Economics*, 38: 1471-1491.
- Ashforth, B. E. and Mael, F. (1989) 'Social Identity Theory and the Organization', *Academy of Management Review*, 14, 20-39.
- Ashley, L. and Empson, L. (2016) 'Understanding social exclusion in elite professional service firms: field level dynamics and the 'professional project'', *Work, Employment and Society*, 1-19.

- Atkinson, A. B., Piketty, T. and Emmanuel, S. (2011) 'Top Incomes in the Long Run of History', *Journal of Economic Literature*, 49, 3-71.
- Bertrand, M., Chugh, D. and Mullainathan, S. (2005) 'Implicit Discrimination', *The American Economic Review*, 95, 94-98.
- Bertrand, M. and Mullainathan, S. (2004) 'Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination', *The American Economic Review*, 94, 991-1013.
- Borjas, G. (2016) *Labor Economics*, McGraw Hill, 7th Edition.
- Bornstein, G., Kugler, T. and Ziegelmeyer, A. (2004) 'Individual and Group Decisions in the Centipede Game: Are Groups More "Rational" Players?', *Journal of Experimental Social Psychology*, 40, 599-605.
- CBI/HSBC (2016) Bonds and climate change: The state of the market in 2016. London: CBI; HSBC, Climate Change Centre of Excellence.
- Casey, T. and Dustmann, C. (2010) 'Immigrants' Identity, Economics Outcomes and the Transmission of Identity across Generations', *The Economic Journal*, 120, F31- F51.
- Chang, M. L. (2000) 'The Evolution of Sex Segregation Regimes', *American Journal of Sociology*, 105, 1658-1701.
- Charles, M. (1992) 'Cross-National Variation in Occupational Sex Segregation', *American Sociological Review*, 57, 483-502.
- Charness, G. and Sutter, M. (2012) 'Groups Make Better Self-Interested Decisions', *Journal of Economic Perspectives*, 26, 157-176.
- Clark, G. (2014). *The Son Also Rises: Surnames and the History of Social Mobility*, Princeton Economic History of the Western World, Princeton University Press.
- Clegg, S. R., Courpasson, D. and Philips, N. (2006) *Power and Organizations*, Thousand Oaks, CA, SAGE.
- Cohn, A., Fehr, E. and Maréchal, M. A. (2014) 'Business Culture and Dishonesty in the Banking Industry', *Nature, Letters*, 86-89.
- Corcoran, M. and Duncan, G. J. (1979) 'Work History, Labor Force Attachment, and Earnings Differences between the Races and Sexes', *The Journal of Human Resources* 14(1): 3-20.
- Crenshaw, K. W. (1989) 'Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics', *University of Chicago Legal Forum*, 129, 139-67.

Darity, W. A., Jr. and Williams, R. (1985) 'Peddlers Forever? Culture, Competition, and Discrimination', *American Economic Review*, 75, 256-261.

Davis, J. B. (2015) 'Stratification Economics and Identity Economics', *Cambridge Journal of Economics*, 39, 1215-1229.

Denk, O. (2015) *Who Are the Top 1% Earners in Europe?*, Paris, OECD.

Dow, A. and Dow, S. (2011) 'Animal Spirits Revisited', *Capitalism and Society*, 6(2), Article 1.

Goette, L., Huffman, D. and Meier, S. (2006) 'The Impact of Group Membership on Cooperation and Norm Enforcement: Evidence Using Random Assignment to Real Social Groups', *The American Economic Review*, 96, 212-216.

Grusky, D. B. and Weisshaar, K. (2014) *Social Stratification: Class, Race, and Gender in Sociological Perspective*, Fourth Edition, Westview Press Inc.

Hendry, D. F. and Juselius, K. (2001) 'Explaining Cointegration Analysis: Part II', *The Energy Journal*, 0, 75-120.

hooks, b. (1981) *Ain't I a Woman?: Black Women and Feminism*, Boston, South End Press.

Khan, S. (2012) 'The Sociology of Elites', *Annual Review of Sociology*, 38, 361-377.

Kahneman, D. (2000). 'Experienced Utility and Objective Happiness - A Moment-Based Approach', in D. Kahneman and A. Tversky. (Ed.). (2000). *Choices, Values and Frame*, New York: Cambridge University Press.

King, M., Ruggles, S., Alexander, J. T., Flood, S., Genadek, K., Schroeder, M. B., Trampe, B. and Vick, R. (2010) *Integrated Public Use Microdata Series, Current Population Survey: Version 3.0*, Minneapolis, MN: Minnesota Population Center [producer and distributor].

Lainé, M. (2017) 'The Heterogeneity of Animal Spirits: a first taxonomy of entrepreneurs with regard to investment expectations', *Cambridge Journal of Economics*, 41(2):595-636.

Lamont, M., Beljean, S. and Clair, M. (2014) 'What Is Missing? Cultural Processes and Causal Pathways to Inequality', *Socio-Economic Review*, 1-36.

Lyman, E. W. (1920) 'The Ethics of the Wages and Profit System', *International Journal of Ethics*, 31, 93-108.

Martins, N. (2006) 'Capabilities as causal powers', *Cambridge Journal of Economics*, 30(5): 671-685.

- Mason, P. L. (1996) 'Race, Culture, and the Market', *Journal of Black Studies*, 26, 782-808.
- Massey, D. S. (2007) *Categorically Unequal: The American Stratification System*, New York, Russell Sage Foundation.
- Massey, D. S., McCall, L., Tomaskovic-Devey, D., Avent-Holt, D., Monin, P., Forgues, B. and Wang, T. (2014) 'Understanding Inequality through the Lens of Cultural Processes: On Lamont, Beljean and Clair 'What Is Missing? Cultural Processes and Causal Pathways to Inequality'', *Socio-Economic Review*, 12, 609-636.
- McCall, L. (2005) 'The Complexity of Intersectionality', *Signs*, 30, 1771-1800.
- Milanovic, B. (2016). *Global Inequality: A New Approach for the Age of Globalisation*, Harvard University Press.
- Muehlheusser, G., Roider, A. and Wallmeier, N. (2015) 'Gender Differences in Honesty: Groups Versus Individuals', *Economics Letters*, 128, 25-29.
- OECD (2015) "Green bonds: Mobilising the debt capital markets for a low-carbon transition". Paris: OECD Publishing.
- Philippon, T. and Reshef, A. (2012) 'Wages and Human Capital in the U.S. Finance Industry: 1909-2006', *Quarterly Journal of Economics*, 127, 1551-1609.
- Piketty, T. (2014) *Capital in the Twenty-First Century*, Harvard University Press.
- Piketty, T. and Saez, E. (2003) 'Income Inequality in the United States 1913-1998', *Quarterly Journal of Economics*, 118, 1-39.
- Prasad, A. and Qureshi, T. (2016) 'Race and racism in an elite postcolonial context: reflections from investment banking', *Work, Employment and Society*, 1-11.
- Ruwanpura, K. N. (2008) 'Multiple Identities, Multiple Discrimination: A Critical Review', *Feminist Economics*, 14, 77-105.
- Schnelder, M. P. A. (2013) 'Illustrating the Implications of How Inequality Is Measured: Decomposing Earnings Inequality by Race and Gender', *Journal of Labor Research*, 34, 476-514.
- Skidelsky, R. (2011) 'Comment on Animal Spirits Revisited' (by Alexander Dow and Sheila Dow)', *Capitalism and Society*, 6(2), Article 4.
- Stockhammer, E. (2008) "Some Stylized Facts on the Finance-dominated Accumulation Regime", *Competition and Change*, 12(2): 184-202
- Stryker, S. (1968) 'Identity Salience and Role Performance', *Journal of Marriage and the Family*, 4, 558-564.

- Stryker, S. and Burke, P. J. (2000) 'The Past, Present, and Future of Identity Theory', *Social Psychology Quarterly*, 63, 284-297.
- Tajfel, H. and Turner, J. (1986) 'The Social Identity Theory of Intergroup Behavior'. In Worchel, S. and Austin, W. (eds) *Psychology of Intergroup Behavior*, Chicago, Nelson-Hall, pp. 7-24.
- Tienda, M. and Lii, D.-T. (1987) 'Minority Concentration and Earnings Inequality: Blacks, Hispanics, and Asian Compared', *American Journal of Sociology*, 93, 141-165.
- Tomaskovic-Devey, D. and Skaggs, S. (1999) 'An Establishment-Level Test of the Statistical Discrimination Hypothesis', *Work and Occupations*, 26, 422-445.
- Tomaskovic-Devey, D., Stainback, K., Taylor, T., Zimmer, C., Robinson, C. and McTague, T. (2006) 'Documenting Desegregation: Segregation in American Workplaces by Race, Ethnicity, and Sex, 1966-2003', *American Sociological Review*, 71, 565-588.
- United Nations Environment Programme, UNEP (2011) *Towards a green economy: Pathways to sustainable development and poverty eradication*. Geneva: UNEP.
- United Nations Environment Programme, UNEP (2015) *Uncovering pathways towards an inclusive green economy. A summary for leaders*. Geneva: UNEP.

Notes to all Earnings' Tables for US occupations (Tables 2 to 7)

Source: Authors' calculations from the US Current Population Survey (CPS), received through IPUMS.

Note: Table provides an ADF test-statistic, with the lag length in parentheses. τ_t refers to the ADF test-statistic from a model with a constant and trend. τ_μ refers to the ADF test-statistic from a model with a constant only. Lag selection is based on Schwarz's Bayesian information criterion (SBIC). Relevant critical values of the ADF unit root test at 5% significance level are as follows (Fuller, 1976, p. 371): $\tau^{tr}(0.05) = -1.95$, $\tau_\mu^{tr}(0.05) = -2.93$, $\tau_t^{tr}(0.05) = -3.50$. All unit root test results are estimated by Stata. Labels refer to the annual average of usual weekly earnings of employed full-time wage and salary workers for: wm = white men, wf = white women, bm = black men, bf = black women, hm = Hispanic men, hf = Hispanic women. Occupations follow the OCC1990 classification (https://cps.ipums.org/cps-action/variables/OCC1990#description_section) which is consistent over time.

Notes to all Earnings' Tables for UK occupations (Tables 8 to 11)

Source: Authors' calculations from the UK Labour Force Survey (LFS), received through the Data Archive, University of Essex.

Note: Table provides an ADF test-statistic, with the lag length in parentheses. τ_t refers to the ADF test-statistic from a model with a constant and trend. τ_μ refers to the ADF test-statistic from a model with a constant only. Lag selection is based on the Schwartz information criteria (SIC). Relevant critical values of the ADF unit root test at 5% significance level are as follows (Fuller, 1976, p. 371): $\tau^{tr}(0.05) = -1.95$, $\tau_\mu^{tr}(0.05) = -2.93$, $\tau_t^{tr}(0.05) = -3.50$. Relevant critical values of the F -test at 5% significance level are as follows (Dickey and Fuller, 1981, p. 1063): (a) F -test for $H_0 : \alpha = 0, \rho = 1$ in $y_t = \alpha + \rho y_{t-1} + u_t$ (AR(1) with a drift), $F^{tr}(0.05) = 4.86$ and F -test for $H_0 : \alpha = 0, \rho = 1$ in $y_t = \alpha + \delta t + \rho y_{t-1} + u_t$ (AR(1) with a drift and a linear time trend), $F^{tr}(0.05) = 6.73$; and (b) F -test for $H_0 : \alpha = 0, \delta = 0, \rho = 1$ in $y_t = \alpha + \delta t + \rho y_{t-1} + u_t$ (AR(1) with a drift and a linear time trend), $F^{tr}(0.05) = 5.13$. All unit root test results are estimated by Stata. Labels refer to: wm = white men, wf = white women, nwm = non-white men, nwf = non-white women, grss = gross weekly earnings, net = net weekly earnings.

Table 2. US White men (WM): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1968-2011 (43 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations	wm: $\tau_t = -1.276$ (1)			41.3
2. Management related occupations	wm: $\tau_t = -1.879$ (1)			55.5
<i>Professional occupations</i>				
3. Engineers and Scientists	wm: $\tau_t = -1.724$ (1)			23.7
4. Health diagnosing occ.	wm: $\tau_t = -0.797$ (1)			77
5. Teachers	wm: $\tau_t = -2.145$ (2)			74.5
6. Social Scientists and Urban Planners	wm: $\tau_t = -2.576$ (1)			53.2
7. Social, Recreations, and Religious Workers	wm: $\tau_t = -2.598$ (1)			63.8
8. Lawyers and Judges	wm: $\tau_t = -1.858$ (4)			36.2
9. Writers, Artists, Entertainers, and Athletes	wm: $\tau_t = -2.379$ (1)			47
10. Technicians	wm: $\tau_t = -1.728$ (1)			51.2
11. Sales occupations	wm: $\tau_t = -1.290$ (1)			51.3
12. Administrative support occ.	wm: $\tau_t = -2.285$ (1)			73.8
<i>Service occupations</i>				
13. Household services	wm: $\tau_t = -2.566$ (2)			90
14. Protective services	wm: $\tau_t = -1.621$ (1)			21.2
15. Food services	wm: $\tau_t = -3.091$ (1)			56.4
16. Health services		wm: $\tau_t = -5.396$ (0)	wm $\tau_\mu = -4.826$ (0)	88.8
17. Cleaning and Building	wm: $\tau_t = -2.171$ (1)			32.4
18. Personal services		wm: $\tau_t = -3.490$ (1)	wm $\tau_\mu = -2.950$ (0)	78.5
19. Farming, forestry, fishing	wm: $\tau_t = -1.960$ (1)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics	wm: $\tau_t = -2.570$ (1)			3.8
21. Construction trades	wm: $\tau_t = -1.743$ (2)			2.2
22. Extractive occupations	wm: $\tau_t = -2.418$ (2)			0.5
23. Precision occupations	wm: $\tau_t = -2.185$ (1)			32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators	wm: $\tau_t = -2.643$ (2)			33
25. Transportation occupations	wm: $\tau_t = -1.958$ (1)			11.8
26. Material moving occupations	wm: $\tau_t = -1.740$ (1)			15.2
27. Military occupations	wm: $\tau_t = -1.601$ (1)			9.7

Table 3. US Black men (BM): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1968-2011 (43 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations		bm: $\tau_t = -4.135$ (1)		41.3
2. Management related occupations	bm: $\tau_t = -2.886$ (3)			55.5
<i>Professional occupations</i>				
3. Engineers and Scientists		bm: $\tau_t = -3.609$ (1)	bm: $\tau_\mu = -2.910$ (1)	23.7
4. Health diagnosing occ.		bm: $\tau_t = -4.054$ (1)	bm: $\tau_\mu = -2.600^*$ (1)	77
5. Teachers		bm: $\tau_t = -3.227^*$ (1)	bm: $\tau_\mu = -3.115$ (1)	74.5
6. Social Scientists and Urban Planners		bm: $\tau_t = -4.107$ (1)	bm: $\tau_\mu = -3.302$ (1)	53.2
7. Social, Recreations, and Religious Workers	bm: $\tau_t = -2.307$ (3)			63.8
8. Lawyers and Judges		bm: $\tau_t = -5.081$ (1)	bm: $\tau_\mu = -3.090$ (1)	36.2
9. Writers, Artists, Entertainers, and Athletes		bm: $\tau_t = -4.802$ (1)	bm: $\tau_\mu = -3.991$ (1)	47
10. Technicians	bm: $\tau_t = -2.383$ (2)			51.2
11. Sales occupations			bm: $\tau_\mu = -2.880$ (1)	51.3
12. Administrative support occ.		bm: $\tau_t = -3.494$ (1)		73.8
<i>Service occupations</i>				
13. Household services		bm: $\tau_t = -7.449$ (0)	bm: $\tau_\mu = -7.215$ (0)	90
14. Protective services	bm: $\tau_t = -2.445$ (1)			21.2
15. Food services	bm: $\tau_t = -2.207$ (3)			56.4
16. Health services		bm: $\tau_t = -5.271$ (0)	bm: $\tau_\mu = -5.221$ (0)	88.8
17. Cleaning and Building	bm: $\tau_t = -2.746$ (1)			32.4
18. Personal services	bm: $\tau_t = -3.122$ (1)			78.5
19. Farming, forestry, fishing	bm: $\tau_t = -2.142$ (3)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics	bm: $\tau_t = -2.159$ (2)			3.8
21. Construction trades	bm: $\tau_t = -2.537$ (1)			2.2
22. Extractive occupations	bm: $\tau_t = -0.965$ (3)			0.5
23. Precision occupations	bm: $\tau_t = -2.547$ (1)			32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators	bm: $\tau_t = -1.554$ (1)			33
25. Transportation occupations	bm: $\tau_t = -2.920$ (1)			11.8
26. Material moving occupations	bm: $\tau_t = -2.264$ (1)			15.2
27. Military occupations	bm: $\tau_t = -1.836$ (2)			9.7

Note: *indicates statistical significance at the 10% level, significance at the 5% level otherwise.

Table 4. US Hispanic men (HM): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1971-2011 (40 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations	hm: $\tau_t = -2.389$ (1)			41.3
2. Management related occupations	hm: $\tau_t = -1.102$ (2)			55.5
<i>Professional occupations</i>				
3. Engineers and Scientists		hm: $\tau_t = -4.570$ (0)	hm: $\tau_\mu = -4.493$ (0)	23.7
4. Health diagnosing occ.		hm: $\tau_t = -3.414$ (1)		77
5. Teachers		hm: $\tau_t = -6.897$ (0)	hm: $\tau_\mu = -7.029$ (0)	74.5
6. Social Scientists and Urban Planners		hm: $\tau_t = -7.033$ (0)	hm: $\tau_\mu = -6.984$ (0)	53.2
7. Social, Recreations, and Religious Workers		hm: $\tau_t = -5.496$ (0)	hm: $\tau_\mu = -4.563$ (0)	63.8
8. Lawyers and Judges		hm: $\tau_t = -1.616$ (1)		36.2
9. Writers, Artists, Entertainers, and Athletes		hm: $\tau_t = -6.252$ (0)	hm: $\tau_\mu = -6.293$ (0)	47
10. Technicians	hm: $\tau_t = -2.770$ (1)			51.2
11. Sales occupations	hm: $\tau_t = -2.374$ (1)			51.3
12. Administrative support occ.	hm: $\tau_t = -2.624$ (1)			73.8
<i>Service occupations</i>				
13. Household services	hm: $\tau_t = -2.941$ (1)			90
14. Protective services	hm: $\tau_t = -3.064$ (1)			21.2
15. Food services	hm: $\tau_t = -2.371$ (1)			56.4
16. Health services		hm: $\tau_t = -5.992$ (0)	hm: $\tau_\mu = -6.069$ (0)	88.8
17. Cleaning and Building	hm: $\tau_t = -2.026$ (1)			32.4
18. Personal services		hm: $\tau_t = -4.577$ (0)	hm: $\tau_\mu = -4.501$ (0)	78.5
19. Farming, forestry, fishing	hm: $\tau_t = -0.871$ (3)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics	hm: $\tau_t = -1.950$ (1)			3.8
21. Construction trades	hm: $\tau_t = -0.080$ (2)			2.2
22. Extractive occupations		hm: $\tau_t = -3.385^*$ (1)	hm: $\tau_\mu = -2.744^*$ (1)	0.5
23. Precision occupations	hm: $\tau_t = -2.370$ (1)			32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators	hm: $\tau_t = -0.710$ (3)			33
25. Transportation occupations	hm: $\tau_t = -1.601$ (2)			11.8
26. Material moving occupations	hm: $\tau_t = -1.030$ (2)			15.2
27. Military occupations	hm: $\tau_t = -0.476$ (4)			9.7

Note: *indicates statistical significance at the 10% level, significance at the 5% level otherwise.

Table 5. US White women (WF): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1968-2011 (43 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations	wf: $\tau_t = -1.672$ (1)			41.3
2. Management related occupations	wf: $\tau_t = -0.656$ (3)			55.5
<i>Professional occupations</i>				
3. Engineers and Scientists	wf: $\tau_t = -3.181$ (1)			23.7
4. Health diagnosing occ.	wf: $\tau_t = -1.237$ (2)			77
5. Teachers	wf: $\tau_t = -0.221$ (2)			74.5
6. Social Scientists and Urban Planners	wf: $\tau_t = -2.603$ (1)			53.2
7. Social, Recreations, and Religious Workers	wf: $\tau_t = -0.462$ (1)			63.8
8. Lawyers and Judges	wf: $\tau_t = -2.182$ (2)			36.2
9. Writers, Artists, Entertainers, and Athletes	wf: $\tau_t = -2.957$ (1)			47
10. Technicians	wf: $\tau_t = -1.567$ (1)			51.2
11. Sales occupations	wf: $\tau_t = -2.697$ (1)			51.3
12. Administrative support occ.	wf: $\tau_t = -1.663$ (1)			73.8
<i>Service occupations</i>				
13. Household services	wf: $\tau_t = -0.102$ (2)	wf: $\tau_t = -3.704$ (1)		90
14. Protective services				21.2
15. Food services	wf: $\tau_t = -0.373$ (3)			56.4
16. Health services	wf: $\tau_t = -2.603$ (1)			88.8
17. Cleaning and Building	wf: $\tau_t = -2.282$ (1)			32.4
18. Personal services	wf: $\tau_t = -2.530$ (1)			78.5
19. Farming, forestry, fishing	wf: $\tau_t = -1.699$ (2)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics	wf: $\tau_t = -1.738$ (1)			3.8
21. Construction trades	wf: $\tau_t = -3.022$ (3)			2.2
22. Extractive occupations		wf: $\tau_t = -4.714$ (0)	wf: $\tau_\mu = -4.109$ (0)	0.5
23. Precision occupations		wf: $\tau_t = -2.278$ (1)		32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators	wf: $\tau_t = -2.084$ (3)	wf: $\tau_t = -3.287^*$ (3)		33
25. Transportation occupations				11.8
26. Material moving occupations	wf: $\tau_t = 0.703$ (3)			15.2
27. Military occupations	wf: $\tau_t = -2.273$ (1)			9.7

Note: *indicates statistical significance at the 10% level, significance at the 5% level otherwise.

Table 6. US Black women (BF): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1968-2011 (43 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations	bf: $\tau_t = -0.981$ (4)			41.3
2. Management related occupations	bf: $\tau_t = -2.047$ (2)			55.5
<i>Professional occupations</i>				
3. Engineers and Scientists		bf: $\tau_t = -2.334$ (1)		23.7
4. Health diagnosing occ.	bf: $\tau_t = -1.749$ (1)			77
5. Teachers	bf: $\tau_t = -2.878$ (1)			74.5
6. Social Scientists and Urban Planners		bf: $\tau_t = -3.595$ (1)	bf: $\tau_\mu = -2.632^*$ (1)	53.2
7. Social, Recreations, and Religious Workers		bf: $\tau_t = -4.394$ (1)	bf: $\tau_\mu = -3.543$ (1)	63.8
8. Lawyers and Judges		bf: $\tau_t = -4.363$ (1)		36.2
9. Writers, Artists, Entertainers, and Athletes		bf: $\tau_t = -4.036$ (1)	bf: $\tau_\mu = -3.750$ (1)	47
10. Technicians	bf: $\tau_t = -2.972$ (2)			51.2
11. Sales occupations	bf: $\tau_t = -0.164$ (3)			51.3
12. Administrative support occ.	bf: $\tau_t = -1.625$ (2)	bf: $\tau_t = -3.320^*$ (2)		73.8
<i>Service occupations</i>				
13. Household services	bf: $\tau_t = -2.189$ (3)			90
14. Protective services		bf: $\tau_t = -6.674$ (1)		21.2
15. Food services	bf: $\tau_t = -2.189$ (2)			56.4
16. Health services	bf: $\tau_t = -2.226$ (2)			88.8
17. Cleaning and Building		bf: $\tau_t = -5.687$ (0)	bf: $\tau_\mu = -5.455$ (0)	32.4
18. Personal services	bf: $\tau_t = -2.314$ (2)			78.5
19. Farming, forestry, fishing	bf: $\tau_t = -1.792$ (3)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics		bf: $\tau_t = -3.212^*$ (0)	bf: $\tau_\mu = -3.305$ (1)	3.8
21. Construction trades		bf: $\tau_t = -7.352$ (0)	bf: $\tau_\mu = -5.385$ (0)	2.2
22. Extractive occupations	--	--	--	0.5
23. Precision occupations		bf: $\tau_t = -3.651$ (3)		32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators		bf: $\tau_t = -3.575$ (2)		33
25. Transportation occupations		bf: $\tau_t = -4.276$ (1)		11.8
26. Material moving occupations			bf: $\tau_\mu = -5.511$ (0)	15.2
27. Military occupations		bf: $\tau_t = -3.769$ (1)	bf: $\tau_\mu = -2.766^*$ (1)	9.7

Note: *indicates statistical significance at the 10% level, significance at the 5% level otherwise. (--) indicates not enough observations to run ADF tests.

Table 7. US Hispanic women (HF): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 1971-2011 (40 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share in 2011(%)
<i>Exec., Adm. and Man. occupations</i>				
1. Managerial occupations	hf: $\tau_t = -1.845$ (4)			41.3
2. Management related occupations		hf: $\tau_t = -4.992$ (2)		55.5
<i>Professional occupations</i>				
3. Engineers and Scientists		hf: $\tau_t = -3.382^*$ (3)	hf: $\tau_\mu = -2.829^*$ (3)	23.7
4. Health diagnosing occ.		hf: $\tau_t = -4.782$ (1)		77
5. Teachers		hf: $\tau_t = -3.556$ (1)	hf: $\tau_\mu = -2.682^*$ (1)	74.5
6. Social Scientists and Urban Planners		hf: $\tau_t = -3.386^*$ (1)	hf: $\tau_\mu = -2.645^*$ (1)	53.2
7. Social, Recreations, and Religious Workers		hf: $\tau_t = -6.694$ (0)	hf: $\tau_\mu = -5.963$ (0)	63.8
8. Lawyers and Judges	hf: $\tau_t = -2.097$ (1)			36.2
9. Writers, Artists, Entertainers, and Athletes		hf: $\tau_t = -4.599$ (1)	hf: $\tau_\mu = -3.669$ (1)	47
10. Technicians	hf: $\tau_t = -2.015$ (2)			51.2
11. Sales occupations	hf: $\tau_t = -2.721$ (4)			51.3
12. Administrative support occ.	hf: $\tau_t = -1.880$ (1)			73.8
<i>Service occupations</i>				
13. Household services		hf: $\tau_t = -3.186^*$ (1)		90
14. Protective services		hf: $\tau_t = -2.493$ (1)		21.2
15. Food services		hf: $\tau_t = -4.029$ (1)		56.4
16. Health services		hf: $\tau_t = -3.567$ (1)	hf: $\tau_\mu = -2.735^*$ (1)	88.8
17. Cleaning and Building		hf: $\tau_t = -3.970$ (2)		32.4
18. Personal services	hf: $\tau_t = -2.338$ (2)			78.5
19. Farming, forestry, fishing	hf: $\tau_t = -0.814$ (3)			17.6
<i>Precision production, craft, and repairs occ.</i>				
20. Mechanics		hf: $\tau_t = -5.771$ (0)	hf: $\tau_\mu = -5.249$ (0)	3.8
21. Construction trades		hf: $\tau_t = -6.571$ (0)	hf: $\tau_\mu = -6.608$ (0)	2.2
22. Extractive occupations	--	--	--	0.5
23. Precision occupations		hf: $\tau_t = -4.685$ (1)	hf: $\tau_\mu = -3.888$ (1)	32.7
<i>Operators, fabricators, and labourers</i>				
24. Operators	hf: $\tau_t = -1.766$ (2)			33
25. Transportation occupations		hf: $\tau_t = -4.364$ (3)		11.8
26. Material moving occupations		hf: $\tau_t = -4.890$ (0)	hf: $\tau_\mu = -4.935$ (0)	15.2
27. Military occupations		hf: $\tau_t = -4.389$ (0)	hf: $\tau_\mu = -3.484$ (0)	9.7

Note: *indicates statistical significance at the 10% level, significance at the 5% level otherwise. (--) indicates not enough observations to run ADF tests.

Table 8. UK White females (WF): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 2001Q2-2014Q3 (54 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share across all years and quarters (%)
1 Managers and senior officials		wf (grss): $\hat{\tau}_{\tau} = -4.47$ (1) wf (net): $\hat{\tau}_{\tau} = -3.84$ (1)		34.85
2 Professional occupations	wf (grss): $\hat{\tau}_{\mu} = -2.26$ (3) wf (net): $\hat{\tau}_{\tau} = -2.86$ (1)			46.38
3 Associate professional and technical occupations		wf (grss): $\hat{\tau}_{\tau} = -4.82$ (1) wf (net): $\hat{\tau}_{\tau} = -4.44$ (1)		49.45
4 Administrative and secretarial occupations	wf (grss): $\hat{\tau}_{\tau} = -1.52$ (1) wf (net): $\hat{\tau}_{\tau} = -3.18$ (1)			80.46
5 Skilled trades occupations		wf (grss): $\hat{\tau}_{\tau} = -7.58$ (2) wf (net): $\hat{\tau}_{\tau} = -7.04$ (2)		8.82
6 Personal service occupations	wf (grss): $\hat{\tau}_{\mu} = -2.20$ (4) wf (net): $\hat{\tau}_{\mu} = -1.38$ (4)			84.60
7 Sales and customer service occupations	wf (net): $\hat{\tau}_{\tau} = -3.45$ (1)	wf (grss): $\hat{\tau}_{\tau} = -3.76$ (1)		69.48
8 Process, plant and machine operatives		wf (grss): $\hat{\tau}_{\tau} = -3.53$ (1) wf (net): $\hat{\tau}_{\tau} = -4.07$ (1)		14.16
9 Elementary occupations	wf (grss): $\hat{\tau}_{\mu} = -1.33$ (2)	wf (net): $\hat{\tau}_{\tau} = -3.93$ (1)		47.62

Table 9. UK Non-white females (NWF): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 2001Q2-2014Q3 (54 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share across all years and quarters (%)
1 Managers and senior officials		nwf (grss): $\hat{\tau}_i = -5.90$ (1) nwf (net): $\hat{\tau}_i = -4.31$ (1)		34.85
2 Professional occupations		nwf (grss): $\hat{\tau}_i = -4.50$ (1) nwf (net): $\hat{\tau}_i = -5.16$ (1)		46.38
3 Associate professional and technical occupations		nwf (grss): $\hat{\tau}_i = -4.85$ (1) nwf (net): $\hat{\tau}_i = -6.25$ (1)		49.45
4 Administrative and secretarial occupations		nwf (grss): $\hat{\tau}_i = -6.08$ (1) nwf (net): $\hat{\tau}_i = -4.91$ (1)		80.46
5 Skilled trades occupations		nwf (grss): $\hat{\tau}_i = -4.12$ (1) nwf (net): $\hat{\tau}_i = -4.13$ (1)		8.82
6 Personal service occupations		nwf (grss): $\hat{\tau}_i = -4.11$ (1) nwf (net): $\hat{\tau}_i = -4.76$ (1)		84.60
7 Sales and customer service occupations	nwf (grss): $\hat{\tau}_i = -3.25$ (1)	nwf (net): $\hat{\tau}_i = -3.68$ (1)		69.48
8 Process, plant and machine operatives		nwf (grss): $\hat{\tau}_i = -5.60$ (1) nwf (net): $\hat{\tau}_i = -5.84$ (1)		14.16
9 Elementary occupations		nwf (grss): $\hat{\tau}_i = -4.30$ (1) nwf (net): $\hat{\tau}_i = -4.84$ (1)		47.62

Table 10. UK White males (WM): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 2001Q2-2014Q3 (54 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share across all years and quarters (%)
1 Managers and senior officials		wm (grss): $\hat{\tau}_i = -4.96$ (1) wm (net): $\hat{\tau}_i = -5.07$ (1)		34.85
2 Professional occupations		wm (grss): $\hat{\tau}_i = -6.86$ (1) wm (net): $\hat{\tau}_i = -6.14$ (1)		46.38
3 Associate professional and technical occupations		wm (grss): $\hat{\tau}_i = -3.64$ (1) wm (net): $\hat{\tau}_i = -3.13$ (1)		49.45
4 Administrative and secretarial occupations	wm (net): $\hat{\tau}_i = -2.58$ (2)	wm (grss): $\hat{\tau}_i = -4.94$ (1)		80.46
5 Skilled trades occupations		wm (grss): $\hat{\tau}_i = -4.41$ (1) wm (net): $\hat{\tau}_i = -3.87$ (1)		8.82
6 Personal service occupations	wm (grss): $\hat{\tau}_i = -2.01$ (3) wm (net): $\hat{\tau}_i = -2.93$ (3)			84.60
7 Sales and customer service occupations		wm (grss): $\hat{\tau}_i = -3.94$ (1) wm (net): $\hat{\tau}_i = -3.53$ (1)		69.48
8 Process, plant and machine operatives	wm (grss): $\hat{\tau}_i = -3.13$ (1) wm (net): $\hat{\tau}_i = -1.94$ (3)			14.16
9 Elementary occupations	wm (grss): $\hat{\tau}_i = -1.61$ (3) wm (net): $\hat{\tau}_i = -0.57$ (3)			47.62

Table 11. UK Non-white males (NWM): Augmented Dickey Fuller (ADF) tests on group earnings by occupation in the period 2001Q2-2014Q3 (54 obs.)

	Non-stationary earnings	Trend-stationary earnings	Stationary earnings	Female labour share across all years and quarters (%)
1 Managers and senior officials		nwm (grss): $\hat{\tau}_i = -4.32$ (1) nwm (net): $\hat{\tau}_i = -4.34$ (1)		34.85
2 Professional occupations		nwm (grss): $\hat{\tau}_i = -5.31$ (1) nwm (net): $\hat{\tau}_i = -5.36$ (1)		46.38
3 Associate professional and technical occupations		nwm (grss): $\hat{\tau}_i = -5.23$ (1) nwm (net): $\hat{\tau}_i = -5.36$ (1)		49.45
4 Administrative and secretarial occupations	nwm (grss): $\hat{\tau}_i = -2.54$ (3)	nwm (net): $\hat{\tau}_i = -5.30$ (1)		80.46
5 Skilled trades occupations		nwm (grss): $\hat{\tau}_i = -3.49$ (3) nwm (net): $\hat{\tau}_i = -5.08$ (1)		8.82
6 Personal service occupations		nwm (grss): $\hat{\tau}_i = -4.38$ (1) nwm (net): $\hat{\tau}_i = -3.66$ (1)		84.60
7 Sales and customer service occupations		nwm (grss): $\hat{\tau}_i = -3.52$ (1) nwm (net): $\hat{\tau}_i = -3.87$ (1)		69.48
8 Process, plant and machine operatives		nwm (grss): $\hat{\tau}_i = -4.43$ (1) nwm (net): $\hat{\tau}_i = -4.42$ (1)		14.16
9 Elementary occupations		nwm (grss): $\hat{\tau}_i = -3.66$ (1) nwm (net): $\hat{\tau}_i = -4.00$ (1)		47.62

