

# **Economic Determinants of Profit-Shifting of Multinational Corporations: an Industry-Level Analysis in Italy**

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## **Abstract**

The paper explores profit-shifting for tax-avoidance purposes (also known as “aggressive tax planning”) by multinational corporations (MNCs) at industry-level. The paper builds on the case-study of Italy in 2019 to derive some considerations about the interrelatedness of MNCs’ profit-shifting and structural developments in modern economies. The paper argues that profit-shifting is more prevalent in business sectors characterised by higher financial involvement, market concentration, and greater internationalisation, and is intricately linked with technological innovation, all while acknowledging the significance of corporate tax planning strategies. Building on ISTAT data on industry-level estimates of profit-shifting for Italy in 2019, the paper explores the correlation with key economic processes. It investigates the relationship between the intensity of profit-shifting and various factors including overall profits, international activities, industry concentration, finance, investment and technology, thereby shedding light on the significant patterns of MNCs’ strategies across different industries. The state of the art is reviewed, considering both business strategies and the policy context. Additionally, the paper estimates the tax-loss due to profit-shifting for Italy, based on OECD data and methodology. It underscores that understanding the phenomenon of profit-shifting requires considering it within the broader patterns of development in today’s economies and emphasises crucial policy implications for policymakers in Italy and at European and OECD level.

**Keywords:** profit-shifting; tax-avoidance; multinational corporations; Italy

## **Note for the reader**

The paper is a work-in-progress, thus empirical analysis should be improved. Every comment is more than welcome. I apologise for any confusion, incompleteness and potential mistake.

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## **1. Introduction**

There is growing attention on the issue of multinational corporations' (MNCs) profit-shifting, both internationally (the OECD is forerunning) and at national level (for instance, the work done by Sallusti is prominent), with emphasis on its role among tax-avoidance strategies. The paper proceeds as follows: section 2 presents the phenomenon of profit-shifting as tax-avoidance strategy within the global economy; moreover, section 2.1 expands the approach of analysis, presenting the theoretical-driven hypotheses and explaining their contribution to profit-shifting. Subsequently, section 3 expands the relationship between MNCs and taxation, focusing on tax-harmonisation and profit-shifting. On the other hand, the following section enters into the case of Italy. First of all, section 4 provides information about MNCs in Italy and their profit-shifting; afterwards, section 4.1 presents estimates of the tax-loss and consequences deriving from profit-shifting of MNCs in Italy. Section 5 presents a discussion of data and methodology deployed. Finally, section 6 is devoted to the analysis and interpretation of the most important results. To sum up, section 7 briefly wraps up the main results and proposes future lines of investigation.

## **2. Profit-shifting and tax-avoidance in today's capitalism**

Profit-shifting is a widespread phenomenon in today's capitalism. Multinational corporations (MNCs) use profit-shifting as a means to reduce their overall tax-burden and to pay as little taxes as possible. One of the most common strategies adopted by MNCs to reduce their tax-burden is profit-shifting, that is adopted by firms "to exploit gaps and mismatches in tax rules to artificially shift profits to locations with no/low tax rates and no/little economic activity, resulting in: little or no corporate tax being paid; (and) annual revenue losses for governments of at least \$100-240 billion, equivalent to 4-10% of global corporate income tax revenue" (OECD BEPS definition). The practice of profit-shifting falls in between illegal tax-evasion and legal, although often illicit, tax-avoidance. In fact, around two-thirds of global cross-borders capital movements for tax-advantages have been estimated to belong to corporations (Shaxson 2011:18) which adopt different strategies to avoid income taxes.

The practice of shifting profits from one jurisdiction to another can be obtained by means of different economic and accounting strategies by MNCs. A first way of shifting profits is through the manipulation of transfer prices in intra-group transactions, involving affiliate companies in different jurisdictions (Gravelle 2015: 12). By lowering prices of goods and services purchased by branches in high-tax jurisdictions and by overpricing commodities for transfers in low-tax contexts, MNCs can benefit from higher profits in low-tax jurisdictions and apparent losses in high-tax ones, translated into overall lower tax-burden.

A second way relates to financial manipulation, with intra-group loans, debt shifting, cross-crediting between different jurisdictions connected through Double Tax Agreements, leading to "earnings stripping" and higher debt of companies in high-tax jurisdictions, thus profits being shifted to low-tax countries. Consideration is also given to countries where debt is treated as equity, and to other differences in financial regulation which create further mismatches and differentials.

A third way of implementing profit-shifting by MNCs includes changes in the legal forms of the units controlled by a MNC, that allows shifting activities and profits from corporations

headquartered in high tax-rates jurisdictions to partnerships, non-profit organisations and entities, foundations etc. with more favourable tax treatment in particular countries. For instance, in the US provisions based on “check-the-box classifications” allow to split into different entities for tax purposes.

A fourth way of shifting profits from high-tax to low-tax jurisdictions is related to the role of technology and in particular of intangible assets. Intangible assets are not physical in nature. Classical examples are brands, patents, logos, digital assets, trademarks, copyrights etc. They tend to be protected by the legal form of intellectual property rights (IPRs). IPRs are crucial for profit-shifting because their strategic location in low-tax jurisdictions generates a flow of money which overall results into lowest profits in high-tax contexts and gains in low-tax jurisdictions.

Finally, also top position in management can be strategically used by corporations in order to strip companies from assets and to obtain tax advantages. In fact, by registering work contracts for top positions in certain locations rather than in others, corporations can benefit from an overall redistribution of their gains.

Profit-shifting is a key element in the top managerial strategies of corporations. Profit-shifting *per se* does not fall automatically into the illicit: in fact, it does when used for tax avoidance (“aggressive tax-planning” or ATP).

The corporate strategies of enterprises are located in an economic context characterised by structural processes which are shaping the nature of the economic system. MNCs, being large actors within the economy, are both affected and influence such developments. Today’s capitalism is characterised by growing international openness, where value-formation and distribution is organised around complex Global Value Chains (GVCs) distributed in many different countries, and by the large expansion of financial activities of all type of corporations, that affect their decisions on production and investment. These processes are shaped by an international order based on free trade of goods and services, on free capital movements and on liberalised financial activities, where, however, individual countries or regional blocs are characterised by specific, differentiated policies and regulations and in particular by differentials in tax treatments.

Profit-shifting and tax-avoidance of MNCs are related to the systemic process of financialisation of the economy. The nature of financialised capitalism has been discussed by several authors from different theoretical standpoints and providing various contributions. Financialisation can be understood in its broadest definition as the increasing extent and power of financial markets, motives, institutions and elites in the global economy and in its governing institutions, at national and international level (Epstein 2005). When addressing profit-shifting of MNCs, we can understand financialisation as the expanding role of financial activities in profit-making strategies of firms - including non-financial companies - with efforts to obtain larger profits in the financial sphere, in line with the drive towards “maximising shareholder value” and with a short-term investment horizon.

In a period when the expansion of capitalism has been driven by finance-dominated accumulation (Louça and Ash 2018), the phenomenon of profit-shifting has spread as a result of both the overall expansion of cross-border financial activities, and of the increasing diffusion in all types of firms of strategies searching for short-term financial gains, while reducing their efforts for investing in real productive activities.

The persisting differences across countries in financial regulations and tax rates have created the space for a large expansion of profit-shifting by MNCs. By definition, profit-shifting relies on the opportunities offered by the free movement of goods, services, incomes and capital. The lack of

controls on such movements in highly globalised and financialised economies creates the opportunities of gaining from differences and asymmetries, loopholes and mismatches in the tax design of individual countries. Such processes have far-reaching consequences.

First, they lead to a loss of taxable income in countries with higher tax-rates. Usually, in those jurisdictions public expenditures also tend to be higher and provide firms and citizens higher-quality public services, from infrastructures to transport, from R&D to knowledge diffusion, from education to health. Public finance constraints may emerge from such a mismatch, with the possible result of shrinking the provision of public goods that are beneficial to the very firms that avoid paying taxes in the country.

Second, financialisation and profit-shifting have consequences for the real economy. The expansion of “fictitious” profits in low-tax jurisdictions (Durand 2017) is increasingly “decoupled” from the real economy, is protected from policies of taxation and redistribution, and is often directed towards further cross-border financial activities. The increasing search for short-term gains in the financial sphere may diminish productive investment, economic performance, productivity and innovation, leading to stagnation and slow economic growth (Murphy 2017). This has self-evident distributional consequences.

Third, there are consequences on the structure of industries and markets. Not all firms can equally pursue profit-shifting strategies. Profit-shifting tends to be more relevant in larger MNCs, with a wider international reach and more financial orientation. Such players can thus obtain significant tax loss reduction advantages with respect to their competitors, leading to a concentration of profits, business and market power in the hands of such larger MNCs. This may have serious consequences in terms of oligopolistic power, loss of competition, rent-seeking strategies, higher prices and strategic behaviours of the largest MNCs.

## **2.1 Approach of investigation**

While profit-shifting and tax avoidance are the result of corporate strategies of individual companies, there are important structural factors that may favour or constrain such behaviour. The paper aims at exploring such factors, focusing on industry level for empirical investigation of profit-shifting by MNCs operating in Italy. The key question is whether we can identify patterns across industries in the way the intensity of profit-shifting is related to four main phenomena: internationalisation, market concentration, financialisation and the role of technology.

The paper aims at detecting and reconstructing structural determinants, related to the systemic development of the economy and to be investigated at industry-level, which influence profit-shifting intensity, disregarding individual managerial strategies within a company. The paper tries to contribute to the different drivers which affect corporate strategies for what regards profit-shifting.

The hypotheses are theory-driven: the main theoretical contributions on corporate tax avoidance have identified such factors as important drivers of these processes. The empirical investigation on the case of Italian industries allows to test the presence and relevance of such relationships.

### **Hypothesis 1: internationalisation**

By definition, the phenomenon of shifting profits could not exist in lack of free capital and income movements. It is tied hand in glove to the dynamics of globalisation and internationalisation (Louça

and Ash 2018). MNCs have a privileged position in the world-economy: they are the most “internationalised” actors; by very definition, they work beyond national borders (Ietto-Gillies 2019).

Corporations hold the power to easily move profits among jurisdictions. Zucman explains that (2021: 69): “the corporate tax is based on a fiction, the idea that one can establish the profits earned by each multinational subsidiary by subsidiary. But this fiction is no longer tenable today, because multinational groups, advised by great auditing and consulting firms, are in practice free to move their profits wherever they want, which is usually wherever it is taxed the least”. Hence, it is *multinationality* itself “which creates the advantages leading to tax-avoidance” (Ietto-Gillies 2019: 286).

Internationalisation strategies do not necessary result in a positive-sum game because “the allocation of production and investment is not primarily guided by questions of efficiency, but is motivated by issues of control over production, over the labour process and over the distribution of incomes between wages and profits” (Ietto-Gillies 2019: 174). More favourable distribution of income can be obtained by avoiding to pay taxes through profit-shifting.

Multinational corporations are facilitated in delocalising production, looking for lower labour costs, but also in re-organising activities looking for lower taxes. This has contributed to deepen the divergence of domestic capital from international (hyper-mobile) capital, the latter being able to “decouple” from the domestic sphere, shifting profits to the most favourable jurisdictions (often tax havens).

Being highly internationalised, as by very definition MNCs are, increases the opportunity to play this game.

From these considerations rise the first hypothesis: the paper investigates whether higher internationalisation is related to more intense profit-shifting.

## **Hypothesis 2: concentration**

Size has often given rise to concerns of market power, consumer and price control and excessive entry barriers. By means of merging and acquisition (M&A) practices, vertical and horizontal integration, of franchising but also through expansion in different markets and construction of new ones, MNCs have increasingly enlarged their scope and capacity (Chandler 1990).

Nevertheless, the problem of excessive concentration has been ignored for long time. From neoclassical lenses, corporations are nothing but the largest market imperfection in terms of market competition (Lazonick 2017). On the other hand, heterodox economics has pointed out the issues deriving from monopoly/oligopoly power hold by big corporations (Baran and Sweezy 1966; Cowling and Sugden 1987).

For instance, “the existence of retaliatory power becomes crucial [for large MNCs]: they can use their worldwide production and resources to retaliate against a given rival” (Ietto-Gillies 2019: 173). MNCs have access to different ways to organise production and innovation, strategically deciding what to maintain at the core and what to delocalise. This facilitates concentration to rise (Rikap 2021).

The result is that MNCs “become transnationals to pursue profits in a rivalry and collusion environment which follows from the profit maximising assumption” (Ietto-Gillies 2019: 173). MNCs maintain their privileges in economic competition, thanks to firms technological differentiation (Rikap 2021).

The combination of unregulated financialisation, growing internationalisation, technological and digital developments contributes to increasing concentration, especially market-concentration. MNCs have been able to dramatically increase their size and power. This is particularly important when investigating the phenomenon of profit-shifting: from the literature, it seems that the big players of tax-avoidance are indeed the biggest actors in the market (Saez and Zucman 2019).

The second assumption concerns the two-way relationship between concentration and profit-shifting.

The more concentration in each business sector, the more likely MNCs shifts profits for tax arbitrage. At the same time, increasing profit-shifting allows MNCs to gain competitive advantages over other (smaller) capitalists and to exploit monopolistic, semi-monopolistic or oligopolistic power.

### **Hypothesis 3: financialisation**

Financialisation of the corporation cannot be reduced to the shareholder value maximisation principle (Lazonick and O’Sullivan 2000). Many other logics pertain to the financialisation strategy: “financialisation represents a sectoral shift in sources of profits” (Froud et al. 2017: 292). Horn (2017: 288) points out: “if [...] the purpose of a corporation is not to produce something, but to make money, the financialisation of non-financial corporations exacerbates this significantly”.

While the entire economy entered a massive phase of financial expansion, corporations exploited the opportunities gained from it. They have changed strategies and techniques to expand profits, moving into the financial sphere.

The practices of tax arbitrage between jurisdictions, implemented by means of profit-shifting, seem to be connected to the financialisation of the corporation. Several authors emphasise the extent to which MNCs dedicate themselves to avoid taxation and fair redistribution (Sol Picciotto 2017, Zucman 2021).

Thanks to financial *laissez-faire*, profit-expanding strategies are increasingly dominated by decisions unrelated to productivity reasons. Under the current favourable financial conditions, the practice of buying and selling assets, financial speculation and the use of debt financing offer more attractive perspectives than traditional investments in “real” economic activities, *de facto* pushing towards further financialisation.

At the same time, for the last forty years of financial expansion, offshore movements of capital have been driven by tax planning in addition to productive motives. Profit-shifting can be understood as both a symptom and a trigger of the current phase of financialisation. Indeed, “the emergence and growth of MNCs has owed much to the techniques of international [tax] avoidance [...]. This has greatly contributed to the domination of the world economy by these giant firms” (Sol Picciotto 2017: 309).

From these considerations, we extrapolate the third hypothesis under investigation. Given the differences highlighted by the main literature among MNCs in high-financialised sectors *vis-à-vis* those MNCs operating in low-financialised sectors, may financialisation be understood as a structural determinant of profit-shifting?

#### **Hypothesis 4: the role of technology**

The role of technology, in particular of intangibles, is particularly fruitful for profit-shifting. Technology and innovation are crucial for MNCs: as shown by Lazonick (2017), innovation and know-how allow big firms to compete on non-price factors. MNCs have more funds available for innovation and technological development, moreover they benefit from tighter internal and external networks which facilitate absorptive capacities (Narula and Zanfei 2004, Rikap 2021). Their level of digitalisation is overall higher (Ietto-Gillies 2019).

From the literature, it seems likely that MNCs exploit more easily technology, in particular intangibles, to practice profit-shifting for tax-purposes (Zucman 2021).

Multinationals from all sectors are identified using this practice, even if it goes without saying that the giants of digital technology are among the biggest players (Saez and Zucman 2019). It is pretty easy for MNCs to create their own intangibles (logos, patents, brands, algorithms, computer domains but also know-how) (Saez and Zucman 2019: 67). Moreover, it is difficult to determine whether the price respects the arm's length principle when transferred from one location to another. On the other hand, the royalties deriving from IPRs rents can be very high.

Moreover, the more capital becomes immaterial, the more difficult it becomes to detect harmful tax practices (Zucman 2021). The recent technological developments pose further challenges for research and policy-making interested in the phenomenon. The technological and digital revolution not only facilitates the relocation of profits in low-tax jurisdictions, it also makes it extremely more difficult to detect.

The final hypothesis of the investigation aims at detecting whether more profit-shifting goes hand in hand with a stronger role of technology, in particular of intangibles and IPRs.

To sum up, the paper is an exploratory analysis of structural drivers of profit-shifting at industry-level. The aim is to identify patterns across industries that may explain the phenomenon, notwithstanding firm-level corporate strategies. From the literature reviewed, we expect internationalisation, market concentration, financialisation and technological developments to be related to more intense profit-shifting.

### **3. MNCs and tax arbitrage**

From the point of view of MNCs, tax-arbitrage has grown in importance. Tax-arbitrage has become so crucial that companies invest more in legal experts than in R&D activities (Harrington 2016). Authors emphasise the increasing importance for big companies (and for the economy *tout court*) of consultancy and experts for what regards tax-planning (Collington and Mazzucato 2023). The role of the consultancy industry is to suggest the best way to achieve the lowest tax-burden possible and to escape unpleasant regulations. Fluidity and dynamism are key characteristics of the consultancy industry which provides on-time, updated and vibrant solutions to MNCs to minimise the effective tax-rate paid.

The tax-dodging industry allows MNCs to maximise their tax savings by exploiting loopholes, gaps and mismatches in tax-laws between different countries and jurisdictions. In fact, "profit-shifting exploits frailties in the legal system that governs the taxation of multinational firms" (Saez and Zucman 2019: 63). MNCs are key actors of the world-economy made up of different jurisdictions,

each one with sovereignty on tax-rules, where it is possible to play among tax differentials, looking for minimisation of overall taxes.

At the same time, free capital flows have exacerbated uneven globalisation processes and triggered a general process of “competitive race to the bottom” for taxation (Shaxson 2011). Governments have been subjected to increasing tax competition, scared by the risk of substantial capital flows towards jurisdictions with lowest taxes and other tax-related incentives (Murphy 2017).

This pressure led to minimise tax rates and reduce unpleasant regulations to minimum (Hampton and Abbott 1999). The statutory corporate income tax has been dramatically reduced everywhere since the 80s: for instance in Italy, the top rate has been decreased from 47.8% in 1991 down to 27.8% in 2022 (including both IRES and IRAP) (Di Majo 2022: 415).

Within this framework of competitive deregulation, MNCs exploit their power position enjoying the benefits deriving from State-sponsored exceptions and exemptions specifically designed for privileged economic actors. Often the statutory top tax-rate does not correspond to the effective tax-rate paid by MNCs. For instance, the average effective tax-rate paid by corporations in Italy in 2022 is estimated at 17.1% (OECD - Corporate Tax Statistics).

Nevertheless, this has not prevented MNCs from maximising tax savings by means of profit-shifting. In fact, thanks to their ability (and to the support of consultancy experts) to adapt to external unpleasant regulations (for instance, shifting dividends into retained earnings when needed to reduce their tax-rate), MNCs are increasingly dodging their due social burden in forms of taxes.

#### **4. MNCs and profit-shifting in Italy**

For the case of Italy, indeed, there are serious weaknesses in the data availability and in the research implemented so far on the topic. Nevertheless, profit-shifting represents a crucial issue for Italy and for Italian policy-makers.

The Italian economic system is mostly based on small businesses, nonetheless the presence of MNCs is higher than expected. Sallusti (2024: 6) identifies a population of 3.6 million firms in Italy in 2019, including small and medium enterprises, big Italian-controlled and foreign-controlled companies, and multinational corporations. Of this, 18,511 belong to multinational consolidated groups (Sallusti 2024), with Italian or foreign headquarter. In particular, “8290 MNEs have their headquarter in Italy with affiliates in more than 120 countries, while 10,221 MNEs have their headquarter in more than 100 foreign countries” (Sallusti 2024).

Albeit being a small percentage of total businesses (less than 0,5% of total business units in 2019) (Sallusti 2024), MNCs play a crucial role in the economic fabric of Italy.

In terms of main economic aggregates, MNCs in 2019 were worth for 45.5% of total turnover (approximately 1.4 trillion euros) and 39.8% of total value-added (around 314 billion euros) produced in Italy by the entire population of businesses (Sallusti 2024). Moreover they employed a sizeable share of total workforce in Italy (22,2%, around 3.4 million workers) (Sallusti 2024). As expected, MNCs show higher international openness, in terms of imports and exports.

According to data from the Structural Business Statistics database (SBS Frame), in 2019 MNCs with foreign control collected around 20% of total turnover of businesses in Italy. The data show us high heterogeneity among sectors: in the pharmaceutical sector foreign MNCs are prevalent (around 55% of turnover is not domestic); on the other hand, for instance, foreign-headquartered

businesses in the sector of wood and furniture manufacturing collected just about 0,9% and 2,3% of total turnover in 2019.

The amount of profit-shifting estimated by Sallusti (2024) is around 25.9 billion euros, accounting for around 1.4% of Italian GDP at current prices in 2019. The author highlights significant sectoral heterogeneity in terms of incidence of profit-shifting per sector: “from 46.1% in construction to 4.7% in motor vehicles” (Sallusti 2024).

#### **4.1 The impact of MNCs’ profit-shifting in Italy**

Over a total number of around 18 thousand MNCs, aggressive tax-planning is observed for around 58% of them (about 10 thousand units). In 2019, their declared EBIT (Earnings Before Interests and Taxes) was around 143,9 billion euros, while they avoided taxes on 25,8 billion euros by means of profit-shifting (BEPS Sallusti 2019). This translates into 15 euros over 100 euros earned systematically shifted to low-tax jurisdictions by MNCs.

In order to estimate the correspondent tax-loss, we must take into consideration two factors.

The first one is related to the “race to the bottom” in terms of tax-policy that most countries, Italy not being an exception, have engaged into. This translates into reduction of tax-rates and introduction of tax-advantages for large businesses, in order to attract capital and fearing capital flights in favour of low-tax jurisdictions and tax-havens.

The second one refers to tax-base shirking, obtained by means of tax policies aiming at deducibility in favour of large businesses. This further aggravates the phenomenon of base-erosion of which profit-shifting is a trigger. Indeed, tax-deducibility and allowances, exemptions for privileged political-economic aims, state-sponsored exceptions are common practice, especially in the view of the Italian policy-makers.

The political tax-regime systematically in favour of MNCs is built on both decreasing statutory tax-rates and on tax-deducibility and allowances.

In fact, the OECD estimates the effective marginal tax rate paid by MNCs, constructed as a weighted average across finance- and asset-specific tax-rates. This indicator can be used as synthetic indicator to show the extent to which tax-policy as a whole increases pre-tax rates of return. In Italy in 2022, this indicator was -31.6%: the lowest among all OECD countries. This negative effective marginal tax-rate signals the generosity of capital depreciation for tax-purposes in the country, namely the possibility to reduce the amount of taxable income for corporations by means of different deductions/allowances (OECD Corporate Tax Statistics).

Tax credits are common strategy in Italy, to the extent that they are considered *tout court* “industrial” policy: the Italian Recovery and Resilience Plan (RRP) explicitly includes additional automatic tax credits for almost 25 billion euros accessible to all businesses, including MNCs, for digital transition, technological developments and innovation (including R&D expenditures) (Mimit 2023).<sup>2</sup> Indeed, mainstream arguments which promote generous depreciation to attract and entrench MNCs end up supporting the construction of a political regime unfair in terms of taxes.

Having these issues in mind, in order to estimate the tax-loss due to profit-shifting in Italy in 2019 we need to take into account both statutory and effective tax-rates. In 2019 the statutory corporate

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<sup>2</sup> Ministero delle Imprese e del Made in Italy: <https://www.mimit.gov.it/it/pnrr/progetti-pnrr/pnrr-transizione-4-0>.

income tax-rate was 27,8%, the effective average tax-rate paid by MNCs jumped down to 19,3%. Regardless of internal heterogeneity and by oversimplifying the phenomenon, 25,8 million euros of profit-shifting would translate into more than 7 billion euros of tax-loss if applying the statutory tax-rate, around 5 billion euros when looking at the effective taxes paid by these players.

According to the OECD database on tax statistics, we know that the tax-revenue from income, profits and capital gains of corporations was around 35 billion euros in Italy in 2019, derived almost exclusively from corporate profit taxes (other capital incomes go almost untaxed in Italy). Indeed, the amount of profit-shifting estimated by Sallusti (2024) implies a loss of about 16% of potential tax-revenues from corporate taxes for the Italian authorities.

## 5. Data and methodology

The paper is a descriptive and exploratory investigation of profit-shifting of MNCs at industry-level, in Italy in 2019.

In terms of empirical analysis, the investigation builds on profit-shifting estimates, to which I had access in the form of re-aggregation by industry-sector, kindly shared by Federico Sallusti, whom I warmly thank for this.<sup>3</sup>

Within two subsequent publications (Sallusti 2021, referred to fiscal year 2015 and Sallusti 2024, referred to fiscal year 2019), the author constructed reliable estimates of profit-shifting utilising micro-data related to resident business units (with Italian and foreign headquarters). By means of a two-steps methodology (PSM, propensity score matching and ROC, receiver operating characteristic), the paper attempts to overcome recurrent problems (availability of micro-data, plus their quality) in empirical analyses of profit-shifting with firm-level information. PSM-analysis contrasts “normal” behaviour of domestic firms against “abnormal” behaviour of MNCs, while ROC-analysis is used to identify the differences within the MNCs group and thus select the sample of “tax-avoiding” businesses.

The data shared by Sallusti have been re-aggregated by industry-sectors in order to accomplish privacy concerns.

Furthermore, the investigation merges the ISTAT data shared by Sallusti (2024) with other data and economic aggregates from MNCs’ balance-sheet.

A second source of information is extracted from ISTAT too, in particular from the Structural Business Statistics (SBS Frame). Moreover, the paper exploits OECD data extracted from the Structural Analysis database (STAN) and from the Tax Statistics database.<sup>4</sup> Finally, another source of data is to be found in the Sectoral Innovation Database (SID), developed by the University of Urbino.

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<sup>3</sup> Federico Sallusti is researcher at the Central Directorate of National Account, ISTAT.

<sup>4</sup> OECD Tax Statistics are based on Country-by-Country reports (CbCRs). Within the framework signed by over 135 countries named “Base Erosion and Profit Shifting” (BEPS) and initiated in 2015, which aims at addressing corporations tax avoidance by making MNCs pay their due taxes wherever their profits are made, the implementation of CbCRs has been a crucial step forward. This has compelled MNCs to annually present their Country-by-Country Report, disclosing information on turnover, profits, taxable income of each big MNCs to the appropriate tax authority. OECD collects and aggregates this data, which are available at country and industry level.

The analysis refers to business sectors in industry, manufacturing and services, while it excludes agriculture and extractive sectors. We refer to two-digit NACE Rev. 2 classification for sector identification.

**Table 1** enters in the details of the databases from which data have been extracted:

	Source of data	Unit of analysis	Population	Access to:
<b>BEPS Sallusti (2019)</b>	Elaboration of the author on firm-level data extracted from ISTAT databases and ASIA-group register	Firm-level, later aggregated and shared at industry-level	18.511 MNCs in Italy	Industry-level aggregates
<b>ISTAT SBS Frame (Structural Business Statistics)</b>	Administrative and survey data	Industry-level aggregates	4.4 million of firms in Italy	Industry-level aggregates
<b>OECD STAN (Structural Analysis Database)</b>	Administrative data National accounts (NA)	Firm-level, industry-level aggregates	Entire population of firms in Italy	Industry-level aggregates
<b>OECD Tax Statistics</b>	Administrative data Country-by-Country reports (CbCRs)	Industry-level aggregates	Entire population of firms in Italy	Industry-level aggregates
<b>SID (Sectoral Innovation Database)</b>	Survey data elaborated from: Community Innovation Surveys (CIS Eurostat), OECD STAN, WIOD, EU Labour Force Surveys (Eurostat), EU KLEMS	Industry-level aggregates	Entire population of firms in Italy	Industry-level aggregates

**Table 1: Description of databases used and data extracted from each database.**

MNCs tend to be treated as an internally homogeneous group, Sallusti (2021 and 2024) instead shows that there is indeed heterogeneity among sectors. In light of this, the paper aims at understanding whether structural determinants contribute to explaining profit-shifting implemented by MNCs in different business sectors. The paper builds an exploratory and descriptive analysis that distinguishes between business sectors and identifies potential structural determinants of MNCs' profit-shifting for tax-purposes.

At this stage, the research faced constraints in accessing reliable firm-level data. Expanding the research with firm-level data is the subsequent logical step for future investigations.

A dataset comprising data at sectoral level on MNCs in Italy has been constructed, by merging data from the previously mentioned sources and by extrapolating and imputing (on the basis of shares of value-added and/or proportion of employers) other economic aggregates. In particular, the final MNCs dataset comprises the following variables, summarised in **table 2**:

	<b>Data source</b>	<b>Unit of measurement</b>	<b>Description</b>
<b>Profit</b>	BEPS Sallusti (2019)	Million of euros	Calculation of the author on BEPS Sallusti (2019) data: sum of EBIT (Earnings before interests and taxes) and amount of profit-shifted to other jurisdictions (thus undeclared) of MNCs
<b>Profit-shifting</b>	BEPS Sallusti (2019)	Million of euros	Amount of profits shifted to jurisdictions other than Italy for tax-purposes by MNCs
<b>Number of MNCs</b>	ISTAT SBS Frame	Units	Number of MNCs active in Italy, both parent companies and affiliates
<b>Number of MNCs “positive” to profit-shifting</b>	BEPS Sallusti (2019)	Units	Number of MNCs active in Italy, both parent companies and affiliates, identified as doing profit-shifting for tax-purposes
<b>Turnover</b>	ISTAT SBS Frame OECD STAN	Million of euros	Turnover of MNCs
<b>Value-added</b>	ISTAT SBS Frame OECD STAN	Million of euros	Value-added of MNCs
<b>Number of employees</b>	ISTAT SBS Frame	Units	Imputation of the author on ISTAT SBS Frame and BEPS Sallusti (2019) data on the basis of shares of value-added provided by MNCs to each business sector
<b>Imports and exports</b>	ISTAT SBS Frame	Million of euros	Imputation of the author on ISTAT SBS Frame data on the basis of shares of value-added provided by MNCs to each business sector
<b>R&amp;D expenditures</b>	ISTAT SBS Frame SID	Million of euros	Imputation of the author on ISTAT SBS Frame on the basis of shares of value-added provided by MNCs to each business sector
<b>Gross fixed capital formation</b>	ISTAT SBS Frame OECD STAN SID	Million of euros	Imputation of the author on ISTAT SBS Frame and SID data on the basis of shares of value-added provided by MNCs to each business sector
<b>Average size of MNCs per sector</b>	ISTAT SBS Frame OECD STAN	Average	Calculation of the author: ratio between value-added of MNCs per sector and number of MNCs per sector Calculation of the author: ratio between number of employees of MNCs per sector and number of MNCs per sector
<b>Financial activities (proxy)</b>	BEPS Sallusti (2019) ISTAT SBS Frame OECD STAN SID	Million of euros	Calculation of the author: subtraction of gross fixed capital formation from the total amount of profits accumulated in each sector to assess the amount of retained earnings, dividends and investments in the financial sphere of MNCs

**Table 2: Description of data and variables used in the analysis.**

To sum up, the identified and tested structural explanations of MNCs’ profit-shifting are the following:

- Level of internationalisation: proxied by shares of imports and exports;
- Market concentration: investigated by looking at average dimensions of MNCs in each sector;

- Financialisation: proxied by an indicator of overall financial activities (including dividends and retained earnings, in addition to effective financial investments);
- Role of technology: investigated by looking at R&D expenditures.

## 6. Results

BUSINESS SECTOR	ECONOMIC ACTIVITY		PROFIT-SHIFTING (mln of euro)	TOTAL PROFITS (EBIT + SHIFTED PROFITS) (mln of euro)	PROFIT- SHIFTING/TOTAL PROFITS	NUMBER OF MNCs (Italian and foreign-controlled groups in Italy)	NUMBER OF MNCs SUSPECTED OF ATP	NUMER OF ATP MNCs/TOTAL NUMBER OF MNCs
C10-12	Food and beverages manufacturing	FOOD	1500	6900	0,217391304	421	187	0,444180523
C13-C15	Textile and garment manufacturing	TEXT	600	4800	0,125	608	414	0,680921053
C16	Wood manufacturing	WOOD	100	300	0,333333333	76	54	0,710526316
C17	Paper manufacturing	PAPER	500	1500	0,333333333	84	51	0,607142857
C18	Printing and recording	PRINT	0	3700	0	66	36	0,545454545
C20	Chemical industry	CHEM	800	4400	0,181818182	378	226	0,597883598
C21	Pharmaceutical industry	PHARMA	200	3900	0,051282051	109	34	0,311926606
C22	Plastic and rubber manufacturing	PLASTIC	500	2900	0,172413793	418	206	0,492822967
C23	Non-metallic manufacturing	MANUF	400	2300	0,173913043	200	100	0,5
C24	Metallurgic	METALL	1400	3300	0,424242424	170	122	0,717647059
C25	Metal manufacturing	MMANUF	1100	4200	0,261904762	710	390	0,549295775
C26	Electronic	ELECTRONIC	400	2200	0,181818182	310	151	0,487096774
C27	Electrical manufacturing	ELECTRIC	900	3300	0,272727273	375	229	0,610666667
C28	Machinery manufacturing	MACHIN	2000	9000	0,222222222	1261	732	0,580491673
C29	Automotive	AUTO	200	4400	0,045454545	196	105	0,535714286
C30	Non-automotive manufacturing	NON-AUTO	100	2200	0,045454545	110	58	0,527272727
C31-C32	Furniture manufacturing	FURN	300	2900	0,103448276	340	197	0,579411765
C33	Repair and maintenance	REPMAN	100	600	0,166666667	233	105	0,450643777
C35-C39	Electricity and power supply	ENERGY	5800	12600	0,46031746	499	323	0,647
C41-C43	Construction and building	CONSTR	2900	6100	0,475409836	1068	808	0,756554307
G45-G47	Retail and wholesail	TRADE	1600	21600	0,074074074	4788	2545	0,531537176
H49-H53	Logistics	LOGIST	400	17300	0,023121387	752	472	0,627659574
I55-I56	Accommodation and food services	ACCOM	300	2200	0,136363636	500	253	0,506
J58-J63	Information and communication services	COMMUN	600	12500	0,048	1283	780	0,607950117
L68-M70	Management and consultancy activities	MANAG	700	16500	0,042424242	875	535	0,611428571
M71-M75	Scientific activities	SCIENT	1100	4100	0,268292683	1164	649	0,557560137
N76-N82	Other services	OTHER	800	7600	0,105263158	994	631	0,634808853

**Table 3: Description of profit-shifting per business sector of MNCs in Italy (2019)**

Table 3 comprises the following variables (referred to Italy, fiscal year 2019):

- profit-shifting (million euros);
- total amount of profit (million euros), estimated as sum of EBIT (Earnings Before Interests and Taxes) and amount of profits shifted to jurisdictions other than Italy;
- number of MNCs active in Italy (either with Italian and foreign headquarters);
- number of MNCs active in Italy and identified as having abnormal behaviours in terms of taxes, therefore likely to be implementing aggressive tax planning (ATP) by means of profit-shifting.

Datasource: BEPS Sallusti (2019), elaboration of the author.

## Economic performance

We can extract some interesting preliminary considerations about the relationship between profit-shifting and economic performance from **Table 3**, which provides an overview of the phenomenon of profit-shifting of MNCs in Italy in 2019.

In absolute values, we can identify some sectors standing out for intensity of profit-shifting done. The largest by far is the energy sector (electric, power, gas and water supply), which avoids to pay taxes on 5800 million euros over a total amount of profits approximately of 12600 million euros. This translates into an incredibly high incidence of profit-shifting over total profits, of about 0.46, meaning that 0.46 euro goes untaxed over each euro gained. One of the crucial characteristics of the energy sector is the presence of huge companies: this gives rise to suspicions about the relationship between tax-avoidance and concentration and market power.

In the sector, we appreciate the leading role of *Enel S.p.a.* and *Eni S.p.a.* groups, which are respectively second- and third-largest Italian companies on the Fortune list 2022, first- and second-largest on the Forbes one. *Eni S.p.a.* is considered the largest oil Italian company according to Fortune 500. *Enel S.p.a.* is the second largest electric company worldwide after the *Chinese State Grid Corporation*. Moreover, both super-major companies are characterised by numerous groups with a large number of affiliates and subsidiaries operating in different sectors. For instance, the super-major oil company *Eni S.p.a.* group is composed by around 500 companies, with different degrees of autonomy. Some of them specifically work in the financial sector. Same applies to *Enel S.p.a.*, whose branches are numerous and operate in different sectors.

Notwithstanding the presence of these giants, clear concentration patterns when it comes to incidence of profit-shifting cannot be identified in the sector. Of 499 companies, around 323 avoid taxes by means of profit-shifting: this translates into an incidence of about 0.65. This means that profit-shifting is a generalised practice in the energy sector.

The construction and building sector is the second ranked in absolute terms for what regards profit-shifting. Of 6100 millions euros gained, about 2900 millions are shifted out of Italy. The magnitude of the phenomenon is extremely high as it was the case in the energy sector: around 47% of total profits goes untaxed.

In the construction and building sector we enumerate a number of big corporations, entitled of large projects located all over the world. The expertise of Italian MNCs in building and construction projects of large magnitude is well-known: in fact, they are in charge of large and complex infrastructures especially in developing countries. Among them, it worths to be mentioned the offshore and onshore drilling company *Saipem S.p.a.*, the world leader *Webuild S.p.a.* or the *GLV Capital S.p.a.*'s affiliate in the building sector, namely *Maire Tecnimont S.p.a.*

In terms of incidence, it seems that the majority of MNCs in the construction sector contribute, to certain extent, to this large amount of profit-shifting. Almost 76% of total MNCs in the construction sector have been identified as “positive” to aggressive tax-planning. Being involved in large projects around the world may facilitate construction and building companies in moving profits across jurisdictions.

Another crucial sector for profit-shifting, in absolute and relative terms, is the metallurgical sector. This sector accounts for 1400 million euros of profits shifted to other jurisdictions (around 42% of total profits in the sector).

This sector is particularly important for the Italian economic structure. It is among the largest in the European landscape, it employs a large number of workers, mostly blue-collars. It is characterised by the presence of big actors too.

In terms of total turnover, the strongest company identified is *Marcegaglia Holding Group*, commercial name for *FinMar S.r.l.*, which is currently expanding its activities in different countries. The company has a variegated portfolio which involves financial activities and real estate investments. Similarly, all biggest metallurgic companies (in terms of turnover and volume of affairs) present financial affiliates.

All largest companies in the metallurgic sector in Italy (in terms of turnover and volume of affairs) have their head office in Luxembourg or in other well-known tax-havens. In terms of tax-avoidance, the location of headquarters in well-known tax havens sheds light over profit-shifting activities.

The machinery manufacturing sector stands out for the large amount (in absolute terms) of profits shifted to jurisdictions other than Italy, with 2000 million euros.

The sector is rapidly growing in Italy, it is particularly important in terms of market-share: around 9% of global production of machinery is attributable to Italian companies according to the sectoral business association *Federmacchine*. Moreover, according to SBS frame data, the sector is among the largest in terms of both total and intra-group exports (approximately 17500 and 7000 millions of euro).

In proportion to the total profits gained, profit-shifting is a limited 22% of total earnings. On the other hand, the number of MNCs identified as aggressive tax-planners is around 58% of the total number of companies active in the machinery manufacturing sector.

Similarly, the food and beverages production sector is a crucial sector in the Italian industrial landscape. The food sector is attributable of around 1500 millions of euros of profit-shifting, around 22% of total profits of the business.

The sector is characterised by well-known international large actors such as *Campari Group* and *Ferrero International S.p.a.* (both have affiliates in low-tax jurisdictions), plus the presence of smaller but equally important leaders of the “*made in Italy*” brand for food and beverages. For what regards the food industry, it seems interesting to further investigate profit-shifting practices.

In absolute terms, the wholesale and retail trade sector stands out for profit-shifting, which is estimated around 1600 million euros. Nevertheless, this amount is just 0.07 of total profits earned in the sector.

On the other hand, some other sectors present a large amount of profit-shifting in comparison to total profits in that sector.

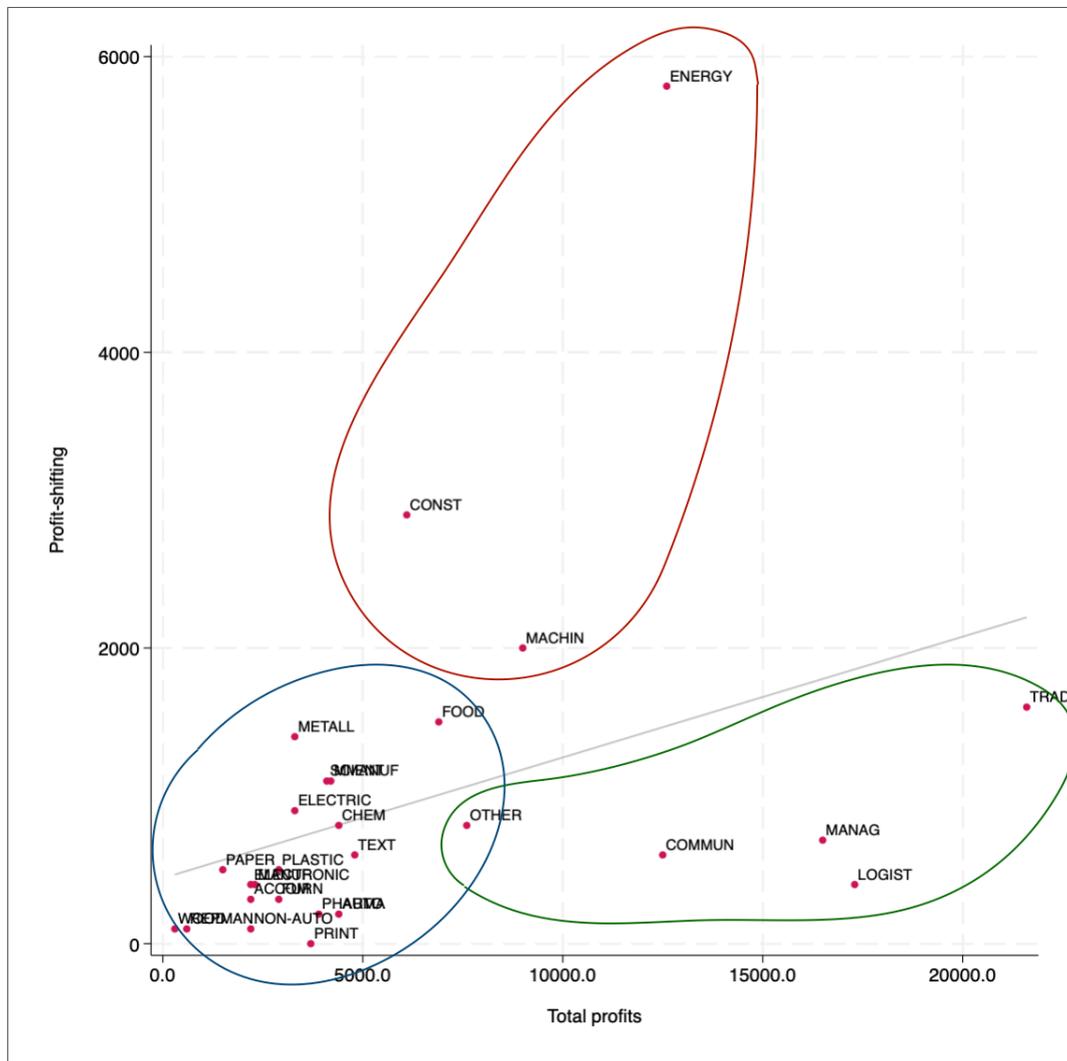
This is the case of wood and wood-objects manufacturing (excluding furnitures), where companies avoid to pay taxes on over a third of profits. Tax-avoidance seems to be well distributed among the actors in the wood manufacturing sector (71% of the actors).

Similarly, paper manufacturing is responsible for 500 million euro of profit-shifting, which accounts for 33% of total profits in the sector. Also in this case, more than 60% of actors working in the paper manufacturing industry can be identified as doing profit-shifting.

To a lesser extent, the metal manufacturing sector is attributable of profit-shifting for a total of 1100 million euros, accounting for 26% of total profits in the business branch.

The electric manufacturing sector shifts around 900 million euros (27% of total earnings).

Lastly, companies in professional, scientific and technical activities are imputable of 1100 million euros of profit-shifting (around 27% of total profits gained in the sector).



**Graph 1: Descriptive statistics of profit-shifting over profits of MNCs in Italy (2019)**

*Graph 1 shows the amount of profit-shifting in relation to total profits, calculated as sum of profits declared (EBIT: Earnings before interests and taxes) and undeclared profits for MNCs operating in Italy in 2019.*

*Elaboration of the author from BEPS Sallusti (2019).*

The visual representation of the relationship between total profits and profit-shifting is presented in **graph 1**. The total amount of profits is estimated as the sum of declared profits (proxied by EBIT, Earnings Before Interests and Taxes) and undeclared profits (profit-shifting).

Indeed, the economic performance should not be ignored in reconstructing the drivers of profit-shifting. We can identify the previously-mentioned crucial sectors (energy, construction and building, metallurgic and to a lesser extent metal manufacturing, food and beverages, in addition to

other smaller players) for what regards the intensity of profit-shifting (in relation to total profits) of MNCs resident in Italy.

Overall, profit-shifting seems to follow a positive trend in relation to the economic performance of MNCs in each business sector.

Moreover, we can build three groups of sectors, characterised by different behaviours of profit-shifting.

The first one (identified with the red line) is characterised by companies with high profit-shifting and excellent economic performance. It comprises sectors where the role of few large companies might be crucial in explaining the relationship. This group probably comprises MNCs with corporate strategies of tax harmonisation, good economic performances and associated to a combination of the structural determinants here investigated.

The second group (in the green line) is characterised by relatively low profit-shifting in comparison to the economic performance. It includes mostly service and trade sectors, where internationalisation dynamics play a role.

Lastly, the third group is the most numerous one (comprised within the blue line) and it basically includes the core of manufacturing in Italy. These sectors appear to implement less profit-shifting in relation to the total amount of profits. Logics of internationalisation, concentration, financialisation, and the role of technology should be further investigated for the core of industry in Italy.

This positive relation is not, nevertheless, highly informative: we have to bear in mind that there seems to be differences in behaviour being equal the amount of total profits.

### **Internationalisation**

In terms of international openness, by very definition, MNCs are characterised by high internationalisation and transnationalisation.

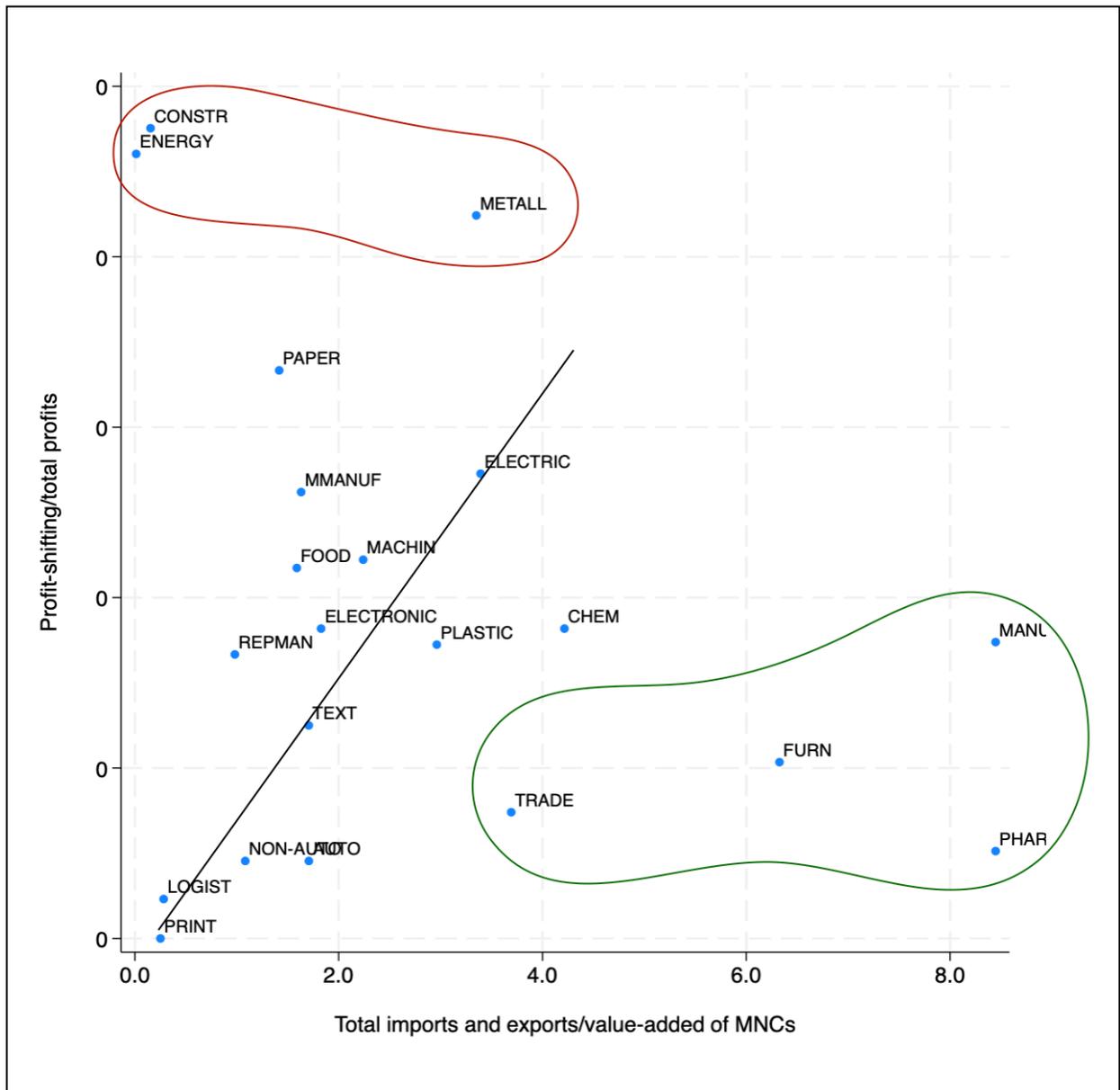
For this reason, *graph 2* shows the relation between profit-shifting and international openness of MNCs in each business sector. International openness has been proxied by a synthetic indicator of imports and exports of MNCs, including intra-group transactions in order to account for multinationality itself.

We observe a general positive relationship between profit-shifting and imports and exports. Nevertheless, there are some important exceptions.

The top profit-shifting sectors (construction and building, energy and partially metallurgic) present lowest international openness than expected. This can be due to delocalisation of production activities and better involvement in GVCs.

The core of manufacturing in Italy clearly shows a positive relation between the two phenomenon. Moreover, we identify some sectors characterised by extremely high levels of imports and exports, such as pharmaceutical, manufacturing, trade, and furniture sectors.

To sum up, the preliminary investigation shows consistent results with the original hypothesis. At the same time, some other indicators of international openness from different sources may be fruitfully taken into consideration in order to further investigate the relationship.



**Graph 2: Total imports and exports (including intragroup) of MNCs in each business sector and profit-shifting of MNCs in Italy (2019)**

The indicator of internationalisation is preliminary built around the magnitude of imports and exports (including intragroup imports and exports) of MNCs per each sector over the total amount of profits per sector. Graph 2 shows imports and exports in relation to the incidence of profit-shifting over profits accumulated by MNCs.

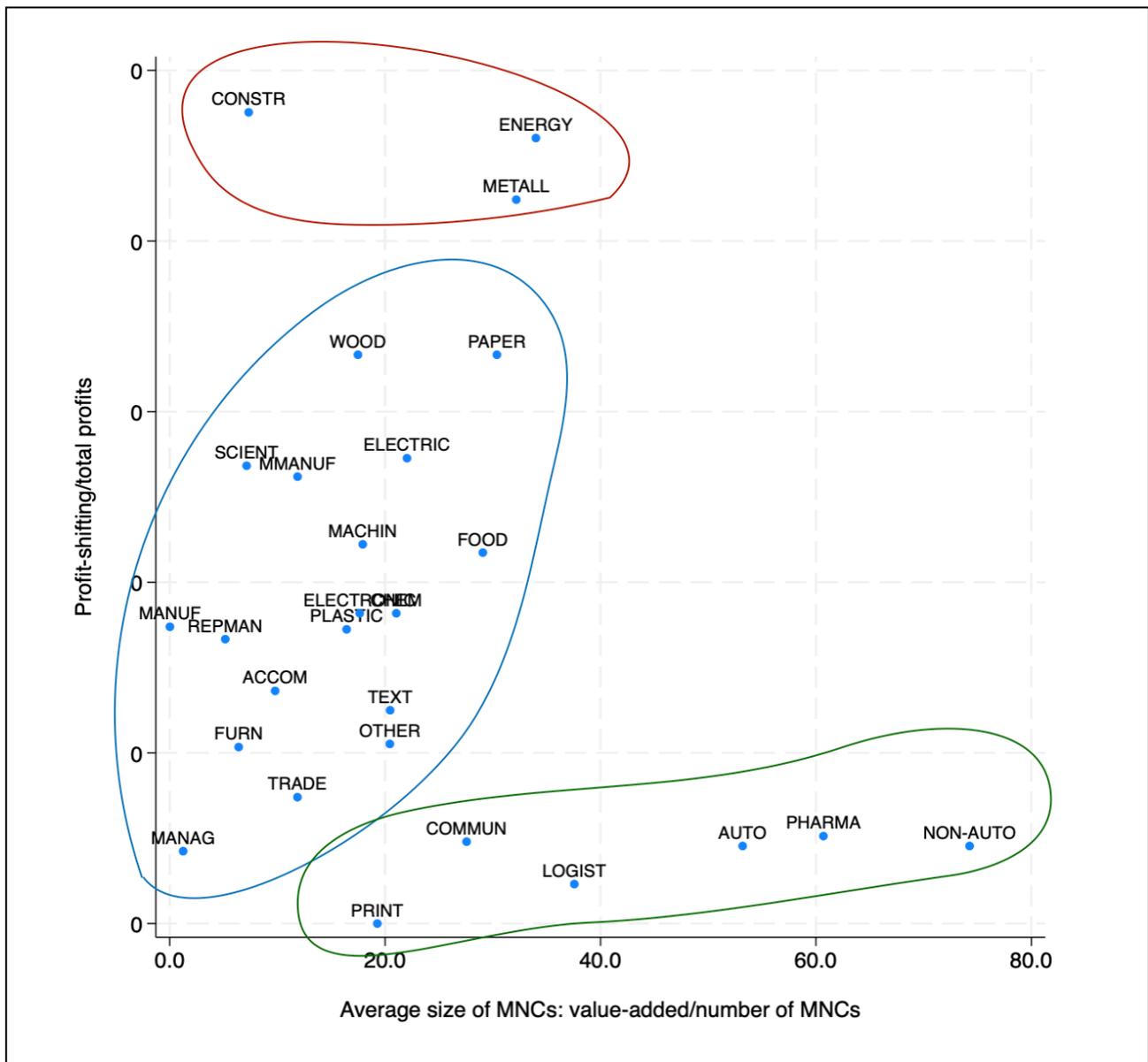
Datasource: BEPS Sallusti (2019); ISTAT SBS Frame.

### Concentration

Market concentration being a structural determinant of profit-shifting is a crucial hypothesis of the investigation.

For this reason, *graph 3* presents preliminary evidences on this hypothesis. In line with the assumptions and with the literature reviewed, the average size (in terms of value-added produced) of MNCs in each sector shows a positive relation with profit-shifting.

Notwithstanding the general positive relation, sectors with top level of profit-shifting seem to be characterised by lowest average size of MNCs, in contrast with the importance of super-majors in

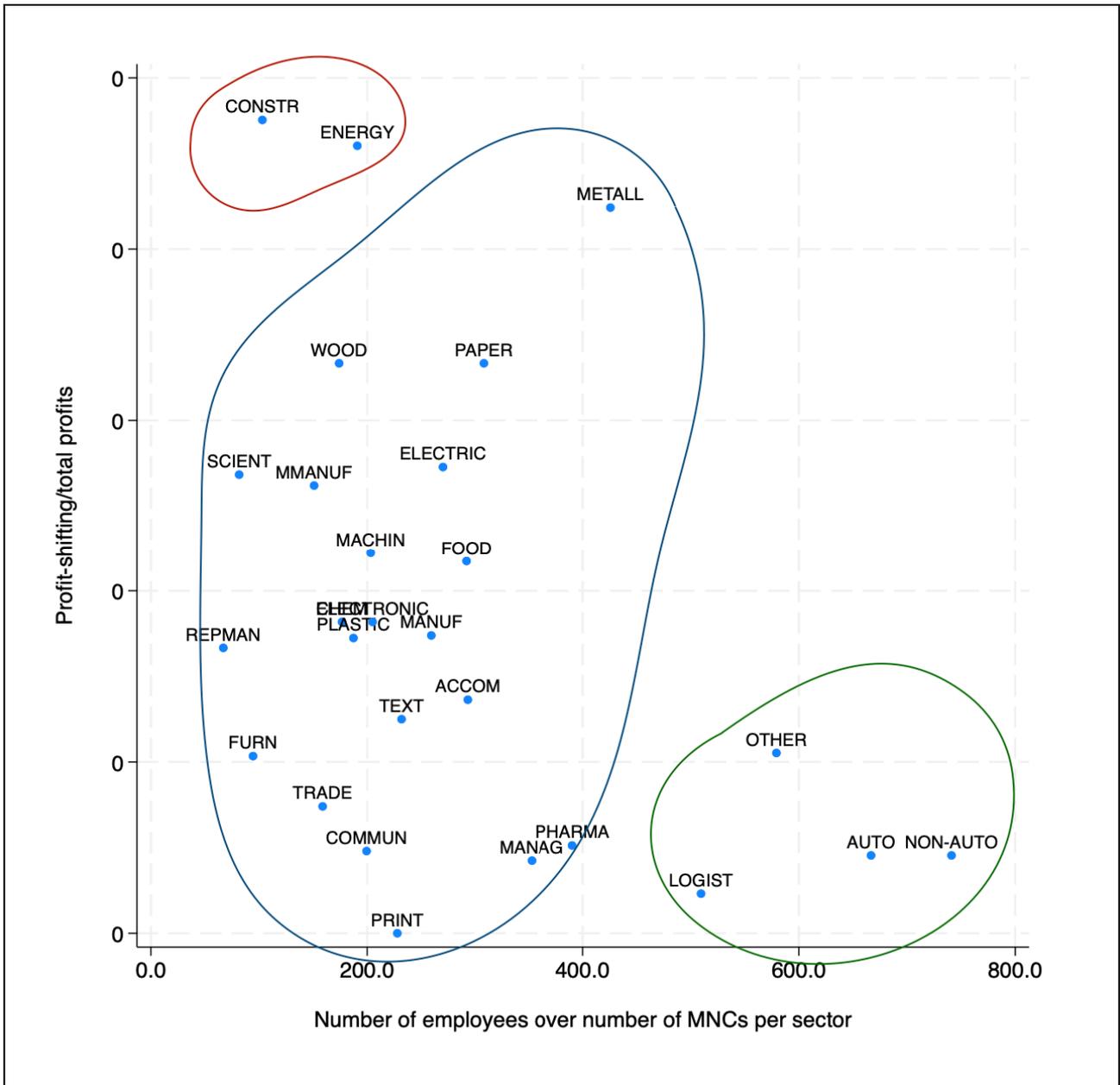


**Graph 3: Average size of MNCs in each business sector and profit-shifting of MNCs in Italy (2019)**

The preliminary proxy of concentration built in this investigation is based on the average size of MNCs in each business sector (value-added of MNCs over number of MNCs per each sector) and it is shown in graph 3 in relation to the relative amount of profit-shifting against total profits accumulated by MNCs.

Datasource: BEPS Sallusti (2019), ISTAT SBS Frame.

those same sectors. It seems reasonable to expect higher levels of concentration in those sectors where we have actors as big as the super-majors of the energy and construction sectors. This counter-intuitive result can be due to important data constraints which may have impacted the analysis. In fact, MNCs' value-added is extracted from SBS Frame statistics which distinguish



**Graph 4: Average size of MNCs in terms of employees in each business sector and profit-shifting of MNCs in Italy (2019)**

*In order to investigate the relationship between concentration and profit-shifting, we have also taken into consideration the average size of MNCs in each business sector (employees of MNCs over number of MNCs per each sector). Graph 4 thus shows the relation between average firm size (in terms of employees of MNCs) per business sector and the relative amount of profit-shifting against total profits accumulated by MNCs.*

*Datasource: BEPS Sallusti (2019), ISTAT SBS Frame.*

between domestic and foreign firms. In order to avoid double-counting, the average size is probably excessively conservative.

Similarly, **graph 4** shows the same relationship measuring the average size of MNCs in terms of total employees. The core of manufacturing in Italy shows high average sizes in relation with high profit-shifting.

At the same time, also this definition seems unable to capture concentration in each sectors. For instance, the construction and energy sectors, both characterised by the presence of global super-

majors, show limited average size. This result can be explained by the fact that super-majors might have administrative, legal, accounting headquarters in Italy, employing a limited number of people, while most of the production is delocalised.

Moreover, due to constraints in data availability, concentration proxied by average size of MNCs in the sector is incomplete and inaccurate.

The investigation has tested average MNCs' size in terms of value-added produced and of total workers employed in the sector. Neither definition is totally satisfying. The investigation of concentration needs to be further explored, with other indicators and datasources.

Future investigations may interestingly comprise different operationalisations of the concentration concept: market shares are often used for industry concentration analyses; concentration curves (implemented on the model of the Federal Trade Commission); other concentration indicators (C4, the share of the top 4 firms in each sectors, or HHI, Herfindahl-Hirschman Index); some interesting proxies, such as the reversed relation with inequality (Gini or Lorenz) within each sector (for a not-very-recent, but interesting overview: Rosenbluth 1955).

## **Financialisation**

**Graph 5** shows the relationship between profit-shifting and financialisation. In line with the assumptions made, financialisation seems to be a crucial structural determinant of tax-avoidance.

Financialisation has been proxied by subtracting investments in real economy (gross fixed capital formation) from total profits accumulated in each sector. The basic idea is that profits not invested in the real economy are by definition accumulated in the form of retained earnings, distributed as dividends and/or invested in the financial sphere.

Gross fixed capital formation has been extracted from industry-level data from the Sectoral Innovation Database (SID). Shares attributable to MNCs in each sector have been imputed on the basis of their contribution in terms of value-added.

In this manner, we have built a proxy of financial activities as result of the subtraction of gross fixed capital formation from total profits of MNCs, assuming by definition that each euro not invested in real production is automatically invested in the financial sphere (or distributed to shareholders, in accordance with shareholder value maximisation theory).

The definition does not aim at accuracy, nevertheless it can be considered an adequate approximation of financialisation for the scope of this exploratory research. In fact, we are interested in investigating whether access (or lack of access) to financial means facilitates MNCs in avoiding taxes and shifting profits.

Indeed, as **graph 5** shows, there is a positive relationship between the intensity of profit-shifting and the level of financialisation of MNCs in each sector.

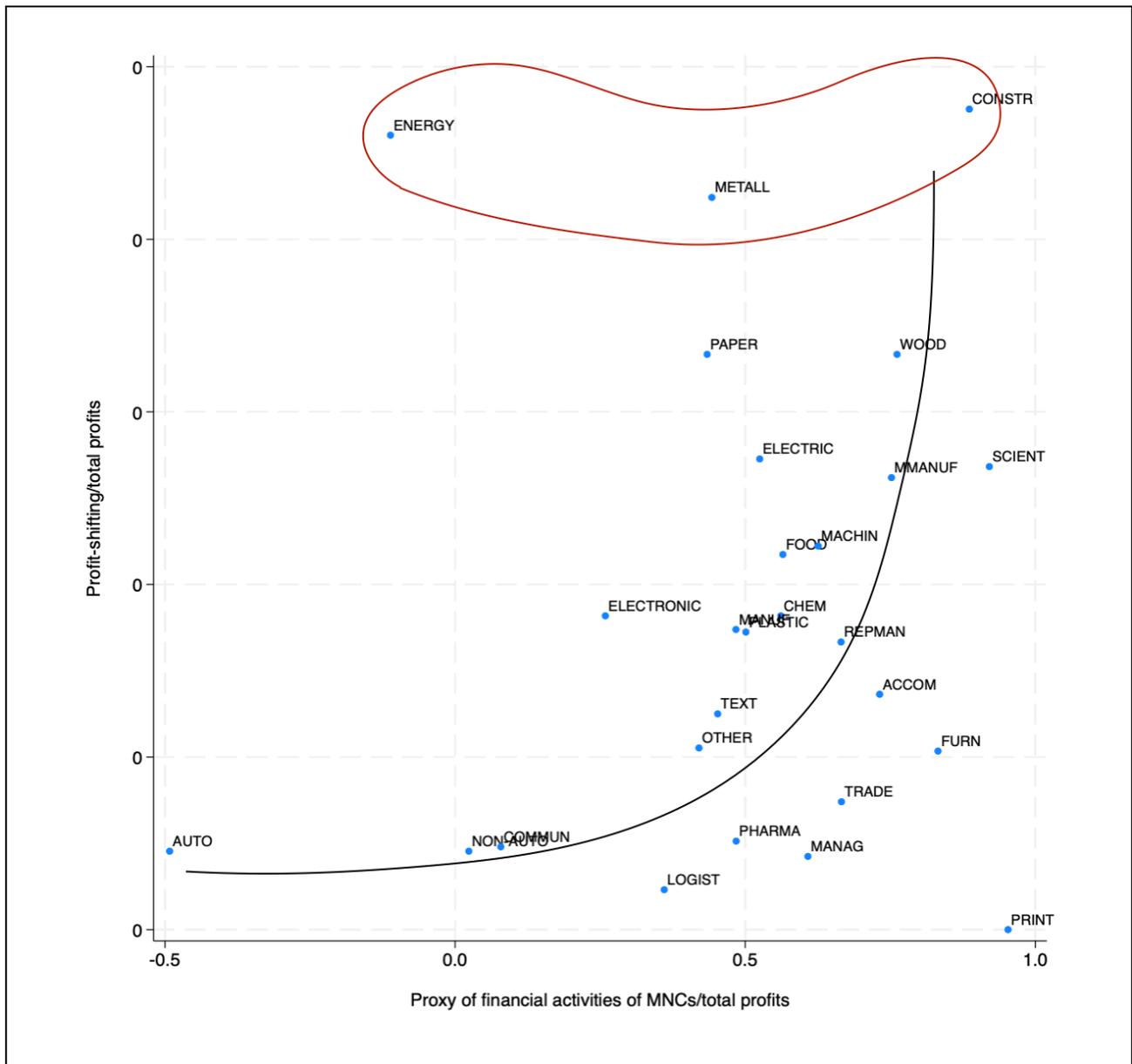
The sectors identified as top players of profit-shifting seem to have also high level of financialisation, including retained earnings and/or distributed dividends. The construction and the metallurgic sectors clearly show high levels of financialisation hand in hand with high profit-shifting over total profits. Same applies to the wood-manufacturing and paper-manufacturing sectors: this may contribute to explaining the high level of profit-shifting in relative terms in these sectors.

Financialisation seems an interesting structural driver of profit-shifting for other sectors, too. This is the case of: electrical manufacturing, machinery manufacturing, metal manufacturing, but also

electronic and computer manufacturing, food and beverages manufacturing and, not surprisingly, the scientific, professional and technical activities sector.

The role of financialisation as structural determinant of profit-shifting can be further investigated in different manners.

An important indicator of financial involvement is the presence of financial affiliates within the multinational group itself. This helps explaining the outliers in **graph 5**. The energy sector shows lowest levels of financial involvement than expected. It must be underlined that top-players in the energy sector often have internal financial affiliates. For instance, *Eni S.p.a.* has different financial

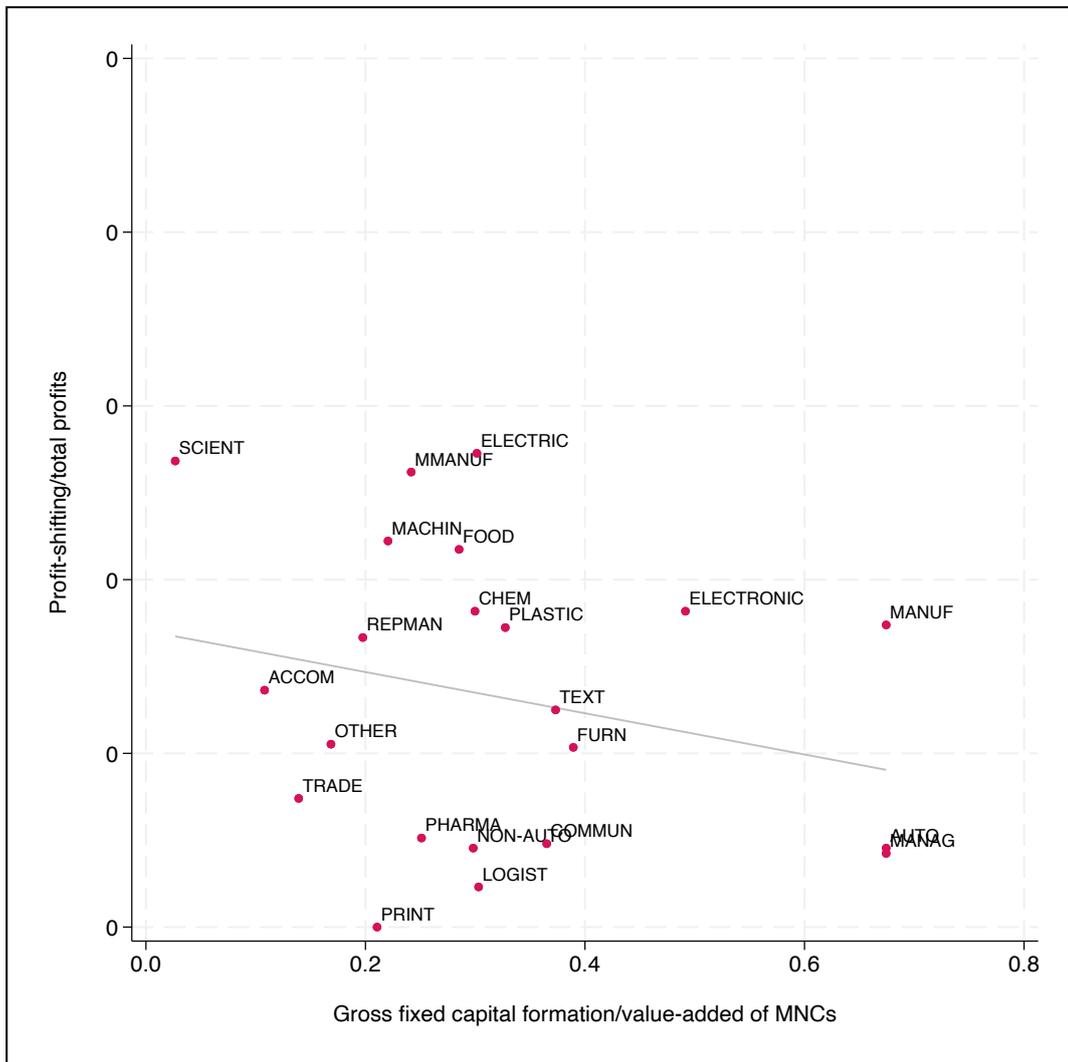


**Graph 5: Level of financialisation in each business sector and profit-shifting of MNCs in Italy (2019)**

*Graph 5 shows the relative amount of profit-shifting over total profits of MNCs in relation to a proxy of the magnitude of financial activities (adopting a large definition which incorporates retained earnings, dividends distributed, in addition to real financial investments) in each business-sector:*

*Author’s elaboration from BEPS Sallusti (2019), SID, ISTAT SBS Frame.*

affiliates: one of them is a bank, *Banque Eni*; *Eni Next LLC* is a corporate venture capital company; *Enivibes* is specialised in asset integrity monitoring and evaluation services; *EGEM (Eni Global Energy Markets)* is instructed to manage asset-portfolios of the group.



**Graph 6: Investment in real economic activities and profit-shifting of MNCs in Italy (2019)**

*Graph 6 shows profit-shifting over total profits of MNCs in relation to how much investments in the real economy is done by MNCs in each business sector, excluding outliers with high profit-shifting over profits, calculated as the gross fixed capital formation over value-added of MNCs.*

*Datasource: BEPS Sallusti (2019), SID, ISTAT SBS Frame.*

Moreover, the average turnover of top executive managers within the corporation tends to be higher in highly-financialised companies (Chang 2015).

In addition, the role of new actors of financialisation, such as asset managers (Braun 2022), can further contribute to explaining this relationship.

Indeed, further research should take into account these considerations in order to assess the level of financialisation and its relation to profit-shifting.

In order to counter-proof the results regarding the role of real *vis-à-vis* immaterial economy in profit-shifting, **graph 6** shows the inverse relationship between real economic activities (gross fixed capital formation) and profit-shifting. The graph excludes the sectors with top profit-shifting, in order to clean for eventual dimensional biases.

As expected from the results on financialisation, we can identify a trade-off between real economic investment and profit-shifting: the more MNCs invest in the real economy (the less they are involved into financial activities), the less profit-shifting for tax-purposes they are estimated to implement.

### **The role of technology**

Finally, the hypothesis over the role of technology as structural determinant of profit-shifting is investigated.

The role of technology is crucial not only because it relates to the use of intangibles as means of profit-shifting, but also because it is related to market power and concentration. Some specific characteristics of intangibles (scalability and legal protection) tend to be related to concentration. Intangibles allow for rise in productivity, market power against competitors and increasing rents. Moreover, intellectual property rights (IPRs) are connected to leading firms and industry leaders. There seems to be a two-way relationship between the role of technology (especially intangibles) and market concentration (Crouzet and Eberly 2019).

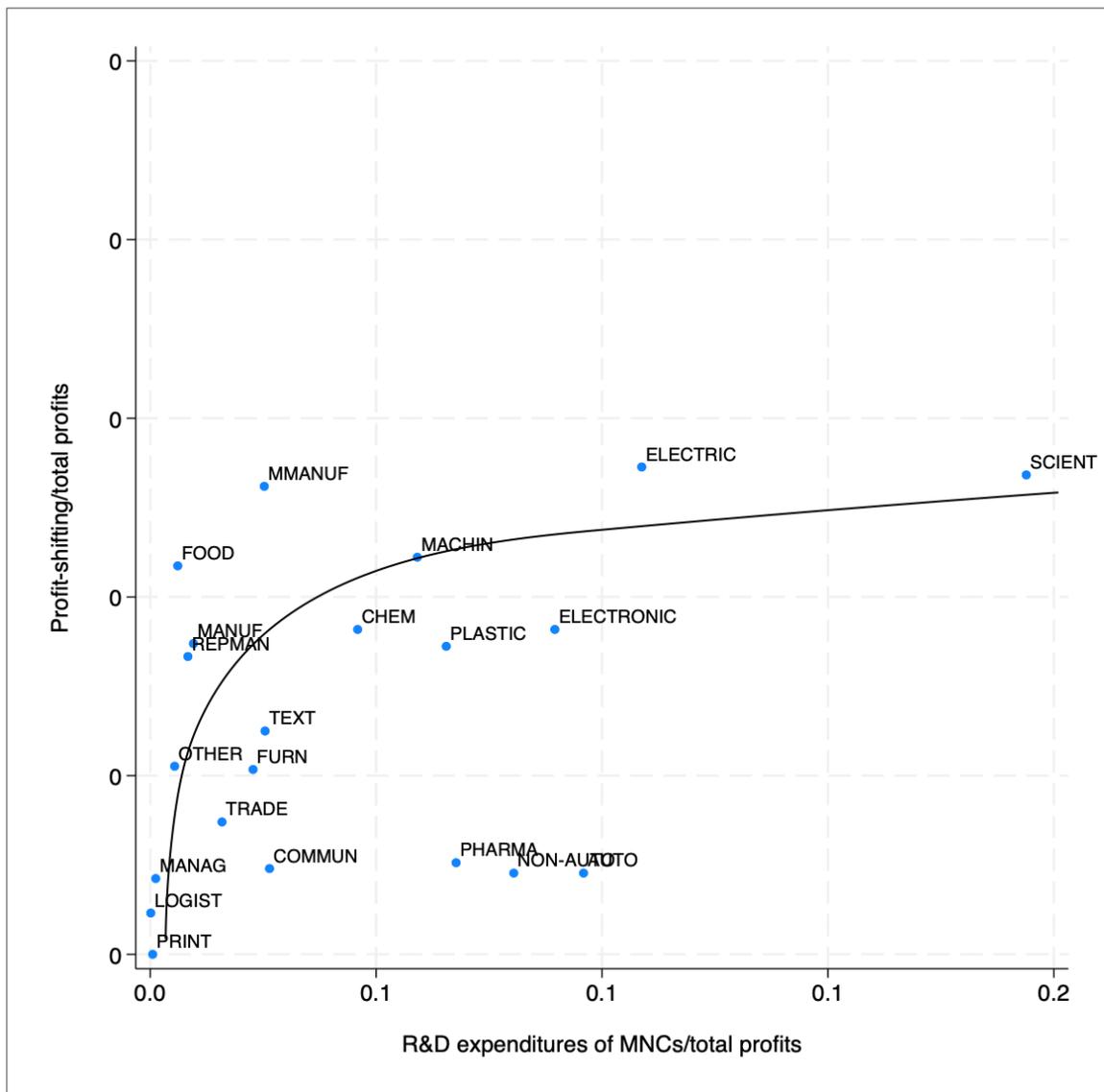
The relationship between profit-shifting and role of technology has been empirically proxied by investment in research and development (R&D).

**Graph 7** shows the relationship between R&D investment and profit-shifting. The graph shows only sectors with low and medium levels of profit-shifting. The choice is supported by empirical investigation of the super-majors in high profit-shifting sectors: there are evidences that the largest companies in energy, construction and metallurgic sectors have affiliates which are specifically in charge of innovation development and scientific research. This may bias the data on R&D to which we had access.

We can see that, given a clearly not-linear relationship, there is indeed an interested in investigating profit-shifting and investments in R&D. The relationship corroborates the hypothesis that the role of technology is crucial in tax-avoidance practices. This provides evidences in favour of the increasing role of intangibles (logos, patents, IPRs, logarithms) in global profit-shifting.

The sector investing more in R&D is the one of professional, technical and scientific activities. Also electric machinery manufacturing and computer and electronic manufacturing stand out for important investment in R&D.

Technology, specifically intangible, seems to partially influence behaviours of MNCs in terms of profit-shifting, facilitating it. It seems reasonable to argue that the role of technology should be further investigated for understanding profit-shifting for tax-advantages done by corporations.



**Graph 7: Research and development (R&D) and profit-shifting of MNCs in Italy (2019)**

*Graph 7 puts in relation the expenditures of MNCs in R&D activities and the amount of profit-shifting over total profits earned per each business sector. The analysis is implemented excluding outliers.*

*Datasource: BEPS Sallusti (2019), ISTAT SBS Frame.*

## Taxonomy

The exploratory investigation has tested four theoretical-driven hypotheses identified as potential structural determinants of MNCs' profit-shifting. In order to provide a larger picture, a provisional taxonomy is here presented.

The taxonomy is based on intensity of profit-shifting (calculated as profit-shifting over total profits) and average size (based on attributable value-added) of MNCs in each sector. The four quadrants constructed on the basis of median values show the location of each sector in terms of high/low profit-shifting and high/low concentration.

Furthermore, for each sector a sort of "prevalent explanation" has been underlined. Prevalent explanations have been selected on the basis of standard deviation from the median. Apart from

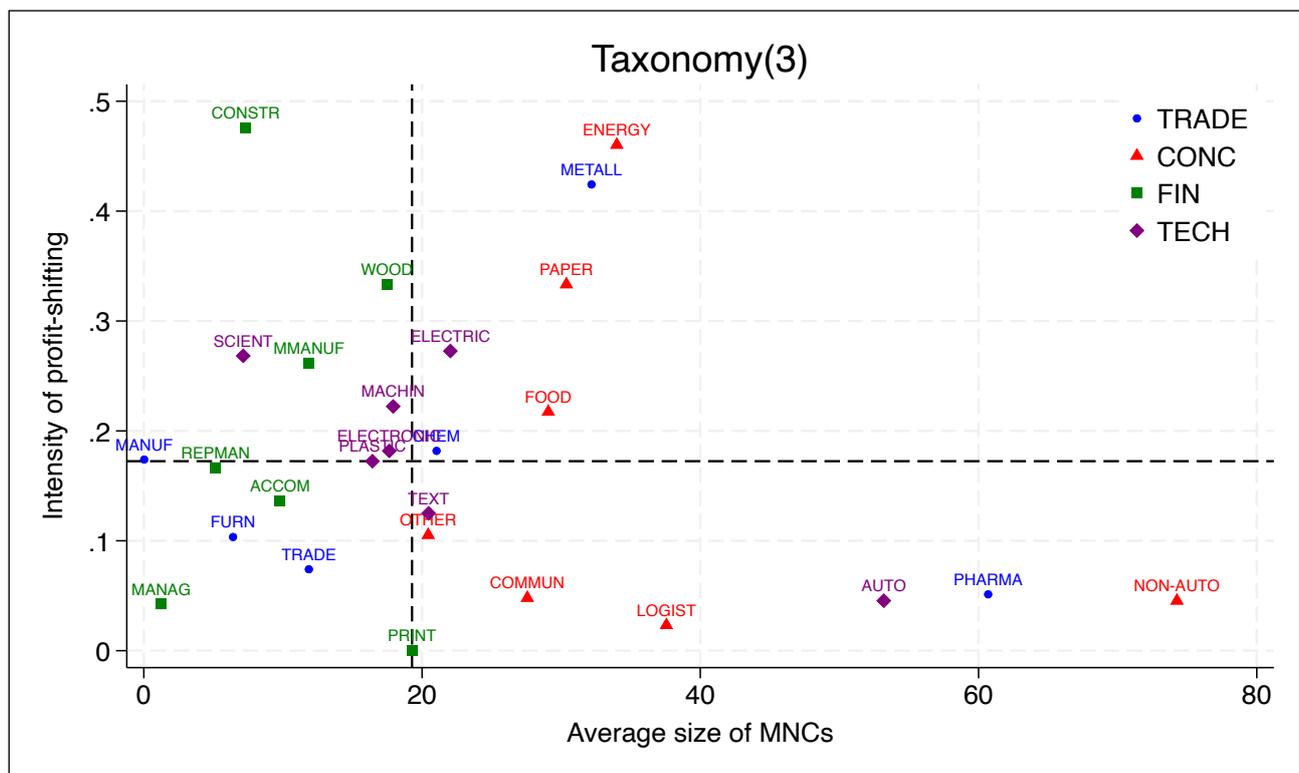
some cases of ambiguity, whereas prevalent explanation has been manually assigned on the basis of the reviewed literature, most of the sectors show a single prevalent explanation.

**Graph 8** shows that concentration (“CONC”), financialisation (“FIN”) and role of technology (“TECH”) appear to be crucial structural drivers in most sectors.

On the other hand, internationalisation (“TRADE”) seems a less important determinant of profit-shifting. Sectors where internationalisation is identified as prevalent explanation are characterised by strong competing hypotheses too.

We underline that there seems to be a trade-off between financialisation and concentration as prevalent determinants. Sectors characterised by lower concentration systematically show higher financialisation, in both service and industry.

As expected, the role of technology is particularly important in some cases, such as services in scientific activities, electric and electronic manufacturing, machinery manufacturing, plastic manufacturing, plus the automotive sector.



**Graph 8: profit-shifting intensity vs prevalent structural explanation**

Graph 8 pictures the location of MNCs in each sector in terms of profit-shifting intensity (profit-shifting over total profits of MNCs in each sector) and in terms of market concentration (proxied by average size in terms of value-added attributable to MNCs in each sector). Prevalent explanation has been assigned on the basis of standard deviation from the median of each selected variable.

Elaboration of the author from BEPS Sallusti (2019); ISTAT SBS Frame.

## 7. Conclusion

To sum up, this exploratory investigation has expanded four theoretical-driven hypotheses of structural determinants of profit-shifting implemented by multinational corporations. Some preliminary considerations can be extracted from the analysis.

Business sectors are characterised by strong heterogeneity in terms of profit-shifting behaviours.

This might be explained by looking in depth into firm-level corporate strategies. Indeed, priorities differ among corporations; moreover, sector-level estimates of profit-shifting may be related to the presence of specific actors and of super-majors.

In fact, economic performance itself seems a strong determinant of profit-shifting. Some sectors are characterised by high levels of profit-shifting and this may be related to the presence of industry leaders and major actors in the sector itself.

Nevertheless, structural relations can be extracted from the exploratory investigation.

First of all, a significant and positive relationship between financialisation and profit-shifting seems to be present. Financialisation may be a determinant of profit-shifting for sectors with high profit-shifting intensity, as well for sectors with limited intensity of profit-shifting. Overall, we highlight interesting results in terms of involvement into financial activities and profit-shifting done.

Therefore, disentangling the relationship between financialisation and tax-avoidance might be crucial.

Although not as sharp, market concentration might be an important determinant of profit-shifting. Average size of MNCs (both in terms of value-added and of number of employees) appears to be related to profit-shifting intensity.

Furthermore, market concentration and power contribute to explaining economic dynamics related to the structural determinants here identified. For instance, R&D expenditures and the selective use of intangibles for tax-purposes might be related to higher concentration and increasing market shares of MNCs. This looks a promising line of research for future investigations.

At the same time, more accurate operationalisations of the concept of concentration should be implemented in order to better test the hypothesis.

Finally, from the preliminary analysis implemented, we can identify a relationship between R&D investment and profit-shifting. Indeed, the role of technology might be crucial for profit-shifting and tax-avoidance.

R&D expenditures are a preliminary proxy of the strategic use of intangibles which can be fruitfully investigated at firm-level and with other indicators.

The structural determinants identified in the investigation (internationalisation, concentration, financialisation and role of technology) deserve to be further explored, potentially with firm-level data and/or implementing international comparisons.

Profit-shifting has dramatic consequences in terms of economic performances and of political outcomes. There is the clear need of effective policies addressing it and its impact, in the wake of OECD BEPS initiative (Base Erosion and Profit-Shifting) and the recent evolution into the two-Pillars project. The cruciality of the topic under investigation stands out from economic and political considerations of this kind.

Indeed, the Pandora's box of tax-avoidance of MNCs has been opened. The time has come to go deeper and deeper into it.

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