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Sustainable Earnings: How Can Herd-behaviour on Financial Accumulation Feed into a Resilient Economic System?

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Abstract

The paper applies a methodological tool able to frame national policies with sustainable financial flows between social groups. In effect, exchange-entitlement mapping (e-mapping) shows the interdependency of capital and labour earnings across social groups, which is then accounted for in the policy planning of future financial flows for the green transition. First, the paper highlights the extent to which herd-behaviour feeds into capital and labour earnings by social, occupational, demographic, and regional groups for the UK, France, and Italy over the past forty years. Second, learning from these past trends, the paper proposes a policy framing of "sustainable earning trends" to hamper or facilitate financial flows towards sectors, occupations, and regions prone to herd-behaviour. The paper concludes that for an economic system to be resilient, it should be able to recycle external shocks on group earnings into economic opportunities for the green transition.

Keywords: group behavior, financial accumulation, earnings

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1. Introduction

Since the COP21 agreement in 2015, too little has been done to implement sustainable pathways for environmental policies to meet the target that global warming should not increase by more than 2°C above pre-industrial levels [1]. Top-down approaches to policy implementation make use of the hierarchy of power relationships in decision-making, with the assumption that the decisions taken by political institutions at the national and global levels necessarily lead to a positive impact on the environment [2]. The argument put forward here is that relying on such vertical relationships of power may trigger rent-seeking behaviour in terms of financial accumulation, as seen during the Great Recession [3],[4], and then feed into greenwashing practices instead. In effect, one dominant feature of excessive capitalism has been the growing hegemony of shareholder value as a mode of governance over human and natural resources [5],[6],[7]. At a time for urgent action for financing climate adaptation, such phenomenon would compromise the intended outcome of an ethical distribution process of financial resources towards a sustainable goal as understood by Raworth [6] to meet human needs for all within the planetary boundaries.

In a COP21 era where global financial flows need to be channelled towards the green transition, there is an urgent need to move our understanding in economic theory and policy from individualism to groupism in the way resources are exchanged across economies and societies over time. In this paper, we show that financial accumulation at the individual level in the past is based on group rather than individual behaviour. Then, the proposition made here to avoid the negative effects of herd-behaviour on financial accumulation is that economic policies must be grounded in methodological groupism rather than individualism, which will, in turn, allow future financial flows to be more resilient to external shocks by reaching quickly parts all parts of the society. The main research question raised here is therefore: can private earnings feed into the financial needs of the green transition without feeding into herd-behaviour affecting negatively the global ecosystem?

Just as nature thrives on diversity, this paper argues that a resilient economic system based on financial flows free from negative herd-behaviour on financial accumulation is able to recycle external shocks into economic opportunities within the planetary boundaries [6]. In order to address the main research question, the paper is taking the following two steps: first, we will map out group behaviour in the past trends of capital and labour earnings by social, occupational, demographic, and regional groups for the UK, France, and Italy over the past forty years. Second, learning from these past trends, the proposition of “sustainable earnings” is made for policymaking to insure that trends of future earnings are able to reach quickly all parts of the society. The paper is structured as follows, starting by mapping out group behaviour in past capital and labour earnings for the the UK, France, and Italy. In the second part of this paper, we propose to define sustainable earnings trends trends whereby financial

flows are broken down horizontally by demographic group, past, present and potential future scenario, to serve the purpose of providing transparency on the extent to which financial accumulation by social groups can hamper or facilitate financial flows towards sectors, occupations, regions prone to herd-behaviour. We then provide an example of how such concept can be applied at the national level using the T21 framework as an example of a policy-tool.

2. Financial accumulation – individual or group phenomenon?

In most Economics textbooks for Year 1 students, Economics departments worldwide teach neo-classical economic theory stipulating that individual income is a function of a variety of human capital factors such as marginal productivity, educational background, skills and so on [8]. Such methodological individualism means that the discriminatory elements of socialisation attached to gender, race, class or ethnicity are embedded across those individual characteristics and are as such not fully accountable in economic exchange. However, such discriminatory elements describing the power relationships between social groups in a particular context become central to the way income is generated and the way wealth is accumulated over time.

2.1. Group membership as a dominant rule in economic exchange

In behavioural economics, the literature distinguishes between group and individual behaviour [9],[10],[11], whereby norms of behaviour by social group tend to impact on individual decision-making. Similarly, in stratification economics, various authors show how race and ethnic group disparities in market outcomes can be sustained and exacerbated over time [12],[13],[14]. In effect, the relative economic value socially assigned to groups of individuals is mostly historically determined and culturally embedded.

When economic exchange takes place, then social norms 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 (out of 130) in the UK for those jobs [15],[16]. These examples go beyond the issue of statistical discrimination [17] since group productivity is not responsible for income inequality across all occupations [18]. Rather, the problem lies in 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 [19],[20],[21]. Compared with implicit discrimination [17] or with Becker's taste discrimination, the concept of intersectionality departs from methodological individualism by questioning the boundaries that

can 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.

The methodology used to map out group earnings is also known as exchange-entitlement mapping or E-mapping in the literature[2]. Such method allows to show how social norms are the channels through which the economic environment of individuals affects their opportunities and freedoms to choose different states of well-being [23]. Starting from Charles and Vujic [24], let us assume a society with two demographic groups *i* and *j*, both belonging to the same occupational group *k*. Therefore, individuals are composed of groups *i* and *k*, or composed of group identities *j* and *k*. A socially dominant group is represented by *j* and receives a premium for group membership while the non-dominant group is represented by *i* whose earnings are discriminated against due to group membership. Hence, we assume a ranking of groups $j > i$ 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 labor $z = \sum(r + w)$ is then distributed between all 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 labor and *w* for its marginal product or wage (capital and labor 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.

In the short-run, with methodological individualism, capital earnings per group *i* and *j* at the occupational level *k* will be:

$$r_{j(t)} = \alpha + \beta_1 r_{j(t-1)} + \varepsilon_t$$

$$\text{and } r_{i(t)} = \alpha + \beta_3 r_{i(t-1)} + \varepsilon_t$$

where capital earnings per demographic group at time *t* depends on a constant, on its previous value at time t-1 and a white noise term; while labour earnings will be:

$$w_{j(t)} = \alpha + \beta_1 w_{j(t-1)} + \varepsilon_t$$

$$\text{and } w_{i(t)} = \alpha + \beta_3 w_{i(t-1)} + \varepsilon_t$$

where labour earnings per demographic group at time *t* depends on a constant, on its previous value at time t-1 and a white noise term.

To test whether past earning trends have experienced elements of group behaviour with premium attached to group j, the following Vector Auto-Regression analysis is conducted

[2] See [22] and [23] on E-mapping theory and its applications to different contexts of analysis in [3] and [4], [24], and [25].

with the following earning relationships: with methodological groupism, capital earnings per group *i* and *j* at the occupational level *k* are:

$$(1)\ r_{j(t)} = \alpha + \beta_1 r_{j(t-1)} + \beta_2 r_{i(t-1)} + \varepsilon_t$$

$$(2)\ r_{i(t)} = \alpha + \beta_3 r_{i(t-1)} + \beta_4 r_{j(t-1)} + \varepsilon_t$$

where capital earnings per demographic group at time *t* depends on a constant, on its previous value at time t-1, on the value of the other group's earnings at time t-1, and a white noise term; while labour earnings will be:

$$(3)\ w_{j(t)} = \alpha + \beta_1 w_{j(t-1)} + \beta_2 w_{i(t-1)} + \varepsilon_t$$

$$(4)\ w_{i(t)} = \alpha + \beta_3 w_{i(t-1)} + \beta_4 w_{j(t-1)} + \varepsilon_t$$

where labour earnings per demographic group at time *t* depends on a constant, on its previous value at time t-1, on the value of the other group's earnings at time t-1, and a white noise term.

From this perspective, group membership is socially assigned by a dominant convention rather than chosen individually, consciously, or unconsciously, and reproduced over time. As described above, context matters in the way income generated and wealth is accumulated by social group over time. Therefore groups *i* and *j*, and occupation *k* will differ across countries. Hence, the empirical testing of equations (1), (2), (3) and (4) will be applied to the UK, Italy and France depending on country-dependent classifications.

2.2. Trends in capital and labour earnings in the UK, Italy, and France

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 [26], [7]. One potential explanation put forward by Piketty and Saez [26] is the role of norms in exacerbating earnings at the top of the income distribution. In effect, group behaviour at the top of managerial and financial occupations has been an essential factor that has led to financial excesses. This section will present the trends of the horizontal income inequalities over time referring to four different geographical contexts, the UK, France and Italy, showing the dominant relationships in the financial accumulation.

In terms of methodology, for the UK, France and Italy, individual data on labour and capital earnings are aggregated at the group level including gender, class, immigrant status or other demographic variables depending on country's classifications (LIS 2020). LIS (2020) is a harmonized database of microdata population specialized on income and other economic personal and household variables. Labour and capital earning variables are plotted for each country and group below to test equations (1) to (4) for each country. Thus, we run Vector Autoregression Models (VAR) with Impulse Response Functions (IRF) as displayed in

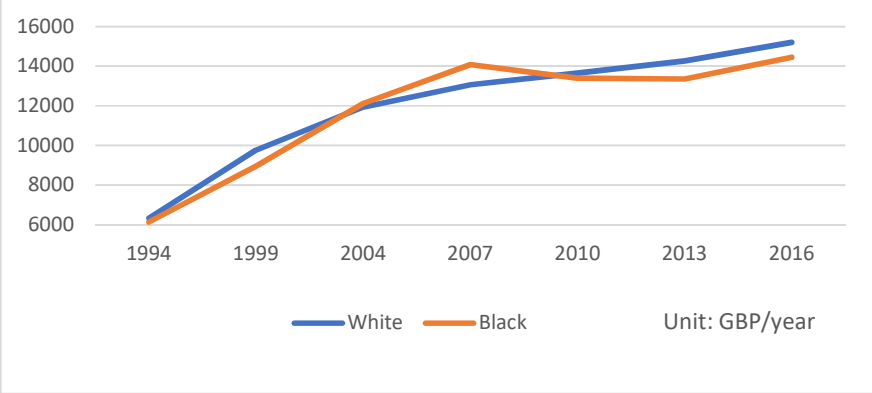
Appendices 1 to 3. VARs allow to generalize the dependencies of two or more variables over time using LIS data (2020) while the IRF tool is a graphic representation of a change of a variable over a shock on the other dependent variable. Indeed, IRFs allow to identify the dependencies between variables over an exogenous shock in the system [27].

a. Capital and labour earnings in the UK (1994-2016)

In the UK, the breakdown of the capital and labour earnings based on LIS data [28] are by gender and ethnicity (white, mixed race, Asian and black) with three main occupations (managers and professionals, other skilled workers, and labourers/elementary) as displayed in Table 1 of Appendix I. Looking at the statistical significance of the coefficients in Table 1, numerous coefficients β_2 and β_4 across occupations are statistically significant at the 5 or 10 percent level. This points out towards an interdependency of capital and labour earnings between groups at the occupational level.

As a way of exemplifying such phenomenon graphically, Figure 1 below represents the average labour income for the white and black groups from 1994 to 2016. While the Black trend starts to overtake the white trend in the mid-2000s, the Great Recession brought the trends back to their "normal" dominant-dominated relationship.

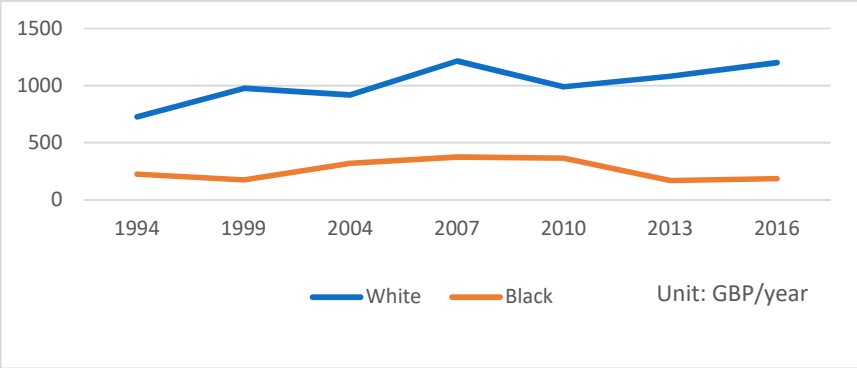
Figure 1. Average Labour income by Ethnicity, UK (1994-2016)



Source: Authors' elaboration from LIS data (2020)

Figure 2 then shows the average of all cash payments from property and capital (including financial and non-financial assets - interest and dividends, rental income, and royalties) for the Black and white groups. The evolution of the existing gap is quite significant in describing the relationship of power between the two groups in financial accumulation. While the white group benefits from a sharp increase in capital income in the built-up towards the Great Recession, the trend for the Black group is stagnant in the same period followed by an increasing capital income gap. Here again, the interdependence of group earnings over time is striking.

Figure 2. Average Capital income by ethnicity, UK (1994-2016)



Source: Authors' elaboration from LIS data (2020)

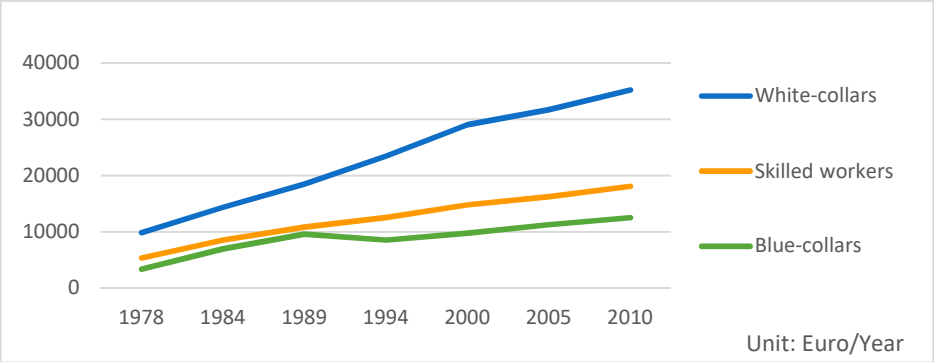
Digging deeper into the interdependence of earnings between group rather than individuals, we run VARs and IRF to analyse the mutual dependency of the labour income variables by gender and class. The results again show dominant-dominated group relationships in income accumulation, especially on a class basis (see Appendix II). The analysis reported in Appendix II in effect shows how a change in the labour income of the dominant group by gender (male) and class (white collars) impact on their relative dominated groups, female and blue collars, respectively. The interdependency is stronger for gender than class, similarly to the case of Italy as described below.

b. Capital and labour earnings in France (1978-2010)

In France, the breakdown of the capital and labour earnings based on LIS data (2020) are by gender and citizenship (French, French naturalised, non-citizen, African, Northern African, European, and others) with three main occupations (managers and professionals, other skilled workers, and labourers/elementary) as displayed in Table 2 of Appendix I. Looking at the statistical significance of the coefficients in Table 2, numerous coefficients β_2 and β_4 across occupations are statistically significant at the 5 or 10 percent level. This points out towards an interdependency of capital and labour earnings between groups at the occupational level.

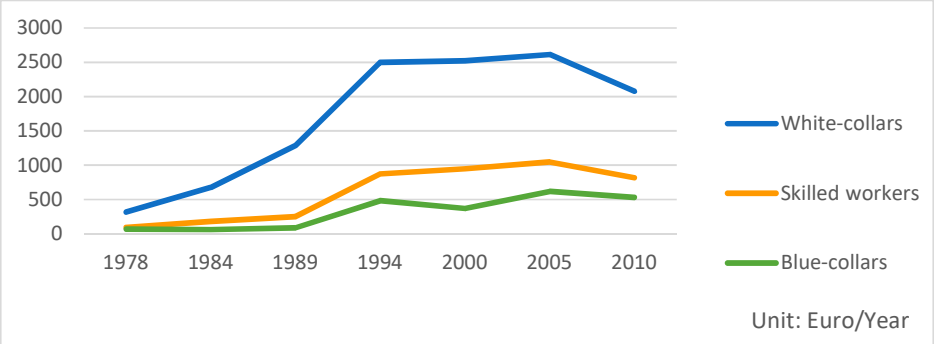
As a way of exemplifying such phenomenon graphically, Figure 3 and 4 represent the trends of labour and capital income by class from 1978 to 2010 in France. The trends of labour income show an increasing gap since the 1990s between white collars and blue collars while skilled-workers experience trend-stationary labour income over the period. For the trends of capital income, there is a similar increasing gap between white collars and the other two groups, and all three trends have been hit by the Great Recession of 2008. Overall, such data shows that, regardless of skills, productivity or ethnical background, the rising gap shows that there is a pattern of a dominating-dominated relationship horizontally between white-collars and the other two categories.

Figure 3: Average Labour income by Class, France



Source: Authors' Elaboration form LIS data (2020)

Figure 4: Average Capital income by Class, France



Source: Authors' Elaboration from LIS data (2020)

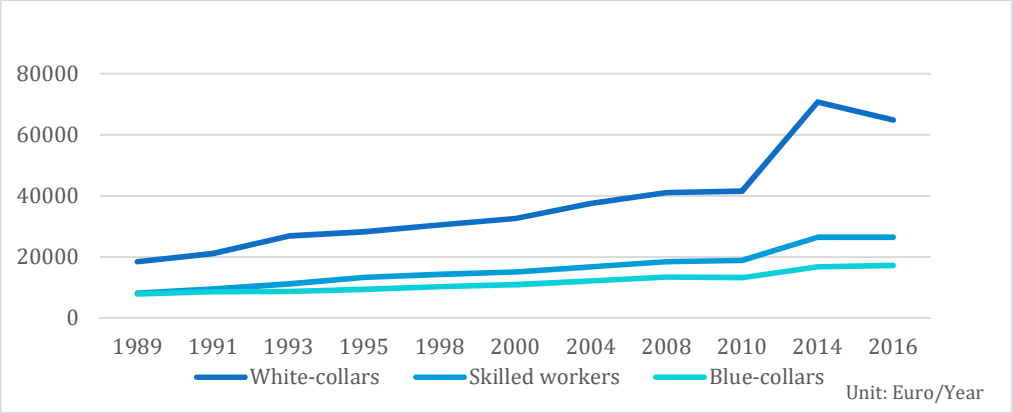
c. Capital and labour earnings in Italy (1989-2016)

In Italy, the breakdown of the capital and labour earnings based on LIS data (2020) are by gender and place of birth (in or out of Italy) with four main occupations (blue-collar, office worker and school teacher; junior/middle managers and professionals; senior managers and white-collars) as displayed in Table 3 of Appendix I. Looking at the statistical significance of the coefficients in Table 3, numerous coefficients β_2 and β_4 across occupations are statistically significant at the 5 or 10 percent level. This points out towards an interdependency of capital and labour earnings between groups at the occupational level.

As a way of exemplifying such phenomenon graphically, Figure 5 shows an increasing gap between white collars and other occupations. By contrast, the trends of capital income by class in Figure 6 do not display a similar increasing gap. Class is only one of the numerous relationships of inequality between social groups in Italy. Well documented in the literature, it spans from geographical inequality with the North-South divide in terms of economic development to gender, immigration status and age [29],[30],[31]. For example, the hourly pay gaps over the past five years have reproduced themselves across those different groups: women earning 7.4% less than men on average, immigrants earning 17.4% less than an Italian

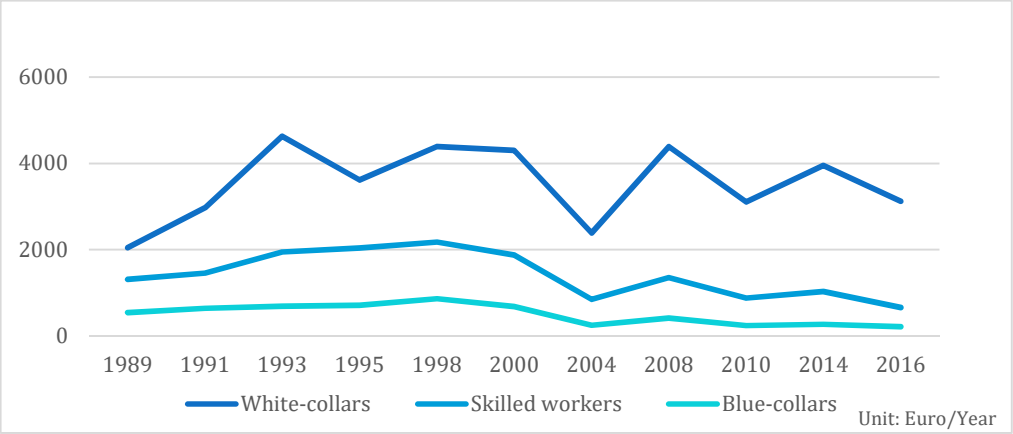
citizen and a young adult between 15 and 29 years old earning 24.2% less than an adult in her/his working life [32].

Figure 5: Average Labour income by Class, Italy



Source: Authors' Elaboration from LIS data (2020)

Figure 6. Average Capital income by Class, Italy



Source: Authors' Elaboration from LIS data (2020)

The interdependency of capital and labour income between social groups is perpetuating over time with some social groups earning more at the expense of others, based on social relationships of power more than on individual productivity. The analysis reported in Appendix 2 for Italy shows how a change in the labour income of the dominant group by gender (male) and class (white collars) impact on their relative dominated groups, female and blue collars, respectively. The interdependency is stronger for gender than class, similarly to the UK.

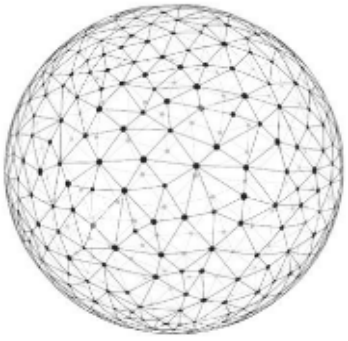
With methodological individualism, there is no much room for the earnings of one individual to be influenced by others within its own occupation, or by others from other social groups. However, there is ample evidence here of the interdependency of earnings between social groups, whether it is in the UK, France or Italy, with varying degrees of interdependency across

groups and countries. Such discrepancies are not based on individual productivity but on group biases whereby some groups are deemed socially and therefore economically more valuable than others. Over time such discrepancies are economically unsustainable, feeding into herd-behaviour that exacerbates group status and eventually create production, consumption and financially speculative bubbles which sustains that the social status of the dominant group, making the entire economic system unsustainable. Another methodological perspective on financial accumulation is therefore needed for a sustainable economic system.

3. Sustainable earnings trends: a proposition

The proposition made here is that the diversity of group relationships is key to the stability of the global economic system. Looking at Figure 7 as a global network of financial flows, each node represents a social group linking these financial flows. With social groups rather than individuals at the centre of financial interactions it allows us to frame social entitlement rules to financial flows. With each individual in the system belonging to different social groups, any external shock on one of the nodes in the system will be offset by other nodes around. "Efficiency occurs when a system streamlines and simplifies its resource flow to achieve its aims, say by channelling resources directly between the larger nodes. Resilience, however, depends upon diversity and redundancy in the network, which means that there are ample alternative connections and options in times of shock and change." ([6]: 175).

Figure 7. A network of flows: structuring an economy as a distributed network can more equitably distribute the income and wealth that it generates.



Source: [6]: 174)

Building policy tools able to map out group earnings from the past is able to inform future policies of the potential cognitive biases brought about by group behaviour in individual decision-making at the micro-level, and aware of the way such phenomenon aggregates at the macro-level in financial flows. The approach of E-mapping applied to the UK, France and Italy in the previous section shows that social norms are the channels through which the

economic environment of individuals affects their earning opportunities. Adopting such lens could create sustainable earning trends whereby financial flows are broken down horizontally by demographic group, past, present and potential future scenario, to serve the purpose of providing transparency on the extent to which financial accumulation by social groups can hamper or facilitate financial flows towards sectors, occupations, regions prone to herd-behaviour.

The analysis presented above shows the extent to which group behaviour overtakes 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 above results, it is a phenomenon consistent across the labour force and hence the society. Such wide phenomenon questions whether group earnings can ever become "sustainable" earning trends that feed into the green transition of the economy and society. "Sustainability" here relates to maintaining the human biodiversity in society by sustaining the livelihoods of all groups rather than letting financial flows freely float towards one dominant group. In a COP21 era with doom prospects for demand led-growth, if one accepts methodological groupism, where groups can be broadly defined in social identity terms (e.g., occupational, geographical, racial, gender and so on), it is unlikely that individual earnings feed into the financial needs of the green transition without feeding into group biases and associated financial bubbles. Financial decisions are in effect not just for entrepreneurs but also reflect daily consumption, saving, investment, education and migration decisions made by all individuals. In particular, if group behaviour overtakes individual decision-making, it makes us wonder how daily financial decisions such as personal consumption, savings, investment, but also education and migration choices can serve the financial needs of the green transition.

Looking back at the role of animal spirits in financial decisions, i.e. "our innate urge to activity" ([33]: 163 in [34]: 7), [34] rightly point out the importance of group membership, as well as context, in influencing individual decision-making. Then, given that individuals belong to multiple groups which 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 [34]'s argument, [35] clearly spells out that conventions are the actual "context" in which financial interaction takes place. Thus, if a context is shaped by group relationships, it raises the question of individual versus group legitimacy in financial flows whereby group norms rather than individual instinct serve as a basis for financial exchanges, further financial bubble similar to the one leading to the 2007-2008 crisis is likely to feed into the green transition. 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

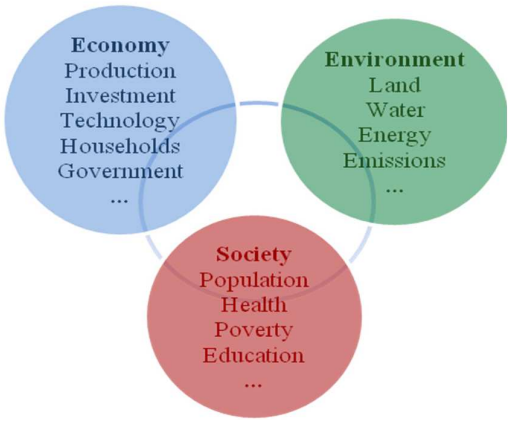
1% to Waste and Pollution Control in 2016 [36], it is likely that the car industry will flourish in a toxic habitat in the coming decades.

To address the legitimacy issue in future financial flows, the methodological proposition of groupism made here is that the legitimacy of financial flows should be first acknowledged to be group-based rather than individual-based, to be able to think in terms of ecological legitimacy in financial flows. Building on the phenomenon of herd-behaviour in financial decision-making, the following proposition of "sustainable earning trends" is anchored in the rationale that group behaviour has more than a speculative impact on financial flows and serve as a basis for financial capacity-building scenarios to finance the green transition. However, as we will now show, reasoning in terms of "sustainable" trends of earnings means that there is an awareness of these group phenomena at the individual and policy levels, which would be the first step to move from social-based to ecological-based legitimacy to financial resources.

3.1. Policy example: the T21 framework with sustainable earnings

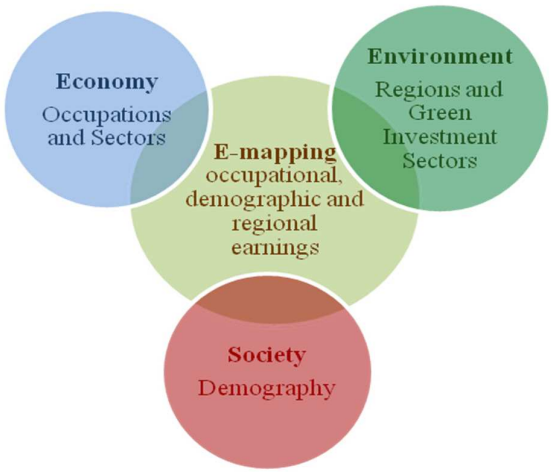
Applying the lens of group mapping to any policy tool brings transparency and legitimacy to the policy process and resilience to the economic system impacted by the policy process. In effect, the innovative core of such a lens is to show how social entitlement rules to resources and financial flows, in particular, can become ecological entitlement rules to a thriving environment. To do so, e-mapping is here applying to one of the current models of development planning, namely the Threshold 21 framework [37]. The Threshold 21 model (T21) is a development planning tool used by national governments to address the financial challenges of turning green by designing business-as-usual and green capacity building scenarios between sectors for low or decarbonised development and natural resource efficiency. The T21 model suggests that on average 1 to 2.5 per cent of global GDP per year are needed up to 2050 to green the economy. The T21 model is based on the existing interconnections between the economic, social, and environmental dimensions of development for a country, hence supporting the idea of sustainable development (see Figure 8). Several empirical applications have already been done in countries as varied as Denmark, China, and Bangladesh. Green scenarios are simulated and compared with business-as-usual, resource-intensive growth, and fossil fuel consumption scenarios. The simulations illustrate that green scenarios are more efficient in achieving environmental targets than all business-as-usual scenarios used in the model. In effect, although during the initial stage of their implementation green scenarios do not show outstanding results comparing with business-as-usual scenarios, in the middle to long-term green scenarios outperform business-as-usual ones for GDP growth.

.Figure 8: Spheres and Sectors in T21 Framework



Source: [38]

Figure 9: T21 Methodology with e-mapping



Source: Author's Elaboration

By adding the group dimension to the T21 framework as shown in Figure 9 with occupational, demographic and regional earnings, social entitlement rules become ecological rules of entitlement whereby past cognitive biases brought about by group behaviour are mapped out according to a country's specific context, as shown in the previous section for the UK, France, and Italy. Such exercise of group mapping can then inform the dynamics of future financial flows where, with each individual in the system belonging to different social groups (Figure 7), any external shock on one of the nodes in the system will be offset by other nodes around.

4. Conclusion

The paper shows that there is ample evidence of the interdependency of earnings between social groups, whether it is in the UK, France or Italy, with varying degrees of interdependency across groups and countries. Such discrepancies are not based on individual productivity but on the social perception that one group is socially and therefore economically more valuable than another. Over time such discrepancies are economically unsustainable, feeding into herd-behaviour that exacerbates group status and eventually create production, consumption and financially speculative bubbles which sustains that group status. Another perspective on income accumulation is therefore needed for a sustainable economic system.

National and international agencies have developed rationales and policy plans to address the climate emergency are based on methodological individualism. Trillion of dollars have been released to “green” the economy. However, this paper shows that these efforts need to account for herd-behaviour in financial flows. Income and wealth inequalities represent power relationships among social groups which then set social entitlement rules in economic exchange. Building planning tools at the national and international levels with a group mapping perspective can inform future policies of the potential cognitive biases at the individual level that aggregates at the macro-level. Adopting such lens could create sustainable earning trends whereby financial flows are broken down horizontally by demographic group to provide transparency on the extent to which capital and labour earnings by social group can hamper or facilitate financial flows towards sectors, occupations, regions prone to herd-behaviour.

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Appendix A.

Table 1. VARs of Capital and Labour earnings by occupation, gender and ethnicity, UK (12 Waves 1969-2016), Author's calculation from LIS data (2020)

Variables names	oc1: managers and professionals (ISCO 1 & 2) oc2: other skilled workers (ISCO 3-8, 10) oc3: labourers/elementary (ISCO 9) lab: average labour income cap: average capital income m: male population f: female population eth1: white ethnic group eth2: mixed race/multiple ethnic groups eth3: Asian/Asian British ethnic group eth4: black/African/Caribbean/black British ethnic group ** significance ≤0.05 * significance between 0.10 and 0.05
Variables	**VARs**
oc1_mlab oc1_flab	Oc1_mlab = 6802.64 * + 0.91 oc1_mlab (t-1) - 0.01 oc1_flab (t-1) Oc1_flab = 2763.66 ** + 0.75 oc1_mlab (t-1) - 0.12 oc1_flab (t-1)
oc1_mcap oc1_fcap	Oc1_mcap = 836.92 * + 1.36 oc1_mcap (t-1) – 1.01 oc1_fcap (t-1) Oc1_fcap = 762.79 * +0.70 oc1_mcap (t-1) -0.40 oc1_oc1_fcap (t-1)
oc1_eth1lab oc1_eth2lab	Oc1_eth1lab = 60071.24 * - 0.77 * oc1_eth1lab (t-1) + 0.25 * oc1_eth2lab (t-1) Oc1_eth2lab = 45526.60 - 0.52 oc1_eth1lab (t-1) + 0.36 oc1_eth2lab (t-1)
oc1_eth1cap oc1_eth2cap,	Oc1_eth1cap = 2930.56 * - 0.60* oc1_eth1cap (t-1) - 0.17 oc1_eth2cap (t-1) Oc1_eth2cap = - 691.47 * + 0.85* oc1_eth1 cap (t-1) – 0.01 oc1_eth2cap (t-1)
oc1_eth1lab oc1_eth3lab	Oc1_eth1lab = 18249.62 * + 0.53 * oc1_eth1lab (t-1) + 0.04 oc1_eth3lab (t-1) Oc1_eth3lab = -12984.76 + 0.79 oc1_eth1lab (t-1) + 0.55 ** oc1_eth3lab (t-1)
oc1_eth1cap oc1_eth3cap,	Oc1_eth1cap = 1758.42 * - 0.10 oc1_eth1cap (t-1) + 0.16 oc1_eth3cap (t-1) Oc1_eth3cap = 494.53 – 0.37 oc1_eth1cap (t-1) +1.44 oc1_eth3cap (t-1)
oc1_eth1lab oc1_eth4lab	Oc1_eth1lab = 18040.16 * +0.54 * oc1_eth1lab (t-1) +0.02 oc1_eth4lab (t-1) Oc4_eth4lab = -21267.1 +1.71 * oc1_eth1lab (t-1) -0.24 oc1_eth4lab (t-1)
oc1_eth1cap oc1_eth4cap	Oc1_eth1cap = 1749.47 * - 0.02 oc1_eth1cap (t-1) – 0.04 oc1_eth4cap (t-1) Oc1_eth4cap = -621.16 +0.67 oc1_eth1cap (t-1) + 0.01 oc1_eth4cap (t-1)
oc1_eth1lab oc1_eth5lab	Oc1_eth1lab = 11963.51 * + 1.99 * oc1_eth1lab (t-1) -1.23 **oc1_eth5lab (t-1) Oc1_eth5lab = 1025.58 + 3.91 * oc1_eth1lab (t-1) – 2.75 * oc1_eth5lab (t-1)
oc1_eth1cap oc1_eth5cap	Oc1_eth1cap = 1761.11 * - 0.15 oc1_eth1cap (t-1) + 0.13 oc1_eth5cap (t-1) Oc1_eth5cap = 2045.28 -0.51 oc1_eth1cap (t-1) +0.43 oc1_eth5cap (t-1)
oc2_mlab oc2_flab	Oc2_mlab = 3155.20 * + 1.25 * oc2_mlab (t-1) - 0.49 oc2_flab (t-1) Oc2_flab = 1113.26 * + 0.72 * oc2_mlab (t-1) – 0.11 oc2_flab (t-1)
oc2_mcap oc2_fcap	Oc2_mcap = 223.20 * - 4.11 * oc2_mcap (t-1) + 4.29 * oc2_fcap (t-1) Oc2_fcap = 241.35 * - 3.47 * oc2_mcap (t-1) + 3.83 * oc2_fcap (t-1)
oc2_eth1lab oc2_eth2lab,	Oc2_eth1lab = - 3702.57 * +1.50 * oc2_eth1lab (t-1) – 0.27 * oc2_eth2lab (t-1) oc2_eth2lab = - 18432.94 + 2.75 ** oc2_eth1lab (t-1) – 0.80 oc2_eth2lab (t-1)
oc2_eth1cap oc2_eth2cap,	Oc2_eth1cap = 1160.31 * - 0.48 * oc2_eth1cap (t-1) – 0.01 oc2_eth2cap (t-1) Oc2_eth2cap = 2745.67 * - 3.43 * oc2_eth1cap (t-1) +0.50 * oc2_eth2cap (t-1)
oc2_eth1lab oc2_eth3lab	Oc2_eth1lab = 7065.82 * + 0.68 * oc2_eth1lab (t-1) + 0.01 oc2_eth3lab (t-1) Oc2_eth3lab = - 2555.72 + 0.77 oc2_eth1lab (t-1) + 0.25 oc2_eth3lab (t-1)
oc2_eth1cap oc2_eth3cap	Oc2_eth1cap = 362.58 + 0.32 oc2_eth1cap (t-1) + 0.27 oc2_eth3cap (t-1) Oc2_eth3cap = - 209.81 + 0.76 oc2_eth1cap (t-1) + 0.85 oc2_eth3cap (t-1)

oc2_eth1lab oc2_eth4lab	Oc2_eth1lab = 6707.39 * + 0.76 * oc2_eth1lab (t-1) – 0.05 oc2_eth4lab (t-1) Oc2_eth4lab = 3224.54 + 0.84** oc2_eth1lab (t-1) – 0.01 oc2_eth4lab (t-1)
oc2_eth1cap oc2_eth4cap	Oc2_eth1cap = 617.83 * + 0.24 oc2_eth1cap (t-1) -0.25 oc2_eth4cap (t-1) Oc2_eth4cap = 185.54 +0.09 oc2_eth1cap (t-1) – 0.45 oc2_eth4cap (t-1)
oc2_eth1lab oc2_eth5lab	Oc2_eth1lab = 6952.68 *+0.67 * oc2_eth1lab (t-1) +0.02 oc2_eth5lab (t-1) Oc2_eth5lab = 8261.70 * + 0.76 ** oc2_eth1lab (t-1) -0.15 oc2_eth5lab (t-1)
oc2_eth1cap oc2_eth5cap	Oc2_eth1cap = 722.20 * +0.21 oc2_eth1cap (t-1) – 0.28 oc2_eth5cap (t-1) Oc2_eth5cap = 283.60 + 0.11 oc2_eth1cap (t-1) - 0.05 oc2_eth5cap (t-1)
oc3_mlab oc3_flab	Oc3_mlab = 1958.92 * + 1.30 * oc3_mlab (t-1) - 0.73 ** oc3_flab (t-1) Oc3_flab = 414.75 + 0.41* oc3_mlab (t-1) + 0.22 oc3_flab (t-1)
oc3_mcap oc3_fcap	Oc3_mcap = 261.07 * + 0.60 oc3_mcap (t-1) – 0.47 oc3_fcap (t-1) Oc3_fcap =171.71 * + 0.36 oc3_mcap (t-1)– 0.10 oc3_fcap (t-1)
oc3_eth1lab oc3_eth2lab	Oc3_eth1lab = 6944.97 * + 0.47 * oc3_eth1lab (t-1) – 0.02 oc3_eth2lab (t-1) Oc3_eth2lab = -7280.15 + 2.17 * oc3_eth1lab (t-1) – 0.71 * oc3_eth2lab (t-1)
oc3_eth1cap oc3_eth2cap	Oc3_eth1cap = -333.46 * + 1.88 * oc3_eth1cap (t-1) – 0.03 oc3_eth2cap (t-1) Oc3_eth2cap = -742.18 * + 2.42 * oc3_eth1cap (t-1) – 0.25 ** oc3_eth2cap (t-1)
oc3_eth1lab oc3_eth3lab	Oc3_eth1lab = 4546.80 * + 0.64 * oc3_eth1lab (t-1) + 0.03 oc3_eth3lab (t-1) Oc3_eth3lab = - 1565.27 + 1.24 oc3_eth1lab (t-1) – 0.12 oc3_eth3lab (t-1)
oc3_eth1cap oc3_eth3cap,	Oc3_eth1cap = 80.42 + 0.53 oc3_eth1cap (t-1) + 0.14 * oc3_eth3cap (t-1) Oc3_eth3cap = 1657.60 ** - 4.40 oc3_eth1cap (t-1) + 0.51 oc3_eth3cap (t-1)
oc3_eth1lab oc3_eth4lab	Oc3_eth1lab = 4729.1 * + 0.35 ** oc3_eth1lab (t-1) + 0.27 oc3_eth4lab (t-1) Oc3_eth4lab = 5102.60 * + 0.87 ** oc3_eth1lab (t-1) – 0.19 oc3_eth4lab (t-1)
oc3_eth1cap oc3_eth4cap	Oc3_eth1cap = -82.38 + 1.07 * oc3_eth1cap (t-1) + 0.43 * oc3_eth4cap (t-1) Oc3_eth4cap = 272.02 – 0.74 oc3_eth1cap (t-1) + 0.56 ** oc3_eth4cap (t-1)
oc3_eth1lab oc3_eth5lab	Oc3_eth1lab = 4507.59 * + 0.61 * oc3_eth1lab (t-1) + 0.05 oc3_eth5lab (t-1) Oc3_eth5lab = 3238.48 + 0.86 oc3_eth1lab (t-1) + 0.01 oc3_eth5lab (t-1)
oc3_eth1cap oc3_eth5cap	Oc3_eth1cap = -177.64 ** + 1.41 * oc3_eth1cap (t-1) + 0.09 * oc3_eth5cap Oc3_eth5cap = 5136.56 * - 13.31 * oc3_eth1cap (t-1) – 0.81 * oc3_eth5cap (t-1)
oc1_eth1labm oc1_eth1labf	Oc1_eth1labm= 20963.64 * + 0.49 oc1_eth1labm (t-1) + 0.11 oc1_eth1labf (t-1) Oc1_eth1labf = 10238.10 * + 0.35 oc1_eth1labm (t-1) + 0.18 oc1_eth1labf (t-1)
oc1_eth1capm oc1_eth1capf	Oc1_eth1capm = 2061.00 * + 0.49 oc1_eth1capm (t-1) – 0.75 oc1_eth1capf (t-1) Oc1_eth1capf = 1544.66 * + 0.38 oc1_eth1capm (t-1) – 0.58 oc1_eth1capf (t-1)
oc1_eth2labm oc1_eth2labf	Oc1_eth2labm = 29158.30 * - 1.24 * oc1_eth2labm (t-1) + 2.20 * oc1_eth2labf (t-1) Oc1_eth2labf= 20982.13 * + 0.06 oc1_eth2labm (t-1) + 0.28 oc1_eth2labf (t-1)
Oc1_eth2capm oc1_eth2capf	Oc1_eth2capm = -470.276 + 1.89 oc1_eth2capm (t-1) + 0.33 oc1_eth2capf (t-1) Oc1_eth2capf = 4931.22 * - 6.76 * oc1_eth2capm (t-1) – 1.34* oc1_eth2capf (t-1)
oc1_eth3labm oc1_eth3labf	Oc1_eth3labm = 2985.32 – 1.62 oc1_eth3labm (t-1) + 3.39 oc1_eth3labf (t-1) Oc1_eth3labf = 5261.30 – 0.82 oc1_eth3labm (t-1) + 1.96 oc1_eth3labf (t-1)
oc1_eth3capm oc1_eth3capf	Oc1_eth3capm = 628.13 * - 3.06 * oc1_eth3capm (t-1) + 3.40 * oc1_eth3capf (t-1) Oc1_eth3capf = 949.93 * - 2.13 * oc1_eth3capm (t-1) + 2.11 * oc1_eth3capf (t-1)
oc1_eth4labm oc1_eth4labf	Oc1_eth4labm = 12806.39 – 1.10 oc1_eth4labm (t-1) + 2.12 oc1_eth4labf (t-1) Oc1_eth4labf = 11420.51 ** - 0.40 oc1_eth4labm (t-1) + 1.13 oc1_eth4labf (t-1)
oc1_eth4capm oc1_eth4capf	Oc1_eth4capm = 340.23 * - 0.32 oc1_eth4capm (t-1) + 0.10 * oc1_eth4capf (t-1) Oc1_eth4capf = 1447.46 – 2.50 oc1_eth4capm (t-1) + 0.07 oc1_eth4capf (t-1)
oc1_eth5labm oc1_eth5labf	Oc1_eth5labm = 20057.10 * + 0.35 oc1_eth5labm (t-1) + 0.31 oc1_eth5labf (t-1) Oc1_eth5labf = 7956.40 ** + 0.67 * oc1_eth5labm (t-1) – 0.01 oc1_eth5labf (t-1)
oc1_eth5capm oc1_eth5capf	Oc1_eth5capm = 2079.48 * - 0.01 oc1_eth5capm (t-1) -0.04 oc1_eth5capf (t-1) Oc1_eth5capf = - 4107.59 + 7.17 * oc1_eth5capm (t-1) – 0.04 oc1_eth5capf (t-1)
oc1_eth1labm oc1_eth2labm	Oc1_eth1labm = 59769.09 * - 0.51 oc1_eth1labm (t-1) + 0.23 oc1_eth2labm (t-1) Oc1_eth2labm =40094.53 – 0.15 oc1_eth1labm (t-1) + 0.28 oc1_eth2labm (t-1)

oc1_eth1labf oc1_eth2labf	Oc1_eth1labf = 40069.23* - 0.59 * oc1_eth1labf (t-1) + 0.32 * oc1_eth2labf (t-1) Oc1_eth2labf = -10374.76 * + 1.39 * oc1_eth1labf (t-1) – 0.01 oc1_eth2labf (t-1)
oc1_eth1capm oc1_eth2capm	Oc1_eth1capm= 2284.06 * -0.33 oc1_eth1capm (t-1) + 0.92 ** oc1_eth2capm (t-1) Oc1_eth2capm= -1283.40 + 0.68 oc1_eth1capm (t-1) + 1.50 oc1_eth2capm (t-1)
oc1_eth1capf oc1_eth2capf	Oc1_eth1capf = 2151.60* - 0.43** oc1_eth1capf (t-1) – 0.01 oc1_eth2capf (t-1) Oc1_eth2capf = -135.38 + 0.78 oc1_eth1capf (t-1) – 0.06 oc1_eth2capf (t-1)
oc1_eth1labm oc1_eth3labm	Oc1_eth1labm = 22521.20 * + 0.48* oc1_eth1labm (t-1) + 0.08 oc1_eth3labm (t-1) Oc1_eth3labm= -14833.37 +0.80 * oc1_eth1labm (t-1) + 0.53 ** oc1_eth3labm (t-1)
oc1_eth1labf oc1_eth3labf	Oc1_eth1labf = 11468.63* + 0.65* oc1_eth1labf (t-1) +0.01 oc1_eth3labf (t-1) Oc1_eth3labf= -10236.16 +0.99 * oc1_eth1labf (t-1) + 0.36 oc1_eth3labf (t-1)
oc1_eth1capm oc1_eth3capm	Oc1_eth1capm = 1384.39* + 0.67 oc1_eth1capm (t-1) – 0.84 oc1_eth3capm (t-1) Oc1_eth3capm = -871.14 + 2.27* oc1_eth1capm (t-1) – 2.65* oc1_eth3capm (t-1)
oc1_eth1capf oc1_eth3capf	Oc1_eth1capf = 2064.74* - 0.91 oc1_eth1capf (t-1) + 0.73 oc1_eth3capf (t-1) Oc1_eth3capf = 1675.15 – 1.23 oc1_eth1capf (t-1) + 1.22 oc1_eth3capf (t-1)
oc1_eth1labm oc1_eth4labm	Oc1_eth1labm = 22224.80* + 0.49* oc1_eth1labm (t-1) + 0.05 oc1_eth4labm (t-1) Oc1_eth4labm = -22601.17 + 1.58* oc1_eth1labm (t-1) -0.24 oc1_eth4labm (t-1)
oc1_eth1labf oc1_eth4labf	Oc1_eth1labf = 10773.83* + 0.71* oc1_eth1labf (t-1) – 0.02 oc1_eth4labf (t-1) Oc1_eth4labf = -12761.54 + 1.75* oc1_eth1labf (t-1) – 0.24 oc1_eth4labf (t-1)
oc1_eth1capm oc1_eth4capm	Oc1_eth1capm = 1802.38* + 0.08 oc1_eth1capm (t-1) – 0.12 oc1_eth4capm (t-1) Oc1_eth4capm = 470.73* - 0.02 oc1_eth1capm (t-1) – 0.42 oc1_eth4capm (t-1)
oc1_eth1capf oc1_eth4capf	Oc1_eth1capf = 1511.00* - 0.07 oc1_eth1capf (t-1) + 0.02 oc1_eth4capf (t-1) Oc1_eth4capf = -1224.05 + 1.39 oc1_eth1capf (t-1) + 0.03 oc1_eth4capf (t-1)
oc1_eth1labm oc1_eth5labm	Oc1_eth1labm = 20792.27* + 0.49* oc1_eth1labm (t-1) + 0.08 oc1_eth5labm (t-1) Oc1_eth5labm = 14664.95** + 1.26 oc1_eth1labm (t-1) – 0.59 oc1_eth5labm (t-1)
oc1_eth1labf oc1_eth5labf	Oc1_eth1labf = 10310.77* + 0.82* oc1_eth1labf (t-1) – 0.10 oc1_eth5labf (t-1) Oc1_eth5labf = 5928.79 + 1.50* oc1_eth1labf (t-1) – 0.43 oc1_eth5labf (t-1)
oc1_eth1capm oc1_eth5capm	Oc1_eth1capm = 1759.01* +0.11 oc1_eth1capm (t-1) – 0.03 oc1_eth5capm (t-1) Oc1_eth5capm = 3089.461 – 0.87 oc1_eth1capm (t-1) + 0.24 oc1_eth5capm (t-1)
oc1_eth1capf oc1_eth5capf	Oc1_eth1capf = 905.25 + 0.33 o1_eth1capf (t-1) + 0.01** oc1_eth5capf (t-1) Oc1_eth5capf = 31178.53 -17.43 oc1_eth1capf (t-1) – 0.40 oc1_eth5capf (t-1)
oc2_eth1labm oc2_eth1labf	Oc2_eth1labm = 10166.29* + 0.49* oc2_eth1labm (t-1) + 0.20 oc2_eth1labf (t-1) Oc2_eth1labf = 3358.98* + 0.42* oc2_eth1labm (t-1) + 0.19**oc2_eth1labf (t-1)
oc2_eth1capm oc2_eth1capf	Oc2_eth1capm = 232.94 – 3.25* oc2_eth1capm (t-1) + 3.53 oc2_eth1capf (t-1) Oc2_eth1capf = 331.23 -2.04 oc2_eth1capm (t-1) +2.45** oc2_eth1capf (t-1)
oc2_eth2labm oc2_eth2labf	Oc2_eth2labm = 21532.11* - 0.78* oc2_eth2labm (t-1) + 0.94* oc2_eth2labf (t-1) Oc2_eth2labf = 15485.36* - 0.05 oc2_eth1labm (t-1) + 0.22 oc2_eth2labf (t-1)
oc2_eth2capm oc2_eth2capf	Oc2_eth2capm = 479.43 + 0.04 oc2_eth2capm (t-1) – 0.13 oc2_eth2capf (t-1) Oc2_eth2capf = -27.63 + 1.29 oc2_eth2capm (t-1) – 0.46 oc2_eth2capf (t-1)
oc2_eth3labm oc2_eth3labf	Oc2_eth3labm = 3044.56 + 0.43 oc2_eth3labm (t-1) + 0.66 oc2_eth3labf (t-1) Oc2_eth3labf = 5099.53* + 0.44 oc2_eth3labm (t-1) + 0.16 oc2_eth3labf (t-1)
oc2_eth3capm oc2_eth3capf	Oc2_eth3capm = 654.32 – 2.94 oc2_eth3capm (t-1) + 3.08 oc2_eth3capf (t-1) Oc2_eth3capf = 598.36 – 6.40 oc2_eth3capm (t-1) + 7.06 oc2_eth3capf (t-1)
oc2_eth4labm oc2_eth4labf	Oc2_eth4labm = -189.08 -1.45* oc2_eth4labm (t-1) + 3.01 oc2_eth4labf (t-1) Oc2_eth4labf = 3995.19* - 1.22* oc2_eth4labm (t-1) + 2.23* oc2_eth4labf (t-1)
oc2_eth4capm oc2_eth4capf	Oc2_eth4capm = 201.31* + 0.20 oc2_eth4capm (t-1) – 0.43 oc2_eth4capf (t-1) Oc2_eth4capf = 291.26* - 0.53 oc2_eth4capm (t-1) – 0.12 oc2_eth4capf (t-1)
oc2_eth5labm oc2_eth5labf	Oc2_eth5labm = 16895.14* - 0.39 oc2_eth5labm (t-1) + 0.63 oc2_eth5labf (t-1) Oc2_eth5labf = 5208.00 + 0.83 oc2_eth5labm (t-1) – 0.20 oc2_eth5labf (t-1)

oc2_eth5capm oc2_eth5capf	Oc2_eth5capm = 523.75*+ 0.01 oc2_eth5capm (t-1) – 0.49 oc2_eth5capf (t-1) Oc2_eth5capf = 320.84 + 0.63* oc2_eth5capm (t-1) – 0.33 oc2_eth5capf (t-1)
oc2_eth1labm oc2_eth2labm	Oc2_eth1labm = -5298.07* + 1.48* oc2_eth1labm (t-1) – 0.25* oc2_eth2labm (t-1) Oc2_eth2labm = -21014.88* + 2.49* oc2_eth1labm (t-1) – 0.78* oc2_eth2labm (t-1)
oc2_eth1labf oc2_eth2labf	Oc2_eth1labf = 6212.70* + 0.64* oc2_eth1labf (t-1) + 0.01 oc2_eth2labf (t-1) Oc2_eth2labf = -45245.52* + 6.87* oc2_eth1labf (t-1) – 2.36** oc2_eth2labf (t-1)
oc2_eth1capm oc2_eth2capm	Oc2_eth1capm = 1122.53* - 0.56* oc2_eth1capm (t-1) + 0.04* oc2_eth2capm (t-1) Oc2_eth2capm = 1624.70* - 1.84* oc2_eth1capm (t-1) + 0.24* oc2_eth2capm (t-1)
oc2_eth1capf oc2_eth2capf	Oc2_eth1capf = 1173.32* - 0.38 oc2_eth1capf (t-1) – 0.05 oc2_eth2capf (t-1) Oc2_eth2capf = 3869.86* - 4.77*oc2_eth1capf (t-1) + 0.60 oc2_eth2capf (t-1)
oc2_eth1labm oc2_eth3labm	Oc2_eth1labm = 10287.39* + 0.59* oc2_eth1labm (t-1) + 0.04 oc2_eth3labm (t-1) Oc2_eth3labm = -4987.44 + 0.82** oc2_eth1labm (t-1) + 0.24 oc2_eth3labm (t-1)
oc2_eth1labf oc2_eth3labf	Oc2_eth1labf = 4417.13* + 0.81* oc2_eth1labf (t-1) – 0.04 oc2_eth3labf (t-1) Oc2_eth3labf = -1051.88 + 1.06** oc2_eth2_eth1labf (t-1) – 0.05 oc2_eth3labf (t-1)
oc2_eth1capm oc2_eth3capm	Oc2_eth1capm = 434.34 ** + 0.03 oc2_eth1capm (t-1) + 0.40 oc2_eth3capm (t-1) Oc2_eth3capm = 428.85 + 0.19 oc2_eth1capm (t-1) +0.27 oc2_eth3capm (t-1)
oc2_eth1capf oc2_eth3capf	Oc2_eth1capf = 291.60 +0.33 oc2_eth1capf (t-1) +0.44 oc2_eth3capf (t-1) Oc2_eth3capf = -579.31 + 1.09 oc2_eth1capf (t-1) + 1.27 oc2_eth3capf (t-1)
oc2_eth1labm oc2_eth4labm	Oc2_eth1labm = 9596.50* + 0.67* oc2_eth1labm (t-1) – 0.03 oc2_eth4labm (t-1) Oc2_eth4labm = -2805.14 +1.22 oc2_eth1labm (t-1) – 0.18 oc2_eth4labm (t-1)
oc2_eth1labf oc2_eth4labf	Oc2_eth1labf = 4685.17* + 0.68* oc2_eth1labf (t-1) + 0.06 oc2_eth4labf (t-1) Oc2_eth4labf = 8594.17* - 0.05 oc2_eth1labf (t-1) + 0.56 oc2_eth4labf (t-1)
oc2_eth1capm oc2_eth4capm	Oc2_eth1capm = 689.19* + 0.07 oc2_eth1capm (t-1) - 0.26 oc2_eth4capm (t-1) Oc2_eth4capm = 249.89 – 0.05 oc2_eth1capm (t-1) – 0.36 oc2_eth4capm (t-1)
oc2_eth1capf oc2_eth4capf	Oc2_eth1capf = 602.45* + 0.35 oc2_eth1capf (t-1) – 0.38 oc2_eth4capf (t-1) Oc2_eth4capf = 190.03 + 0.11 oc2_eth1capf (t-1)– 0.50 oc2_eth4capf (t-1)
oc2_eth1labm oc2_eth5labm	Oc2_eth1labm = 9605.86* + 0.57* oc2_eth1labm (t-1) + 0.09 oc2_eth5labm (t-1) Oc2_eth5labm = 14703.09* + 0.42 oc2_eth1labm (t-1) – 0.22 oc2_eth5labm (t-1)
oc2_eth1labf oc2_eth5labf	Oc2_eth1labf = 4597.97* + 0.77* oc2_eth1labf (t-1) – 0.01 oc2_eth5labf (t-1) Oc2_eth5labf = 5307.24 + 1.53* oc2_eth1labf (t-1) -0.50 oc2_eth5labf (t-1)
oc2_eth1capm oc2_eth5capm	Oc2_eth1capm = 667.42* + 0.09 oc2_eth1capm (t-1) - 0.10 oc2_eth5capm (t-1) Oc2_eth5capm = 96.57 + 0.26 oc2_eth1capm (t-1) + 0.04 oc2_eth5capm (t-1)
oc2_eth1capf oc2_eth5capf	Oc2_eth1capf = 503.87* + 0.40 oc2_eth1capf (t-1) – 0.01 oc2_eth5capf (t-1) Oc2_eth5capf = 492.21 + 0.12 oc2_ eth1caof (t-1) - 0.34 oc2_eth5capf (t-1)
oc3_eth1labm oc3_eth1labf	Oc3_eth1labm = 6821.43* + 0.59* oc3_eth1labm (t-1) – 0.01 oc3_eth1labf (t-1) Oc3_eth1labf = -1914.98* + 0.66* oc3_eth1labm (t-1) + 0.48 oc3_eth1labf (t-1)
oc3_eth1capm oc3_eth1capf	Oc3_eth1capm = 767.43* - 0.02 oc3_eth1capm (t-1) – 1.33** oc3_eth1capf (t-1) Oc3_eth1capf = 143.97 + 0.43 oc3_eth1capm (t-1) -0.09 oc3_eth1capf (t-1)
oc3_eth2labm oc3_eth2labf	Oc3_eth2labm = 20029.60* - 0.15 oc3_eth2labm (t-1) – 0.61 oc3_eth2labf (t-1) Oc3_eth2labf = 7313.60** + 0.43 oc3_eth2labm (t-1) – 0.63* oc3_eth2labf (t-1)
oc3_eth2capm oc3_eth2capf	Oc3_eth2capm = 92.78* -1.87 oc3_eth2capm (t-1) + 1.81 oc3_eth2capf (t-1) Oc3_eth2capf = 74.13* - 1.58* oc3_eth2capm (t-1) + 1.55* oc3_eth2capf (t-1)
oc3_eth3labm oc3_eth3labf	Oc3_eth3labm = 8230.04* + 0.55 oc3_eth3labm (t-1) – 0.25 oc3_eth3labf (t-1) Oc3_eth3labf = 6814.62* + 0.27 oc3_eth3labm (t-1) – 0.32 oc3_eth3labf (t-1)
oc3_eth3capm oc3_eth3capf	Oc3_eth3capm = 182.57 + 0.95 oc3_eth3capm (t-1) – 0.45 oc3_eth3capf (t-1) Oc3_eth3capf = 358.21** + 0.33 oc3_eth3capm (t-1) – 0.12 oc3_eth3capf (t-1)

oc3_eth4labm oc3_eth4labf	Oc3_eth4labm = 5990.68* + 0.75* oc3_eth4labm (t-1) – 0.10 oc3_eth4labf (t-1) Oc3_eth4labf = 8882.42* - 0.15 oc3_eth4labm (t-1) + 0.23 oc3_eth4labf (t-1)
oc3_eth4capm oc3_eth4capf	Oc3_eth4capm = 30.09 + 0.19 oc3_eth4capm (t-1) + 0.33 oc3_eth4capf (t-1) Oc3_eth4capf = 28.31 +0.42 oc3_eth4capm (t-1) + 0.17 oc3_eth4capf (t-1)
oc3_eth5labm oc3_eth5labf	Oc3_eth5labm = 9067.46* + 0.45 oc3_eth5labm (t-1) – 0.06 oc3_eth5labf (t-1) Oc3_eth5labf = 3165.42 + 1.12* oc3_eth5labm (t-1) – 0.91 oc3_eth5labf (t-1)
oc3_eth5capm oc3_eth5capf	Oc3_eth5capm = 912.19* - 0.29 oc3_eth5capm (t-1) – 1.88 oc3_eth5capf (t-1) Oc3_eth5capf = 325.53* - 0.13 oc3_eth5capm (t-1) – 0.45 oc3_eth5capf (t-1)
oc3_eth1labm oc3_eth2labm	Oc3_eth1labm = 11957.86* + 0.38 oc3_eth1labm (t-1) – 0.14 oc3_eth2labm (t-1) Oc3_eth2labm = -2452.99 + 1.47 oc3_eth1labm (t-1) – 0.54 oc3_eth2labm (t-1)
oc3_eth1labf oc3_eth2labf	Oc3_eth1labf = 4982.23* + 0.54* oc3_eth1labf (t-1) – 0.10* oc3_eth2labf (t-1) Oc3_eth2labf = 1750.18* + 1.24* oc3_eth1labf (t-1) – 0.46* oc3_eth2labf (t-1)
oc3_eth1capm oc3_eth2capm	Oc3_eth1capm = 169.03 + 0.39 oc3_eth1capm (t-1) + 0.14 oc3_eth2capm (t-1) Oc3_eth2capm = -205.09* + 0.80* oc3_eth1capm (t-1) – 0.23 oc3_eth2capm (t-1)
oc3_eth1capf oc3_eth2capf	Oc3_eth1capf = 673.45* - 1.19** oc3_eth1capf (t-1) – 0.09 oc3_eth2capf (t-1) Oc3_eth2capf = 300.68* - 0.79** oc3_eth1capf (t-1) – 0.05 oc3_eth2capf (t-1)
oc3_eth1labm oc3_eth3labm	Oc3_eth1labm = 8388.45* + 0.42* oc3_eth1labm (t-1) + 0.09* oc3_eth3labm (t-1) Oc3_eth3labm = -13562.34 + 2.00* oc3_eth1labm (t-1) – 0.18 oc3_eth3labm (t-1)
oc3_eth1labf oc3_eth3labf	Oc3_eth1labf = 2293.84* + 0.76* oc3_eth1labf (t-1) + 0.03 oc3_eth3labf (t-1) Oc3_eth3labf = 5384.55 + 0.42 oc3_eth1labf (t-1) – 0.11 oc3_eth3labf (t-1)
oc3_eth1capm oc3_eth3capm	Oc3_ eth1capm = 247.28* + 0.03 oc3_eth1capm (t-1) + 0.25** oc3_eth3capm (t-1) Oc3_eth3capm = 227.15 – 0.33 oc3_eth1capm (t-1) +0.66 oc3_eth3capm (t-1)
oc3_eth1capf oc3_eth3capf	Oc3_eth1capf = 556.09* - 0.79 oc3_eth1capf (t-1)– 0.09 oc3_eth3capf (t-1) Oc3_eth3capf = 1304.69** -2.79 oc3_eth1capf (t-1)– 0.07 oc3_eth3capf (t-1)
oc3_eth1labm oc3_eth4labm	Oc3_eth1labm = 7971.46* + 0.42* oc3_eth1labm (t-1) + 0.11 oc3_eth4labm (t-1) Oc3_eth4labm = 1114.84 + 0.52 oc3_eth1labm (t-1) + 0.49 oc3_eth4labm (t-1)
oc3_eth1labf oc3_eth4labf.	Oc3_eth1labf = 1105.46 + 0.73* oc3_eth1labf (t-1) + 0.18* oc3_eth4labf (t-1) Oc3_eth4labf = 9798.80* - 0.51* oc3_eth1labf(t-1) + 0.30 oc3_eth4labf (t-1)
oc3_eth1capm oc3_eth4capm	Oc3_eth1capm = 153.17 + 0.43** oc3_eth1capm (t-1) + 0.50* oc3_eth4capm (t-1) Oc3_eth4capm = 211.65 – 0.48 oc3_eth1capm (t-1) + 0.53 oc3_eth4capm (t-1)
oc3_eth1capf oc3_eth4capf	Oc3_eth1capf = 962.20* -2.02* oc3_eth1capf (t-1) -0.75* oc3_eth4capf (t-1) Oc3_eth4capf = -444.74 + 1.39 oc3_eth1capf (t-1) + 1.09** oc3_eth4capf (t-1)
oc3_eth1labm oc3_eth5labm	Oc3_eth1labm = 7414.87* + 0.46* oc3_eth1labm (t-1) + 0.10** oc3_eth5labm (t-1) Oc3_eth5labm = 4731.00 + 0.54 oc3_eth1labm (t-1) + 0.15 oc3_eth5labm (t-1)
oc3_eth1labf oc3_eth5labf,	Oc3_eth1labf = 2361.86* + 0.72* oc3_eth1labf (t-1) + 0.05 oc3_eth5labf (t-1) Oc3_eth5labf = 2432.31 + 1.53* oc3_eth1labf (t-1) – 0.39 oc3_eth5labf (t-1)
oc3_eth1capm oc3_eth5capm	Oc3_eth1capm =142.91 + 0.54** oc3_eth1capm (t-1) + 0.05** oc3_eth5capm (t-1) Oc3_eth5capm = 2297.60 - 4.29 oc3_eth1capm (t-1) – 0.27 oc3_eth5capm (t-1)
oc3_eth1capf oc3_eth5capf	Oc3_eth1capf = 438.00* -0.65* oc3_eth1capf (t-1) + 0.30* oc3_eth5capf (t-1) Oc3_eth5capf = -760.25 + 3.47* oc3_eth1capf (t-1) – 0.48 oc3_eth5capf (t-1)

Table 2. VARs of Capital and Labour earnings by occupation, gender and citizenship, France (7 Waves 1978-2010), Author's calculation from LIS data (2020)

Variables names	oc1: managers and professionals (ISCO 1 & 2) oc2: other skilled workers (ISCO 3-8, 10) oc3: labourers/elementary (ISCO 9) lab: average labour income lap: average capital income m: male population f: female population cit1: French citizenship cit2: French naturalized citizens cit3: non-citizen status cit4: African citizenship holder cit5: norther African citizenship holder cit6 Europe citizenship holder cit7 others ** significance ≤0.05 * significance between 0.10 and 0.05
Variables	**VARs**
oc1_mlab oc1_flab	Oc1_mlab = 10957.93 * -0.23 oc1_mlab (t-1) + 1.57 * oc1_flab (t-1) Oc1_flab = 4123.91 * - 0.08 oc1_mlab (t-1) + 1.12 * oc1_flab (t-1)
oc1_mcap oc1_fcap	Oc1_mcap = 1058.91 * - 1.15 oc1_mcap (t-1) + 1.92 * oc1_fcap (t-1) Oc1_fcap = 949.85 * - 1.00 oc1_mcap (t-1) + 1.68 ** oc1_fcap (t-1)
oc1_cit1lab oc1_cit2lab	Oc1_cit1lab = -8355.29 * + 2.38 * oc1_cit1lab (t-1) -1.12 * oc1_cit2lab (t-1) Oc1_cit2lab = -12208.73 * + 2.54 * oc1_cit1lab (t-1) -1.30 * oc1_cit2lab (t-1)
oc1_cit1cap oc1_cit2cap	Oc1_cit1cap = 6732.47 * -1.97 * oc1_cit1cap (t-1) +0.49 * oc1_cit2cap (t-1) Oc1_cit2cap = 12414.87 * - 2.78 * oc1_cit1cap (t-1) -1.85 * oc1_cit2cap (t-1)
oc1_cit1lab oc1_cit3lab	Oc1_cit1lab= 7407.12 * +0.96 * oc1_cit1lab (t-1) -0.08 * oc1_cit3lab (t-1) Oc1_cit3lab = 28943.92* -0.05 * oc1_cit1lab (t-1) – 0.43* oc1_cit3lab (t-1)
oc1_cit1cap oc1_cit3cap	insufficient observations
oc1_cit1lab oc1_cit4lab	Oc1_cit1lab = 5027.05 * + 0.91 * oc1_cit1lab (t-1) + 0.11 * oc1_cit4lab (t-1) Oc1_cit4lab = -6861.91 + 0.95 * oc1_cit1lab (t-1) - 0.59 * oc1_cit4lab (t-1)
oc1_cit1cap oc1_cit4cap	Oc1_cit1cap = 1084.98 * + 0.42 * oc1_cit1cap(t-1) + 0.76 * oc1_cit4cap(t-1) Oc1_cit4cap = 1451.97 * - 0.30 * oc1_cit1cap (t-1) – 0.54 * oc1_cit4cap(t-1)
oc1_cit1lab oc1_cit5lab	Oc1_cit1lab = 6963.37 * + 0.88 * oc1_cit1lab(t-1) + 0.01 oc1_cit5lab(t-1) Oc1_cit5lab = -825.88 +0.59 * oc1_cit1lab(t-1) – 0.13 oc1_cit5lab(t-1)
oc1_cit1cap oc1_cit5cap	Oc1_cit1cap = 4648.04 * - 0.48 * oc1_cit1cap (t-1) – 7.97 * oc1_cit5cap(t-1) Oc1_cit5cap = -2122.89 * + 7.96 * oc1_cit1cap(t-1) +10.12 * oc1_cit5cap(t-1)
oc1_cit1lab oc1_cit6lab	Oc1_cit1lab = 7543.65 * + 0.82 * oc1_cit1lab (t-1) + 0.07 oc1_cit6lab(t-1) Oc1_cit6lab = -7046.77 +1.10 * oc1_cit1lab (t-1) – 0.19 oc1_cit6lab(t-1)
oc1_cit1cap oc1_cit6cap	Oc1_cit1cap = 763.78 * +0.92 * oc1_cit1cap (t-1) -0.41 * oc1_cit6cap(t-1) Oc1_cit6cap = -284.33 +0.90 * oc1_cit1cap(t-1) – 0.24 oc1_cit6cap(t-1)
oc1_cit1lab oc1_cit7lab	Oc1_cit1lab = -14621.13 * + 1.18 * oc1_cit1lab (t-1) + 0.93 oc1_cit7lab(t-1) Oc1_cit7lab = 79191.78 * -1.24 * oc1_cit1lab(t-1) – 2.50 * oc1_cit7lab(t-1)
oc1_cit1cap oc1_cit7cap	insufficient observations
oc2_mlab oc2_flab	Oc2_mlab = 4463.35 * + 0.41 oc2_mlab(t-1) + 0.58 oc2_flab(t-1) Oc2_flab = 2649.01 * + 0.55 ** oc2_mlab (t-1) +0.18 oc2_flab(t-1)
oc2_mcap oc2_fcap,	Oc2_mcap = 233.10 * - 2.21 ** oc2_mcap (t-1) +2.60 * oc2_fcap(t-1) Oc2_fcap = 301.11 * - 2.64 oc2_mcap (t-1) +3.02 ** oc2_fcap(t-1)
oc2_cit1lab oc2_cit2lab	Oc2_cit1lab = -2299.50 * - 4.46 * oc2_cit1lab(t-1) + 6.31 * oc2_cit2lab(t-1) Oc2_cit2lab = 2662.28 * - 0.23 * oc2_cit1lab(t-1) + 1.16 * oc2_cit2lab(t-1)
oc2_cit1cap oc2_cit2cap	Oc2_cit1cap= 4507.12 * - 2.89 * oc2_cit1cap(t-1) – 0.86 * oc2_cit2cap(t-1) Oc2_cit2cap = 223.28 * + 0.22 * oc2_cit1cap(t-1) + 0.24 * oc2_cit2cap(t-1)

oc2_cit1lab oc2_cit3lab	Oc2_cit1lab = 5314.08 * + 0.65 * oc2_cit1ab (t-1) + 0.16 * oc2_cit3lab (t-1) Oc2_cit3lab = -1203.08 * + 1.47 * oc2_cit1lab(t-1) – 0.69 * oc2_cit3lab(t-1)
oc2_cit1cap oc2_cit3cap	note: oc2_cit3cap dropped because of collinearity cannot fit a model with 1 lags on the current sample
oc2_cit1lab oc2_cit4lab	Oc2_cit1lab = 2513.95 + 0.96 * oc2_cit1lab(t-1) – 0.03 oc2_cit4lab(t-1) Oc2_cit4lab = 8809.76 + 0.17 oc2_cit1lab(t-1) – 0.14 oc2_cit4lab(t-1)
oc2_cit1cap oc2_cit4cap	Oc2_cit1cap = 1509.01 * - 0.63 * oc2_cit1cap (t-1) + 0.42 * oc2_cit4cap(t-1) Oc2_cit4cap = 2000.28 * - 1.73 * oc2_cit1cap (t-1) – 0.47 * oc2_cit4cap(t-1)
oc2_cit1lab oc2_cit5lab	Oc2_cit1lab = 4838.81 * + 0.78 * oc2_cit1lab(t-1) – 0.01 oc2_cit5lab(t-1) Oc2_cit5lab = 5555.39 + 0.50 oc2_cit1lab(t-1) – 0.20 oc2_cit5lab(t-1)
oc2_cit1cap oc2_cit5cap	Oc2_cit1cap = 285.74 ** + 0.59 * oc2_cit1cap (t-1) + 0.50 oc2_cit5cap(t-1) Oc2_cit5cap = 118.19 + 0.20 oc2_cit1cap(t-1) – 0.31 oc2_cit5cap(t-1)
oc2_cit1lab oc2_cit6lab	Oc2_cit1lab = 4951.24 * + 0.71 * oc2_cit1lab(t-1) + 0.07 oc2_cit6lab(t-1) Oc2_cit6lab = 2088.77 +0.79 oc2_cit1lab (t-1) – 0.04 oc2_cit6lab(t-1)
oc2_cit1cap oc2_cit6cap	Oc2_cit1cap = 292.98 ** +1.08 ** oc2_cit1cap (t-1) – 0.41 oc2_cit6cap(t-1) Oc2_cit6cap =255.55 +1.80 * oc2_cit1cap (t-1) – 1.34 * oc2_cit6cap(t-1)
oc2_cit1lab oc2_cit7lab	Oc2_cit1lab = 12132.36 * -0.36 * oc2_cit1lab(t-1) + 0.48* oc2_cit7lab(t-1) Oc2_cit7lab = -31863.15 * + 6.81 * oc2_cit1lab(t-1) – 3.15* oc2_cit7lab(t-1)
oc2_cit1cap oc2_cit7cap	Oc2_cit1cap = -19688.44 * + 143.47 * oc2_cit1cap(t-1) – 504.64 * oc2_cit7cap(t-1) Oc2_cit7cap = -5440.04 *+ 39.26 * oc2_cit1cap (t-1) – 137.15 * oc2_cit7cap(t-1)
oc3_mlab oc3_flab	Oc3_mlab = 6636.90 * -0.50 oc3_mlab (t-1) +1.20 oc3_flab(t-1) Oc3_flab = 4424.80 * - 0.39 oc3_mlab(t-1) + 1.06 oc3_flab (t-1)
oc3_mcap oc3_fcap	Oc3_mcap = 169.64 ** -2.54 oc3_mcap(t-1) + 3.19 ** oc3_fcap (t-1) Oc3_fcap = 172.83 * - 2.00 oc3_mcap(t-1) +2.68 ** oc3_fcap(t-1)
oc3_cit1lab oc3_cit2lab,	Oc3_cit1lab = -1601.95 * +0.08 * oc3_cit1lab(t-1) + 1.20 * oc3_cit2lab(t-1) Oc3_cit2lab = 1014.03 * + 0.09* oc3_cit1lab(t-1) + 0.93 oc3_cit2lab(t-1)
oc3_cit1cap oc3_cit2cap	Oc3_cit1cap = 940.38 * -2.37 * oc3_cit1cap(t-1) +2.55 * oc3_cit2cap (t-1) Oc3_cit2cap = 896.50 * - 2.48 oc3_cit1cap(t-1) + 2.22 * oc3_cit2cap(t-1)
oc3_cit1lab oc3_cit3lab,	Oc3_cit1lab = 4745.62 * + 0.84 * oc3_cit1lab (t-1) – 0.12 oc3_cit3lab(t-1) Oc3_cit3lab = -300.11 * + 1.49 * oc3_cit1lab(t-1) – 0.47 oc3_cit3lab(t-1)
oc3_cit1cap oc3_cit3cap	insufficient observations
oc3_cit1lab oc3_cit4lab	Oc3_cit1lab = 6848.13 + 0.30 oc3_cit1lab(t-1) + 0.13 oc3_cit4lab(t-1) Oc3_cit4lab = 9601.59 – 0.27 oc3_cit1lab(t-1) + 0.11 oc3_cit4lab(t-1)
oc3_cit1cap oc3_cit4cap	Oc3_cit1cap= 69.84 * + 0.75* oc3_cit1cap(t-1) + 0.82 * oc3_cit4cap (t-1) Oc3_cit4cap = 870.77* -1.13* oc3_cit1cap (t-1) – 0.96 * oc3_cit4cap (t-1)
oc3_cit1lab oc3_cit5lab	Oc3_cit1lab = 6123.54 * + 0.44 ** oc3_cit1lab(t-1) + 0.04 oc3_cit5lab(t-1) Oc3_cit5lab= 6025.53 + 0.01 oc3_cit1lab(t-1) +0.41 oc3_cit5lab(t-1)
oc3_cit1cap oc3_cit5cap,	Oc3_cit1cap = 18839.33 * - 24.06 * oc3_cit1cap(t-1) -97.78* oc3_cit5cap(t-1) Oc3_cit5cap = - 5869.07* + 8.20* oc3_cit1cap(t-1) + 29.99* oc3_cit5cap(t-1)
oc3_cit1lab oc3_cit6lab	Oc3_cit1lab = 6256.10 * + 0.07 oc3_cit1lab (t-1) + 0.43 oc3_cit6lab(t-1) Oc3_cit6lab = 5796.51 * + 0.58 oc3_cit1lab (t-1) – 0.14 oc3_cit6lab(t-1)
oc3_cit1cap oc3_cit6cap,	Oc3_cit1cap = 134.18 + 0.81 oc3_cit1cap (t-1) + 0.02 oc3_cit6cap (t-1) Oc3_cit6cap = 429.75 * - 0.70 oc3_cit1cap (t-1) + 0.58 oc3_cit6cap(t-1)

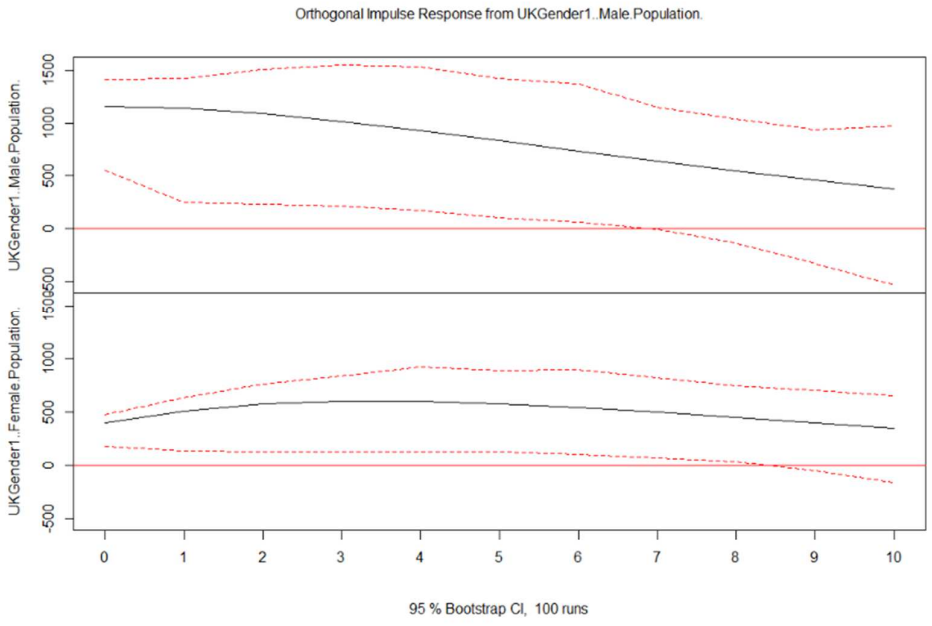
Table 3.VARs of Capital and Labour earnings by occupation, gender and birth, Italy (13 Waves 1986-2016), Author's calculation from LIS data (2020)

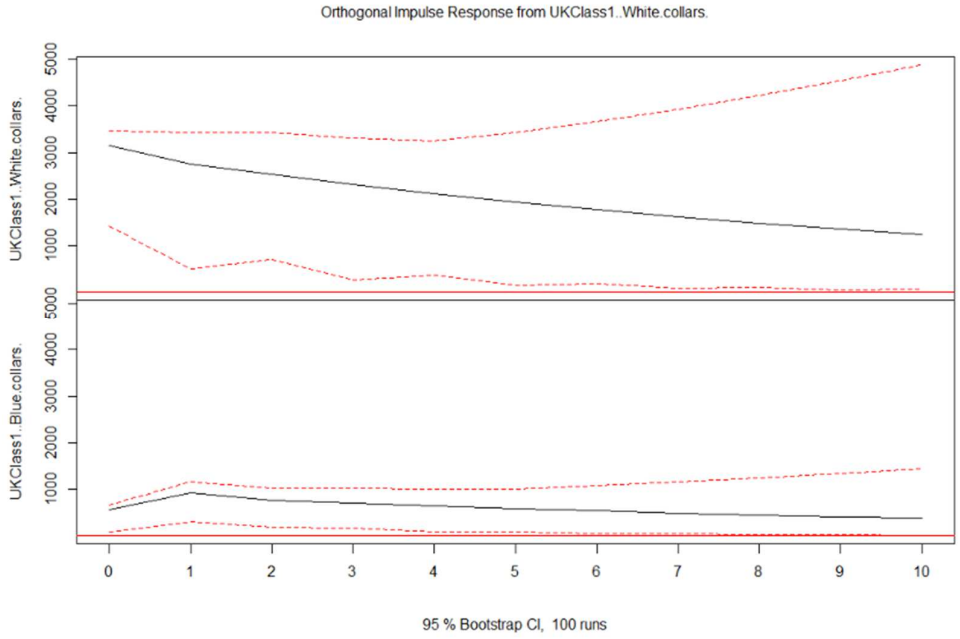
Variables names	oc1: blue-collar oc2: office worker and schoolteacher oc3: junior/middle manager and liberal professionalism oc4: senior manager and white-collars workers m: male f: female lab: labour income cap: capital Income in: born in the country out: born out the country ** significance ≤0.05 * significance between 0.10 and 0.05
Variables	**VARs**
Oc1_mlab oc1_flab	oc1_mlab =2672.60*+ 0.95* oc1_mlab(t-1) - 0.87 oc1_flab(t-1) oc1_flab = 2440.10* + 0.40** oc1_mlab(t-1) + 0.29 oc1_flab (t-1)
Oc1_mcap oc1_fcap	Oc1_mcap= 134.97 + 0.32*oc1_mcap(t-1) + 0.30 oc1_fcap (t-1) Oc1_fcap= 52.60+ 0.32* oc1_mcap(t-1) +0.57* oc1_fcap(t-1)
oc1_inlab oc1_outlab	oc1_inlab = -225.61 + 0.18 oc1_inlab (t-1) + 1.01 oc1_outlab (t-1) oc1_outlab = 1928.71 + 0.34 oc1_inlab(t-1) +0.55 oc1_outlab(t-1)
oc1_incap oc1_outcap	oc1_incap= 221.67 + 0.09 oc1_incap (t-1) +0.71 oc1_outcap (t-1) oc1_outcap= 36.21 + 0.34 oc1_incap(t-1) +0.27 oc1_outcap (t-1)
oc1_inmlab oc1_inflab	oc1_inmlab= 523.02 + 0.68 oc1_inmlab (t-1) + 0.52 oc1_inflab (t-1) oc1_inflab= 1977.95 + 0.25 oc1_inmlab (t-1) + 0.55 oc1_inflab (t-1)
oc1_inmcap oc1_infcap	oc1_inmcap = 105.60 + 1.20 oc1_inmcap * (t-1) -0.39 oc1_infcap (t-1) oc1_infcap= 18.37 + 0.94 ** oc1_inmcap (t-1) +0.10 oc1_infcap (t-1)
oc1_outmlab oc1_outflab	oc1_outmlab= 3220.58 ** + 1.20 * oc1_outmlab (t-1)-0.51 oc1_outflab (t-1) oc1_outflab= 1131.15 + 0.32 oc1_outmlab (t-1) +0.55 oc1_outflab(t-1)
oc1_outmcap oc1_outfcap	oc1_outmcap= 97.57 + 0.94*oc1_outmcap(t-1) -0.29 oc1_outfcap (t-1) oc1_outfcap=221.65 + 0.94 oc1_outmcap(t-1) - 0.29 oc1_outfcap (t-1)
oc2_mlab oc2_flab	oc2_mlab = 4097.44 ** + 0.08 oc1_mlab (t-1) + 0.80 oc2_flab(t-1) oc2_flab = 2384.25 - 0.21 oc2_mlab (t-1) +1.16**oc2_flab (t-1)
oc2_mcap oc2_fcap	oc2_mcap= 401.63 - 0.54 oc2_mcap (t-1) +1.06** oc2_fcap(t-1) oc2_fcap= 677.23 * - 1.17** oc2_mcap(t-1) +1.52* oc2_fcap(t-1)
oc2_inlab oc2_outlab	oc2_inlab= 824.04 + 0.27 oc2_inlab (t-1) +0.78 oc2_outlab (t-1) oc2_outlab=751.78 + 0.28 oc2_inlab (t-1) + 0.76 oc2_outlab (t-1)
oc2_incap oc2_outcap	oc2_incap = 471.22 + 0.48 oc2_incap (t-1) + 0.14 oc2_outcap (t-1) oc2_outcap = 664.14 + 0.53 oc2_incap (t-1) + 0.22 oc2_outcap (t-1)
oc2_inmlab oc2_inflab	oc2_inmlab = 3352.45 + 0.14 oc2_inmlab (t-1) + 0.78 oc2_inflab (t-1) oc2_inflab = 1569.96 - 0.15 oc2_inmlab (t-1) + 1.16 ** oc2_inflab (t-1)
oc2_inmcap oc2_infcap	oc2_inmcap = 150.27 - 1.56 *oc2_inmcap (t-1) + 2.17 * oc2_infcap (t-1) oc2_infcap = 205.35 - 2.34 * oc2_inmcap (t-1) + 2.92 * oc2_infcap (t-1)
oc2_outmlab oc2_outflab	oc2_outmlab = 3747.30 + 0.33 oc2_outmlab (t-1) + 0.55 oc2_outflab (t-1) oc2_outflab = 336.02 + 0.13 oc2_outmlab (t-1) + 0.94 * oc2_outflab (t-1)
oc2_outmcap oc2_outfcap	oc2_outmcap =402.02 + 0.36 oc2_outmcap (t-1) + 0.18 ** oc2_outfcap (t-1) oc2_outfcap = 2372.76 ** - 1.15 oc2_outmcap (t-1) + 0.29 oc2_outfcap (t-1)
oc3_mlab oc3_flab	oc3_mlab = 3146.20 + 0.92* oc3_mlab (t-1) + 0.15 oc3_flab (t-1) oc3_flab = 8114.84 * + 0.54 * oc3_mlab (t-1) + 0.03 oc3_flab (t-1)
oc3_mcap oc3_fcap	oc3_mcap = 969.30 ** + 1.19 * oc3_mcap (t-1) - 0.62 oc3_fcap (t-1) oc3_fcap = 966.40 + 1.02 oc3_mcap (t-1) -0.40 oc3_fcap (t-1)
oc3_inlab oc3_outlab,	oc3_inlab = 3201.03 + 0.94 * oc3_inlab (t-1) + 0.77 oc3_outlab (t-1) oc3_outlab = 20.52 + 1.48 * oc3_inlab (t-1) - 0.64 oc3_outlab (t-1)
oc3_incap oc3_outcap	oc3_incap = 1208.80 ** + 0.16 oc3_incap (t-1) + 0.33 oc3_outcap (t-1) oc3_outcap = 1701.65 ** - 0.67 oc3_incap (t-1) + 0.73 **oc3_outcap (t-1)

oc3_inmlab oc3_inflab	oc3_inmlab = 708.30 + 0.69 oc3_inmlab (t-1) + 0.57 oc3_inflab (t-1) oc3_inflab = 4497.57 + 0.30 oc3_inmlab (t-1) + 0.52 oc3_inflab (t-1)
oc3_inmcap oc3_infcap	oc3_inmcap = 942.33 + 1.30 * oc3_inmcap (t-1) - 0.71 oc3_infcap (t-1) oc3_infcap = 945.32 + 1.15 oc3_inmcap (t-1) - 0.50 oc3_infcap (t-1)
oc3_outmlab oc3_outflab	oc3_outmlab = -10533.33 + 0.57 oc3_outmlab (t-1) + 1.67 oc3_outflab (t-1) oc3_outflab = 10874.41 ** + 0.45* oc3_outmlab (t-1) -0.15 oc3_outflab (t-1)
oc3_outmcap oc3_outfcap	oc3_outmcap = 1530.80 * - 0.62 oc3_outmcap (t-1) +0.91 * oc3_outfcap (t-1) oc3_outfcap = 780.69 - 0.36 oc3_outmcap (t-1) + 0.73 ** oc3_outfcap (t-1)
oc4_mlab oc4_flab	oc4_mlab= 9787.48 + 0.25 oc4_mlab (t-1) +0.91 oc4_flab (t-1) oc4_flab= 2378 + 0.34 oc4_mlab (t-1) + 0.53 oc4_flab (t-1)
oc4_mcap oc4_fcap	oc4_mcap = 3853.93 * + 0.19 oc4_mcap (t-1) - 0.28 oc4_fcap (t-1) oc4_fcap = 2873.76 * + 0.39 oc4_mcap (t-1) - 0.27 oc4_fcap (t-1)
oc4_inlab oc4_outlab	oc4_inlab = -279.29 + 1.60 * oc4_inlab (t-1) - 0.43 oc4_outlab (t-1) oc4_outlab = -22010.67 + 3.04 * oc4_inlab (t-1) - 1.19 ** oc4_outlab (t-1)
oc4_incap oc4_outcap	oc4_incap = 4887.26 *- 0.13 oc4_incap (t-1) - 0.89* oc4_outcap (t-1) oc4_outcap = 8252.62 + 0.34 oc4_incap (t-1) - 0.29 oc4_outcap (t-1)
oc4_inmlab oc4_inflab	oc4_inmlab = 26973.57 *- 1.54 oc4_inmlab (t-1) +2.94 oc4_inflab (t-1) oc4_inflab = 16303.75 ** - 1.08 oc4_inmlab (t-1) + 2.13** oc4_inflab (t-1)
oc4_inmcap oc4_infcap	oc4_inmcap = 5051.81 * - 0.27 oc4_inmcap (t-1) - 0.44 oc4_infcap (t-1) oc4_infcap =3918.51 * + 0.12 oc4_inmcap (t-1) -0.40 oc4_infcap (t-1)
oc4_outmlab oc4_outflab	oc4_outmlab = 20718.48 + 0.37 oc4_outmlab (t-1) + 0.22 oc4_outflab (t-1) oc4_outflab = 19959.06 ** - 0.12 oc4_outmlab (t-1) + 0.29 oc4_outflab (t-1)
oc4_outmcap oc4_outfcap	oc4_outmcap = 2354.93 * + 0.27 oc4_outmcap (t-1) - 0.05 ** oc4_outfcap (t-1) oc4_outfcap = 13146.78 + 0.83 oc4_outmcaa (t-1) - 0.23 oc4_outfcap (t-1)

Appendix B. Impulse Responses Functions (IRF) of Labour earnings by gender and class, UK (12 Waves 1969-2016), Author's calculation from LIS data (2020)

- *By gender*

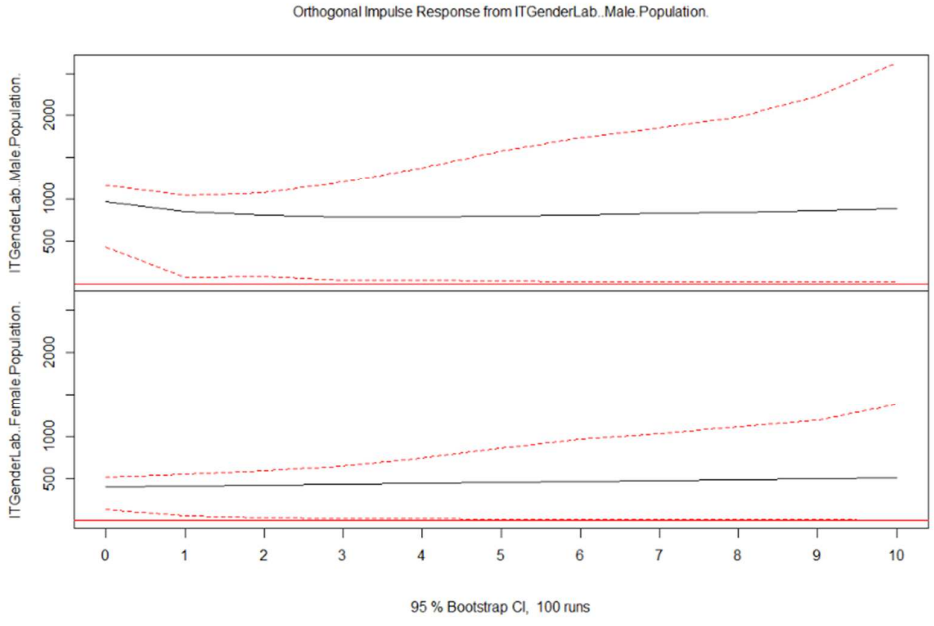




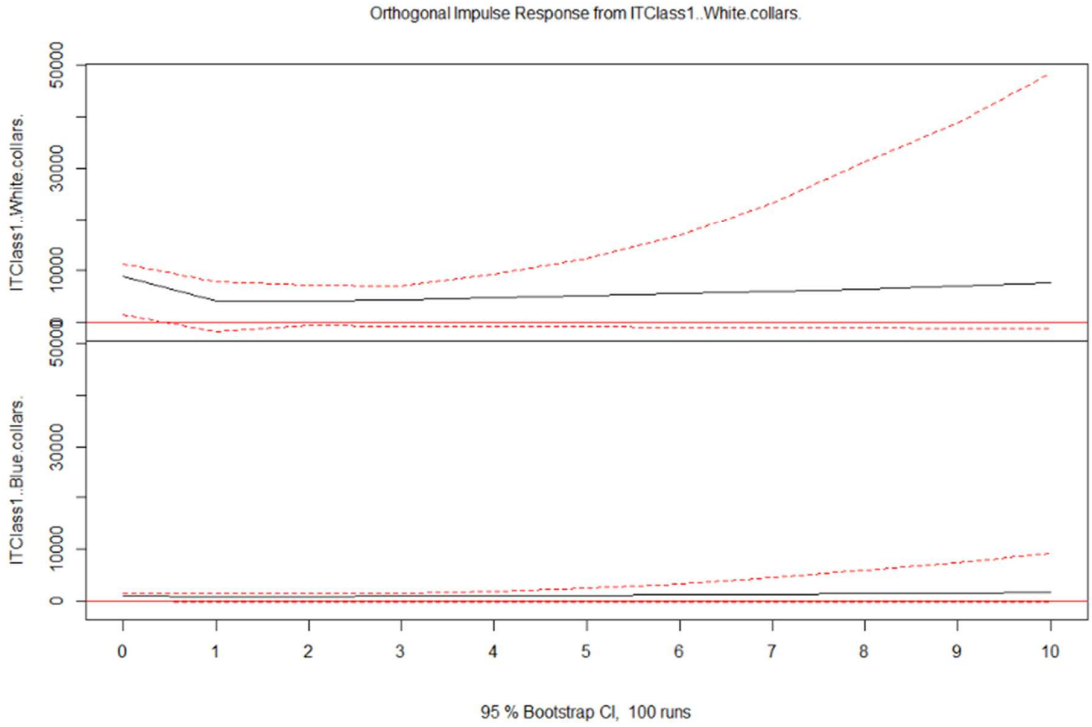
- *By class*

Appendix C. Impulse Responses Functions IRF of Labour earnings by gender and class, Italy (13 Waves 1986-2016), Author's calculation from LIS data (2020)

- *by gender*



- *by class*


Orthogonal Impulse Response from ITClass1..White.collars.
ITClass1..White.collars.
ITClass1..Blue.collars.
50000
30000
10000
0
0
1
2
3
4
5
6
7
8
9
10
95 % Bootstrap CI, 100 runs