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# The growth-inequality debate revisited by rent-seeking theory: Some empirical evidence

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## ABSTRACT

The growth/income inequality nexus is surrounded by theoretical as well as empirical ambiguities. These ambiguities can be lifted by focusing on the nature of inequalities and not their level. Inequalities may be the result of productive profit-seeking activities or unproductive rent-seeking activities. To re-assess empirically the growth/income inequality nexus, we first propose a strategy to approximate the nature of inequalities by an indicator of institutional quality. We propose an indicator of institutions' productivity which describes the prevalence of institutions favourable to the search for profit and institutions fostering the search for rents, and conversely. It is an indirect measure of the predominance of rent-seeking activities over profit-seeking ones, and conversely. Then, using a panel data covering the period 1990–2020 for 114 countries (88 developing countries and 26 developed countries) and relying on the two-way fixed effects technique to test our estimator, we show that countries where institutions' productivity is high, growth is positively related to income inequality. Conversely, growth is negatively related to income inequality in countries where institutions' productivity is low. There is thus a positive relationship between *productive inequalities* and growth in countries where profit-seeking institutions dominate the institutional setting. By analogy, in countries where rent-seeking institutions are dominant there is a negative relationship between *unproductive inequalities* and growth. Contrary to previous public policy recommendations, inequalities should not be tackled since they are pro-growth in countries with high levels of institutions' productivity.

## 1. Introduction

Discussion on income distribution and its public policy implications has come back into the academic literature (Piketty 2014; Panico and Pinto 2017). Moreover, with the advent of the financial crisis and the Great Recession, many scholars called for increased redistribution as well as substantial government control and regulation to bring down levels of inequality (Cingano 2014; Stiglitz 2009). Nonetheless, there is little consensus regarding the impact of income inequality on economic growth (Dominicis et al., 2008; Davis and Hopkins 2011, p.977). Indeed, most of the research until the mid-1990s claimed that income inequality has negative effects on economic growth, while research taking the opposite view has arisen since the late 1990s.<sup>1</sup>

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<sup>1</sup> A detailed survey of this literature is available in Lee and Son (2016).

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The theoretical rationales for a negative relationship can be split into three categories. The first is based on the credit market imperfection theory which explains the negative relationship as being due to insufficient funds of low-income families for investment (Galor and Zeira 1993; Piketty 1997; Aghion et al., 1999). The second category claims that economic inequality is likely to lead to distorted redistribution policies, which may decrease labor incentives and thereby slow down economic growth (Alesina and Rodrik 1994; Persson and Tabellini 1994). Several studies, find that large government consumption and taxation reduces entrepreneurial activity, for example (Nyström 2008; Bjørnskov and Foss, 2016). The third view can be found in socio-political instability theory which maintains that a greater degree of inequality in wealth and income could raise the likelihood of poor people participating in activities such as crime, rioting, and revolution, those activities being detrimental to growth (Gupta 1990; Alesina and Perotti 1996; Benhabib and Rustichini 1996).

Empirical attempts to characterize the growth-inequality relationship have also been performed using various methods and have come up with mixed evidence. Perotti (1996), Alesina and Rodrik (1994) and Persson and Tabellini (1994) find evidence of a negative relationship through a method of cross-sectional regression which tests the influence of initial inequality on long-term economic growth.<sup>2</sup> On the other hand, Li and Zou (1998) and Forbes (2000) use panel data techniques to control for omitted variables and find that income inequality is good for growth. Other contributions highlight that the effects of inequality on growth differ depending upon stages of economic development across countries (Barro 2000; Banerjee and Duflo 2003; Castello-Climent 2010).

In an attempt to address those mixed empirical results, Lee and Son (2016) had pointed out the data limitation of previous studies which cover a period from 1965 to 1990, as well as the lack of relying on advanced dynamic panel techniques. Using relatively recent Gini coefficients from 1980 to 2010 through a dynamic panel technique of the system GMM, they found that, contrary to Forbes (2000) and Li and Zou (1998), inequality can reduce the rate of economic growth. Interestingly, two other contributions have addressed this mixed evidence in the empirical literature by considering the role played by institutions and economic freedom, variables that were ignored in previous studies. First, Davis and Hopkins (2011) find a strong negative relationship between the protection of property rights and income inequality. They show that short-run changes in inequality over time are positively associated with growth within countries. However, the variation in long-run inequality levels across countries is not a significant determinant of growth, thus refuting the claims that inequality directly slows economic growth. Their overall result suggests that reforms that improve the security of property rights for the poor will tend to advance both development goals, increasing economic growth while reducing income inequality. Second, investigating the effects of economic freedom on the growth-inequality debate Bjørnskov (2016)'s study is in line with and Davis and Hopkins (2011). His result of estimating medium-run growth determinants across the 50 U.S. states between 1981 and 2011 shows that the association between inequality and growth appears to be conditional: the higher the level of economic freedom is in a state, the more likely it is that income inequality contributes positively to economic growth.

The contributions of Davis and Hopkins (2011) and Bjørnskov (2016) suggest that institutional quality is an important driver of the growth-inequality nexus. However, we think that their reasoning is incomplete since they do not focus on different types of institutions, and most importantly they do not discuss the role played by the nature of inequality itself. And yet, we point out in this paper that the nature of inequality, which is driven by the underlying institutional setting, is a fundamental driver of the growth-inequality debate. Thus far, this theoretical consideration has been ignored by the literature. To intuitively understand this idea, one can consider the following example. In the European feudal system, the wealth of some individuals can explain the poverty of others. In such a system, the wealthiest are not wealthy because they have invested their resources in productive profit-seeking activities, but because they have used them to control political power and obtain legal monopolies and entry barriers which create artificial profits (Mises 1958). In a predatory society, it is logical to link predation and poverty, while in a free society, where private property rights are clearly defined and protected by the legal system, entrepreneurs become wealthy by engaging in free markets (Holcombe 1998; Boettke and Coyne 2003). Under these conditions, inequalities may intrinsically be driven by unproductive profit-seeking activities (rent) or productive profit-seeking activities (profit). Productive profit-seeking is a behaviour associated with the productive activity of entrepreneurs and it is favourable to growth (Audretsch and Keilbach 2008). Inequalities originating from productive profit-seeking activities are thus pro-growth. On the contrary, inequalities driven by unproductive profit-seeking behaviour are detrimental to economic growth (Tullock 1967; Hillman 2013).

The contribution of our paper is two-fold. First, we introduce the discussion on the intrinsic nature of inequalities into the theoretical analysis on the growth-inequality nexus, and how it is related to the institutional framework. The expected positive or negative sign of the relationship between inequalities and economic growth depends upon the way individuals get wealthier. If it is through profit-seeking behaviours, the relationship is positive. If they get wealthier through rent-seeking behaviours, the relationship is negative. What is important is not inequalities as such and their level, but rather their intrinsic nature. Second, to our knowledge and up to date, there is no income inequality indicator that measures the share of inequalities driven by profit-seeking behaviors and those driven by rent-seeking behaviors. Hence, another methodological innovation of our contribution is to propose a strategy to account for such distinction when we study the sign of the growth-income inequality nexus. We argue that institutions themselves enable to distinguish economies where rent-seeking activities dominate profit-seeking ones. This justifies approximating the nature of inequalities by an indicator of institutional quality. Such an indicator must capture the predominance of rent-seeking activities over profit-seeking ones, and conversely. In that perspective we propose an indicator of institutions' productivity (IP) which measures the prevalence of profit-seeking oriented institutions over rent-seeking oriented institutions, and conversely. Our IP indicator is an indirect way to approximate the distribution between rent-seeking activities and profit-seeking ones within a country. In countries where

<sup>2</sup> Other recent studies have supported a negative relationship by introducing the impact of countries' initial income level (Brueckner and Lederman 2018), Shen and Zhao (2022).

favoritism and rent-seeking activities are the main source of inequalities, the IP indicator would display a low value and the growth-income inequality relation is negative, whereas in countries where institutions are more favourable to the search for profit (high IP value), the relation is positive.

Relying on the use of the two-way fixed effects technique to test our estimator, we test empirically our hypotheses using a panel data covering the period 1990–2020 for 114 countries (88 developing countries and 26 developed countries). The regression analysis shows a positive association between the multiplication between the Gini coefficient and the IP indicator and our dependent variable (economic growth). This result helps us to capture the nature of inequalities and its effect on the growth-income inequality debate. There is a positive relationship between productive inequalities and growth in countries where profit-seeking institutions dominate the institutional setting. Symmetrically, in countries where rent-seeking institutions are dominant, there is a negative relationship between unproductive inequalities and growth. Hence, inequalities driven by profit-seeking oriented institutions positively affect economic growth and not negatively. The robustness check of our analysis consists of exploring the System GMM estimator that allows addressing the endogeneity problem. As expected, in countries where institutions' productivity is high, growth is positively related to income inequality. Conversely, growth is negatively related to income inequality in countries where institutions' productivity is low. To date, no papers, to the best of our knowledge, have explicitly investigated the role of institutions' productivity in the above relationship using a new variable capturing the productivity level of institutions. Contrary to previous public policy recommendations, inequalities should not be tackled since they are pro-growth in countries with a high level of institutions' productivity.

The article is organized as follows. In section 2, we present our theoretical argument on the effect of institutional design on the intrinsic nature of inequalities. Section 3 details the construction of our institutions' productivity indicator and displays some stylized facts and presents our hypothesis. Section 4 presents the data, the methodology and discusses the empirical model and the set of control variables. Section 5 discusses the main empirical results in line with our theory. Section 6 provides the robustness check. Section 7 concludes.

## 2. Institutional design and the intrinsic nature of inequalities

Driven by the seminal [Tullock \(1967\)](#)'s theoretical framework, we argue in this section that the nature of inequality is conditioned by the institutional design. We start our discussion by going back to the old classical idea that economic agents seek gains either through economic production and voluntary exchange or through political actions by securing legal privileges which interfere with other people's use of economic resources ([Euzent and Martin 1984](#)). Nineteen century French economist Frederic Bastiat ([1848], [1995](#), p.5<sup>3</sup>) already distinguished between ownership acquired through his/her own work and plunder, that is, taking someone else's ownership without his/her consent. There are two ways to get wealthy; either through production or through predation. Inequalities may thus result from two different process driven by different type of institutions.

In modern economic theory plunder is associated with rent. The rent ( $R$ ) is a benefit obtained not productively, but through influencing the decision of others ([Hillman 2009](#), p.84). If  $y$  is the income received in the government job, for instance, and  $w$  is the competitively determined wage available in the private sector, the government job provides the individual with a rent  $R$  given by:  $R = y - w$ . If  $R > 0$ , and therefore  $y > w$ , the political appointee prefers the government job ([Hillman 2009](#), p.84). The determination of the market income ( $w$ ) respects the Say Law which states that one can only purchase the economic production of others with one own's production, i.e., the value one can buy is equal to the value one can produce. In a society where property rights are well-defined and enforced by the legal system, individuals do not spend more than they produce. They are required to work more if they wish to earn more money and consume more. If they wish to make more earnings, they must perform better than others. Free market principles put everyone in a state of rivalry. Each person's income is continually threatened by the services offered by others. On the contrary, in a society where I can get wealthier through redistribution or market protection, I can consume more than I would have earned on the market, and make others support a substantial part of the costs of my choices. I can live as a parasite. The control of State power gives the opportunity to live as a parasite. Indeed, the State is the great fiction through which everybody endeavours to live at the expense of everyone else" ([Bastiat 1848](#)). The State is "a social institutions, forced by victorious group of men on a defeated group, with the sole purpose of regulating the dominion of the victorious group over the vanquished, and securing itself against revolt from within and attacks from abroad" ([Oppenheimer 1975](#) quoted by [Zywicki 2000](#), p.92). The rule of law is, under these conditions, an instrument to resist to expropriation and to create a domain that not even the State is allowed to trespass. The rule of law and the security of property rights protect minority against current majorities and give them a veto right. Therefore, personal enrichment is driven by the institutional context. The latter contributes either to protect the profits of producers, or to allow everyone to live at the expense of others. In other words, institutions as the rules of the social game direct individuals towards rent-seeking activities or towards profit-seeking activities.

Interestingly, [Baumol \(1990, 2004\)](#)'s theoretical framework extends this approach by introducing types of entrepreneurships.

<sup>3</sup> "Unfortunately, the law is by no means confined to its proper role. It is not only in indifferent and debatable matters that it has exceeded its legitimate function. It has done worse; it has acted in a way contrary to its own end; it has destroyed its own object: it has been employed in abolishing the justice which it was supposed to maintain, in effacing that limit between rights which it was its mission to respect; it has put the collective force at the service of those who desire to exploit, without risk and without scruple, the person, liberty, or property of others; it has converted plunder into a right, in order to protect it, and legitimate defense into a crime, in order to punish it" ([Bastiat \[1848\] 1995](#), p.5).

William Baumol (1990<sup>4</sup>) distinguishes two types of activity, productive and unproductive profit-seeking. The individual allocates his or her effort between productive entrepreneurship and unproductive entrepreneurship (Sobel 2008, p.642). Two extreme solutions can emerge. Either he or she allocates full time to unproductive profit-seeking (i.e., rent-seeker) or full time to productive profit-seeking (private entrepreneur). Rent-seeking is defined as “*the pursuit of earnings primarily through redistribution in one’s own favour, rather than in return for any productive accomplishment*” (Baumol 2004, p 11).<sup>5</sup> Each economy is then characterized by an amount of effort allocated to profit-seeking and an amount allocated to rent-seeking. In Sobel (2008)’s terminology, it is the net entrepreneurial activity of the economy. It gives the amount of productive efforts minus the amount of unproductive efforts. The institutional design explains the sign of net entrepreneurial activity. If the gains from profit-seeking or productive entrepreneurial activity are less than the gains from rent-seeking activity, entrepreneurs rationally favour the latter. They shift away from free-market related behaviours to devote themselves to political behaviour. They become political entrepreneurs (Holcombe 2002) and get wealthy by securing rents. The opposite is true when the gain of productive activities outweighs those of rent-seeking activities.

Following this line of theoretical reasoning, we further argue that inequalities are productive when they are generated by free market institutions, whereas they are unproductive when they are driven by rent-seeking institutions. First of all, let us recall that rent-seeking activities are negative sum game. Rent seeking is a cause of inefficiency (Tullock 1967; Hillman 2009 p.85). In this “great fiction through which everybody endeavours to live at the expense of everyone else”, everyone contests the rents of the others. Everyone uses resources to expropriate others’ property. These resources are used unproductively and generate political transaction costs. The latter are the costs to shift one euro from Peter to Paul in order to protect Paul’s profits and weaken Peter’s welfare. Unproductive profit-seeking activities is essentially redistribution, i.e., legal, or illegal predation (corruption). When the institutional design provides incentives to adopt a strategy of free rider, unproductive profit-seeking activities occur at the expense of productive profit-seeking one. For instance, Yi and Chun (2021) highlighted that the underdevelopment of formal institutions such as property rights protection and the rule of law in China has raised the importance of unproductive activities. Due to the absence of well-developed market-supporting institutions, private entrepreneurs in China are subject to various obstacles and uncertainties in running their businesses (Haveman et al., 2017; Xu 2011).<sup>6</sup> To deal with the uncertainty and risk associated with institutional imperfections, one way is to build connections with government officials and bureaucrats (Oppen et al., 2017; Park and Luo 2001). However, cultivating personal ties with government bureaucrats involves a variety of unproductive activities. For example, private entrepreneurs need to devote efforts to keep frequent interactions and curry favour with those bureaucrats or even their family members (Shu and Cai 2017).<sup>7</sup> Under such predatory world dominated by rent-seeking institutions, economic growth is a negative function of unproductive profit-seeking behaviours.<sup>8</sup> But most importantly, when a large part of the population is exploited by others, inequalities are themselves, driven by unproductive profit-seeking activities.<sup>9</sup> Hence, rent-seeking institutions would be conducive to what we call “*unproductive inequalities*”.<sup>10</sup>

Second, in a world without free riding behaviours, all the incomes are driven by productive profit-seeking activities. Individuals become wealthy because they save and invest, because they develop their alertness to economic opportunities, and take risks (Kirzner 1973). The wealthy are productive entrepreneurs. The latter invest their resources if formal as well as informal institutions limit the possibilities of free riding and reward private efforts in the marketplace. Baumol (2004)’s contribution provides historical examples of such mechanism: “*During the reigns of the last Plantagenets and the early Tudors, service to the King was a primary source of income, privilege and, perhaps most critical, landed property. As a result, the evidence indicates, economic activity by leading subjects of the Crown was focused on this direction, with productive investment by the magnates a very new phenomenon, following the innovative example of Edward IV. And during the reign of the Stuarts, when Parliament succeeded in circumscribing the rent-granting powers of the monarch, it is arguable that the economy’s entrepreneurs’ activities were redirected toward commerce and production, thereby providing part of the explanation for the subsequent British economic success in the European economy of the early 19th century*” (Baumol 2004, p11). In line with Baumol (2004)’s analysis, a large swath of literature has highlighted the prominent role of formal institutions, and in particular, the effect of economic freedom, on economic development and entrepreneurial activity (Kreft and Sobel 2005; Campbell and Rogers 2007; Bjornskov and Foss 2008; Gohman et al., 2008; Hall and Sobel 2008). In addition, a large body of empirical research suggests that economic freedom is conducive to economic growth (e.g., de Haan and Sturm 2000; de Haan et al., 2006; Doucouliagos and Ulubasoglu, 2006). Under

<sup>4</sup> Boettke and Piano (2016) highlighted that according to Google Scholar, Baumol (1990)’s paper has been cited over 4000 times in the academic literature.

<sup>5</sup> Rent-seeking activities encompass activities such as the pursuit of an exclusive license to operate a public utility; lobbying in Congress; efforts to extend the life of patents by means of inventions whose primary purpose is to exclude competition; and many additional variants, all of which are pursued entrepreneurially, with constant alertness for innovation opportunities (Baumol, 2004).

<sup>6</sup> For instance, the de facto protection of property rights remains poor. Local governments in China have high discretionary power in imposing various forms of non-tax levies, extra-legal payments, and other burdens on private firms within their jurisdictions (Guo et al., 2017; Jia and Mayer 2017; Kung and Ma 2018). In addition, the legal system and contract enforcement in China are far from effective and lack judicial independence (Clarke et al., 2008).

<sup>7</sup> Research has documented that building social relations involves considerable costs in terms of entrepreneurial time and resources (Guo et al., 2017; Zhu and Wu 2014).

<sup>8</sup> Indeed, studies have shown that unproductive activities may be costly to growth (Aidt and Hillman 2008; Murphy et al., 1991, 1993).

<sup>9</sup> Let us recall that focusing on the U.S. case Shughart et al. (2003) find that states with more influential special interest groups (and hence more lobbying) also have statistically significantly higher Gini coefficients.

<sup>10</sup> It is worth noting that studies have highlighted the existence of a double relationship between income inequality and institutional quality (Chong and Gradstein 2007), Krieger and Meierrieks (2016).

such institutional regime, it is important to highlight that the existence of inequalities shows the rewards to risk-taking behaviours and works as incentives for productive profit-seeking activities. According to Mueller (2013), “inequality is an inevitable product of capitalist activity, and expanding equality of opportunity only increases it—because some individuals and communities are simply better able than others to exploit the opportunities for development and advancement that capitalism affords” (Mueller 2013, p. 30).<sup>11</sup> From a theoretical perspective, there is thus a positive relationship between inequalities of income and entrepreneur’s productive activity (Lippman and al. 2005; Garcia Penalosa and Wen 2004). In a free society, inequalities are a signal that institutions secure the unequal income distribution of each member of the society engaged in productive profit-seeking activities. They reflect productivity differentials between individuals and their greater or lesser ability to identify profit opportunities. In such institutional framework, inequalities are intrinsically productive. Free market institutions would promote what we call “productive inequalities”, the latter being pro-growth.

The discussion above has highlighted that the nature of income inequality lies with the distinction between profit-seeking and rent-seeking behaviours, and ultimately between different institutional settings. Such a distinction helps to understand why data reliability is an issue in empirical investigations. It also suggests that the level of inequalities is probably not a good variable. *De facto*, the problem is not the inequalities but their components. The theoretical question is not whether institutions are an important determinant of income inequality, as evidenced in Davis and Hopkins (2011), but rather, what are the consequences of institutions on the intrinsic nature of inequalities. Rent-seeking societies produce inequalities *via* predation or unproductive activities. Conversely, profit-seeking societies generate inequalities *via* production or productive activities.

### 3. Measurement of income inequality nature and stylized facts

Nonetheless, the remaining challenge is how to measure the nature of inequalities. Gini is a widely used indicator to measure inequalities, but it fails to account for the intrinsic nature of inequalities and distinguishes between inequalities driven by rent-seeking and those driven by profit-seeking. Two equal Gini values are not comparable because the components of the inequalities are not the same. As discussed in Section 2, specific types of institutions provide incentives for rent-seeking or profit-seeking behaviors. For this reason, one may approximate the nature of inequalities with an indicator of institutional quality which measures the prevalence of profit-seeking oriented institutions over rent-seeking oriented institutions, and conversely. Hence, instead of relying on an indicator based on a share or a percentage, we rely on an indicator which captures the gap between those types of institutions. Within a country, distinct types of institutions coexist. There are profit-seeking institutions that promote free contracts and voluntary exchange and rent-seeking institutions that promote favoritism, distribution of privileges and impede economic competition. For instance, U.S. capitalism is often associated with a crony capitalism. While being liberal, such type of capitalism fuels inequalities driven by rents. Indeed, the proximity of economic elites with political elites ensure the protection of profits from competition in the marketplace and the granting of regulations that favors the economic elite.<sup>12</sup> Under such circumstances, a good institutional quality indicator should not measure economic freedom, only. For instance, in the U.S., economic freedom is strong, so as favoritism and collusion between economic and political elites. There is thus a need to construct an indicator that accounts for the coexistence between the personal enrichment by profit-seeking behaviors and those by rent-seeking behaviors within countries (Zywicki 2015).

In our study, we rely on a widely used indicator to capture the purity of capitalism’s institutions, which is the Economic Freedom (EF) index of the Fraser Institute. According to de Haan et al. (2006, p. 182) “this indicator is both reliable and useful.”<sup>13</sup> More importantly, we are interested in the institutional components of the EF index that are essential for our analysis. For instance, according to Aisen and Veiga (2013) the Area 2: “legal structure and security of property rights” captures the institutional-quality dimension of the index. Such variable, *Leg Syst and Prop Rights*, refers to the security of property rights and the strength of the legal system. Failure of a country’s legal system to provide for the security of property rights, enforcement of contracts, and the mutually agreeable settlement of disputes will undermine the operation of a market exchange system. The sub-component 2 B, *Protection of Property Rights*, captures the essential driver of economic freedom and the efficient operation of markets, namely the security of property rights, protected by the rule of law. Freedom to exchange, is weakened if individuals do not have secure rights to property, including the fruits of their labour. To measure rent-seeking behaviours or the collusion between economic and political elites, several indicators are available in the literature. Although the concept of rent seeking may be accurate, its measurement remains problematic (Del Rosal 2011, p.300). According to Del Rosal (2011), some studies have sought to relate the rents from monopoly, tariff, or other government regulations. In other contributions, the authors seek some direct measures such as expenditures in rent seeking (PAC contributions, expenditures on crime prevention and on defense, investments in locks and burglar alarms, budgetary changes, campaign contributions, etc.). Finally, many scholars have sought to study rent-seeking consequences on a macroeconomic basis via

<sup>11</sup> Interestingly, Bergh and Nilsson (2010) find that increases in economic freedom are linked to higher income inequality within countries. In their study, the main drivers of rising inequalities are deregulation and trade openness, whereas other types of economic liberalization have no significant effect on inequality.

<sup>12</sup> The US economy is a system in which business success is fostered by relationships between business and government. To gain a competitive advantage or to limit competition, business interest lobby the government to tilt the playing field by granting their companies special favors (Zywicki 2015).

<sup>13</sup> The Fraser Institute index of economic freedom is a summary index constructed from five components; the components in turn make use of 42 sub-components and distinct variables. According to Bennet et al. (2017, p. 504), the EF index “is constructed to provide a comprehensive measure of the degree to which a nation’s economic institutions and policies reflect the protection of private property, free trade, market allocation, and minimal policy-induced price distortions.”

the number of lawyers, corruption, various lobbying indicators, government employment, trade restrictions, etc. Interestingly, the business regulation subcomponents of Area 5 “*Business regulation*” of the EF index identifies the extent that regulatory restraints and bureaucratic procedures limit competition and the operation of markets. The subcomponent 5Civ, “*Rigorous and Impartial Public Administration*” can be a good proxy for rent-seeking behaviours since it captures to what extent laws and regulations may be subjected to interest groups influence and government favours.<sup>14</sup> Indeed, according to the public choice theory of regulation, regulatory process held that special interest groups could effectively lobby both regulators and politicians for new laws and regulatory restrictions designed to shelter incumbent firms from competition and increasing rents (Stigler 1971). Recently, Dincer and Gunalp (2020) have found support for the public choice theory of regulation by showing that U.S. states exposed to more federal regulation may be more corrupt.<sup>15</sup>

To compare countries among themselves, we propose the following measure of crony capitalism by constructing the below indicator of institutions’ productivity (IP). The latter allows for the assessment of the predominance of the search for profit over the search for rents. To our knowledge, such indicator approximate Baumol (1990, 2004)’s intuition for the first time and fills the absence of a Gini indicator that would capture the share of inequalities driven by rents and those driven by profit, strictly speaking. The IP indicator is constructed as followed:

$$IP = \frac{\text{Property Rights}}{10 - \text{Rigorous and Impartial Public Administration}}$$

It is based on sub-indicators of the *Fraser Institute Economic Freedom index* (Gwartney et al., 2021).<sup>16</sup> Technically, the *Property Rights* indicator shows that a high score implies a high-quality level of profit-seeking institutions. Similarly, the *Rigorous and Impartial Public Administration* indicator shows that a high score implies a low level of rent-seeking institutions in the country’s institutional setting.<sup>17</sup> Hence, to measure the overall improvement of institutional quality within a single figure, we introduce the term [*10- Rigorous and Impartial Public Administration*] in our indicator’s denominator. As a result, when the score of IP increases, it captures an improvement of the productivity of institutions. Such improvement may either come from an increase in the value of the numerator (i.e., improvement of *Property Rights*) or from a reduction of the value of the denominator (i.e., reduction of [*10- Rigorous and Impartial Public Administration*]) of the IP indicator. One can provide an illustration with the example of Australia and Bangladesh which exhibit a different institutional setting. In 2020, Australia displays favourable institutions of capitalism and the search for profit since the *Property Rights* indicator takes the score of 8 out of 10. It has also very low level of institutions fostering the search for rent since the *Rigorous and Impartial Public Administration* indicator is very high, scoring 9,64 out 10. Australia’s IP indicator is thus equals to  $\frac{9,04}{10-9,79} = 42$ . By analogy, Bangladesh exhibits a low score of institutions’ productivity which takes the value of  $\frac{4,31}{10-1,38} = 0,49$ . This simple comparison tells us that in Australia, collusion between economic and political elites is low and capitalism is strong. The opposite is true for Bangladesh. In other words, in Australia, institutions are more productive compared to Bangladesh because profit-seeking institutions are very much predominant over rent-seeking institutions. This is captured by the large difference between their respective IP indicators. Table 1 below provides a broad overview of countries’ IP components characteristics by describing four cases.

The first advantage of constructing this IP indicator is to enable us to approximate the nature of inequalities. Indeed, one would expect that in countries where profit-seeking institutions dominate the institutional setting (a high IP score), productive inequalities outweigh unproductive ones. Conversely, in countries where rent-seeking institutions dominate (a low IP score), unproductive inequalities outweigh productive ones. This proposition is illustrated by Fig. 1<sup>18</sup>

The latter displays a negative correlation between income inequality and the IP indicator. When the value of IP is low, rent-seeking institutions dominate the institutional setting, fuelling unproductive activities. The existence of a high level of income inequality associated with such a low value of IP thus indicates that inequalities are driven by rent-seeking behaviours. This stylized fact is in line with the result of Shughart et al. (2003) who found a positive relationship between interest groups influence and income inequality. It is also in accordance with Chambers and O’Reilly (2022) who found that U.S. states exposed to more federal regulation by industrial composition tend to have higher income inequality.<sup>19</sup> Similarly, Fig. 1 would suggest that when institutions are becoming more productive (increase in IP), unproductive activities tend to become less dominant compared to productive one. As a result, we observe a decline in inequalities which is a fall, according to our indicator, of inequalities driven by rent-seeking behaviours. Besides, the remaining inequalities associated with a high value of IP is the outcome of the prevalence of productive activities over unproductive one. Such inequalities are the “by-product of capitalism” (Mueller 2013) and the effects of entrepreneur’s productive activity (Lippman et al., 2005; Garcia Penalosa and Wen 2004).

The second advantage of relying on our constructed IP indicator is to provide a deeper analysis of the growth/income inequality

<sup>14</sup> The indicator 5civ’s data are from the V-Dem dataset. If nepotism, cronyism, and discrimination are widespread in the application of public administration, countries receive a lower score.

<sup>15</sup> Their results are in line with previous research finding evidence between regulatory burden and corruption (Graeff and Mehlkop 2003; Holcombe and Boudreaux 2015).

<sup>16</sup> The data were obtained from the Fraser Institute Economic Freedom of the World (2020) for the period 1990–2020.

<sup>17</sup> These two sub-components, *Property rights* and *Rigorous and Impartial Public Administration* thus provide a cardinal measure of the respective institutional quality they seek to assess.

<sup>18</sup> Fig. 1 includes the whole sample, namely 114 countries.

<sup>19</sup> Their result suggest that such positive relationship is implicitly driven by the positive relation between regulatory burden and high level of corruption as shown in Dincer and Gunalp (2020).

**Table 1**  
IP components characteristics.

Property Right Rigorous and Impartial Public administration	High quality	Low quality
High quality	$IP = \frac{10}{(10 - 9, 9)} = 100$ Example: Australia $IP_{Aust} = \frac{9, 04}{(10 - 9, 79)} = 42$	$IP = \frac{1}{(10 - 9, 9)} = 10$ Example: Jamaica $IP_{SA} = \frac{5, 74}{(10 - 7, 03)} = 1, 93$
Low quality	$IP = \frac{10}{(10 - 1)} = 1, 11$ Example: Egypt $IP_{Bah} = \frac{6, 9}{(10 - 2, 89)} = 0, 89$	$IP = \frac{1}{(10 - 1)} = 0, 11$ Example: Bangladesh $IP_{Ve} = \frac{4, 31}{(10 - 1, 38)} = 0, 49$

Source: Fraser Institute EWF 2020. Rigorous and Impartial Public Administration & Protection of Property Rights

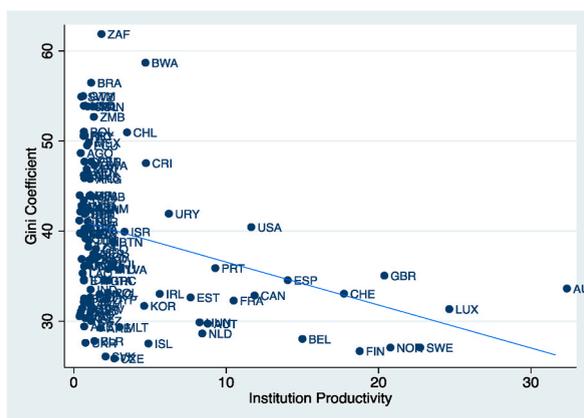


Fig. 1. IP and Income Inequality. Source: Authors’ own work.

debate. Studying the growth-income inequality nexus without accounting for the institutions’ productivity, and consequently, the nature of inequalities, would be fallacious. Indeed, our sample of 114 countries over the period of 1990–2020 displays a negative growth/income inequality relationship (Fig. 2).

At first glance, these stylized facts could suggest that reducing inequalities would have a positive effect on growth. But on further examination, such conclusion does not account for the nature of inequalities, which themselves are driven by the productivity of institutions. Indeed, countries where profit-seeking institutions dominate the institutional setting should be countries where there is a positive relationship between *productive* inequalities and growth. Symmetrically, countries where rent-seeking institutions dominate the institutional setting should be countries where there is a negative relationship between *unproductive* inequalities and growth. Figs. 3 and 4 below illustrate this statement. We split our sample into two subgroups differentiated by a high and low value of IP respectively, and analyze the growth/income inequality relationship within each group. Unsurprisingly, in countries where institutions’ productivity is high, growth is positively related to income inequality (Fig. 3). Conversely, growth is negatively related to income inequality in countries where institutions’ productivity is low (Fig. 4).<sup>20</sup> In the first group, inequalities are productive. In the second group, they are unproductive.

Figs. 3 and 4 suggest that the focus of the analysis should be on the nature of inequalities rather than their level. These stylized facts have enabled us to derive interesting predictions that support our theoretical discussion. Nevertheless, they are not fully convincing without accounting for control variables that are traditionally used in growth models. Our analysis thus requires further empirical tests. In the next sections we test empirically the below hypotheses:

**Hypothesis 1.** *In countries in which institutions are productive income inequality would contribute positively to economic growth.*

**Hypothesis 2.** *In countries in which institutions are unproductive income inequality would contribute negatively to economic growth.*

**4. Empirical model and data**

The literature on the determining variables of economic growth reveals that variations in a nation’s economic growth could be

<sup>20</sup> Fig. 3 shows the countries for which the value of IP is above the mean of the sample. The latter is given by IP = 5,06. Fig. 4 shows the countries for which the value of IP is below the mean of the sample.

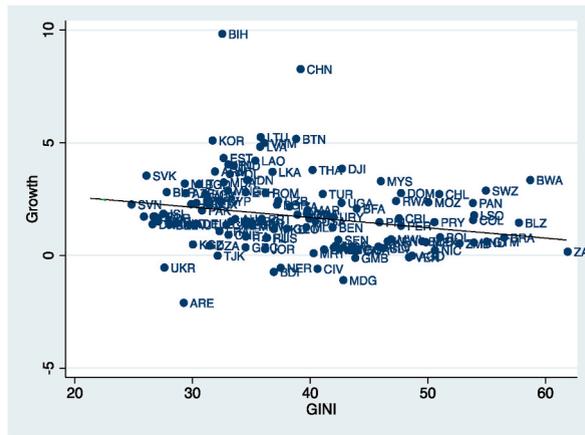


Fig. 2. Inequality and Economic Growth Rate. Source: Authors' own work.

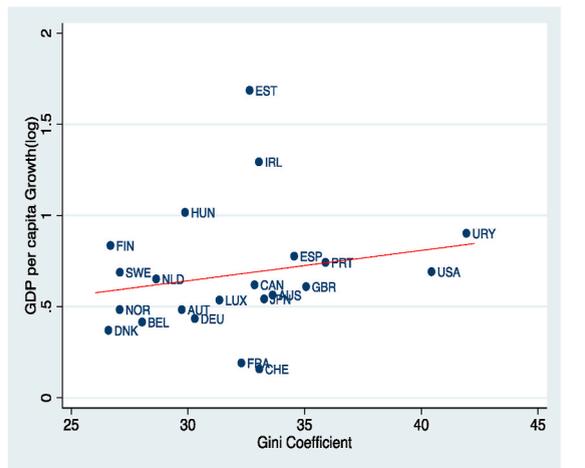


Fig. 3. Gini and Growth Rate in countries. Source: Authors' own work.

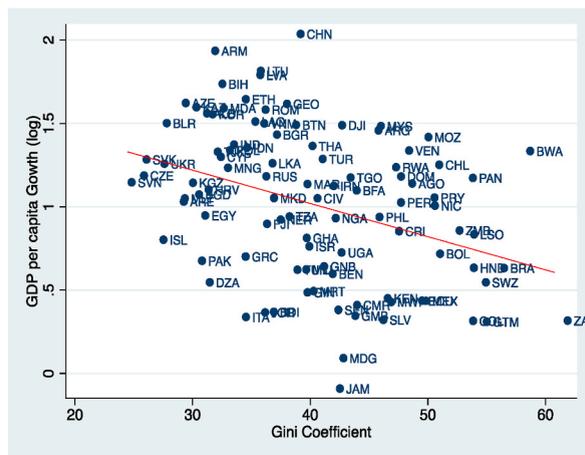


Fig. 4. Gini and Growth Rate in countries. Source: Authors' own work.

driven by a variety of factors selected in the growth framework of Barro (2000). Following Davis and Hopkins (2011) and Shen and Zhao (2022), among others, we use the Gini coefficient, the vital series to this study and the most typically used in panel data studies, to gauge for income inequality (WDI 2020) owing to the widespread availability of large panel data. Furthermore, out of more than 50 inequality available indices, Gini index by far has debatably been “the most popular measure of socioeconomic inequality, especially in income and wealth distribution” (Sithiyot and Holasut 2020, p.1). However, the series was not available for all years during the study period. For consistency, we follow Davis and Hopkins (2011) and use the average Gini coefficient for each country. This is because the latter is persisting series, of which the variability is low and using an average, rather than an initial or final value of Gini, and is not crucial to our results (Li et al., 1998). The variables were counted from 0 to 100%, where 0% indicates an equal sharing of income among all households and 100% indicates holding of all income by one household (WDI, 2020).

Information on each of the control variables is given as follows: the first is the initial income per capita, which provide evidence for the convergence effects. The theory captures the dynamic behaviour of growth and suggests that countries with low level of initial income per capita tend to grow more rapidly than those with high level of initial income (the related coefficient is expected to be negative).

A very simple growth model such as  $\dot{Y} = f(K, L)$  with  $\dot{Y}$  the economic growth rate, K the investment level and L labor force, suggests that more investment and more labor generate more economic output. We use the Share of gross capital formation at current PPPs as a proxy for investment (from PWT) and population as proxy for labor. In addition to these three conventional variables, other control variables are included. Nonetheless, the opportunities to sell one’s production are stronger when legal barriers to trade are limited. Trade openness measures this opportunity. Trade openness is the sum of exports and imports of goods and services (measured as a share of gross domestic product) and is an important contributor to economic growth (Kratou and Gazdar 2018). Public expenditures are supposed to contribute to economic growth while a higher public consumption and non-productive expenditure may hamper growth (Afonso and Furceri 2010). We include government consumption as an indicator of public expenditures (measured as a share of gross domestic product) (from PWT). We control for macroeconomic stability using inflation defined as the annual change of the general level of prices in the economy, using the growth of the GDP deflator, (from WDI) to reflect economic uncertainty (Shen and Zhao, 2022) (the related coefficient is expected to be negative). The relationship between inflation and economic growth tries to explain to what extent inflation affects growth. Contributions show that the relationship is negative in countries that are not able to maintain price stability (Barro 1999). In the case of high inflation, Mallik and Chowdhury (2001) found a positive relationship between inflation and economic growth for four South Asian countries.

We present in table A1 (appendix) details about our variables’ definition and sources. The results of descriptive statistics are shown in Table 2 below for all the variables in our model and reveals a high level of variability.

Equation (1) presents the growth model that we use to observe the impact of the nature of inequalities on the sign of the relationship between the Gini coefficient and economic growth.

$$Growth_{it} = \alpha + \beta_1 Gini_{it} + \beta_2 X_{it} + \beta_3 IP_{it} * Gini_{it} + \beta_4 IP_{it} + \mu_i + \sigma_t + \varepsilon \quad (1)$$

where *Growth* denotes the 5-year average growth rate of GDP at market prices based on constant local currency;  $X_{it}$  are the set of control variables for country *i* in period *t*;  $Gini_{it}$  denotes the Gini coefficient for country *i* in period *t*, which is used as the sole measure of income inequality in this study;  $\mu_i + \sigma_t$  are country and period fixed effects.  $\varepsilon$  is an error term and  $IP_{it} * Gini_{it}$  is the variable of multiplication between Institutions’ Productivity *IP* and Gini. We follow Brambor et al. (2006)’s methodology on interaction models and Bjornskov (2016)’s approach who uses multiplication variables to test the conditional effect of economic freedom on the relationship between inequality and growth. According to Brambor et al. (2006, p72)  $\beta_1$  reflect the effect of inequality on growth when only *IP* is zero or at lowest level.  $\beta_4$  captures the effect of *IP* on growth when only Gini is zero or at lowest level. These two coefficients are not capturing the average effect of inequality and that of *IP* on growth, as it is the case in a linear-additive regression model. This is because in multiplicative interaction models, the interpretation of the constitutive elements of interaction terms is not an average or an unconditional effect anymore. Therefore, as discussed by Brambor et al. (2006), we focus on the interpretation of  $\beta_3$ , the coefficient of interest that captures the association between inequality and growth, as evaluated at average or median *IP*. Furthermore, with the fact that multiplicative interaction models are symmetric,  $\beta_3$  is also capturing the association between *IP* and growth, as evaluated at average inequality. However, according to the theoretical framework developed above, our study consists of testing the following

**Table 2**  
Descriptive statistics of variables.

Variable	Mean	S.D	Min	Max
GDP per capita growth	0.95	1.00	-6.31	4.52
Initial Income per capita(log)	8.83	1.23	4.55	11.70
GINI	38.09	9.21	20.7	65.8
Institutions’ Productivity indicator	5.49	13.94	0.17	125.33
Trade(log)	4.14	0.65	-3.06	5.94
Investment	0.21	0.08	-0.001	0.85
Government Consumption	0.18	0.085	0.005	0.816
Population (log)	2.31	1.69	-3.41	7.26
Inflation(log)	1.67	1.52	-8.09	9.64

Source: Authors’ own work

relationship: the growth effect of inequality conditioned by the countries' level of institutions productivity (IP). Therefore, the quantity of interest is the marginal effect of inequality on economic growth, as expressed by  $\beta_1 + \beta_3 IP_{it}$ . According to our theoretical framework,  $\beta_3$  is supposed to be positive and significant.

To estimate Equation (1), we use panel data covering the period 1990–2020 and 114 countries and two-way fixed effects estimates. The main benefit of estimating a panel model is that it allows the controlling of unobservable variables that are country-specific, and whose omission may generate biased estimated coefficients in a pure cross-sectional regression. We refer to a large number of empirical analyses on panel data (such as Hai et al., 2023, among others) and use the two-way fixed effects technique to test our Equation (1). The technique is being explored for the purpose to simultaneously adjust for country-specific and time-specific unobserved disturbances at the same time. Thus, it estimates the effects within countries over time rather than between countries, and controls for variation between countries (Imai and Kim 2019).

## 5. Empirical results

Referring to Brambor et al. (2006)'s methodology on interaction models we only interpret our variables of interest. From Table 3, the result from the *Gini* coefficient indicates that income inequality is negatively associated with economic growth (as evaluated at the lowest levels of IP, normalized to zero). The sign and the significance hold for the four estimations. These corroborate with previous findings (Brueckner and Lederman 2018; and Shen and Zhao 2022).

More importantly, the coefficient of the multiplication  $IP_{it} * Gini_{it}$  indicates that inequality is reliably positively associated with growth as evaluated at median or median IP. More specifically, the positive sign of the multiplication variable's coefficient indicates that the sign of the growth-inequality relationship is correlated with the evolution of the IP indicator. Such relation is in line with our theoretical discussion and precisely highlights the nature of inequalities and its effect on growth.

Indeed, when the value of IP rises the prevalence of profit-seeking oriented institutions over rent-seeking ones generates a dominance of *productive inequalities*. In that case, there is a positive relationship between income inequality and growth. However, when the IP indicator evolves in the opposite direction (decrease in IP), the growth-inequality relationship changes sign. In that case, rent-seeking institutions dominate the institutional setting, which results in a prevalence of *unproductive inequalities*. We observe a negative relationship between income inequality and growth. This result corroborates our hypotheses and confirm the intuition presented in the stylized facts (Figs. 3 and 4). Income inequalities driven by the predominance of profit-seeking institutions are pro-growth in countries with a high IP score. Conversely, income inequality driven by the predominance of rent-seeking institutions are detrimental to growth in countries with a low IP score.<sup>21</sup> These findings align with prior empirical results, in which the relationship between growth and income inequality is conditional to the level of economic freedom. "The higher the level of economic freedom, the more likely is that income inequality contributes positively to economic growth" Bjornskov (2016).

Results of our control variables are provided as follows: **Income Initial**. The results show that the convergence effect is not verified since the related coefficient is not significant. **Investment**. The coefficient related to investment is positive and significant, confirm the assumption that the latter is a catalyser for economic growth and aligns with Shen and Zhao (2022). **Government Consumption**. As in Shen and Zhao (2022) and Barro (2003), government spending has a negative and significant effect on growth. In addition, it is interesting to highlight that the BARS curve describes a non-linear relationship between government spending and growth. The negative sign that we obtain indicates that the positive multiplier coefficient is unable to compensate the social cost of public expenditure (Facchini and Melki 2013). The total cost of government spending is the sum of (i) the Marginal Cost of Public Funds, (ii) the compliance costs of households and firms, iii) the costs of monitoring taxpayers' returns and iv) the inactivity costs imposed on individuals by excessively high effective marginal tax rates. Furthermore, our model's results have to be interpreted symmetrically, as discussed by Brambor et al. (2006). The results show that despite that the evidence for the growth effects of IP is scarcely wanting, our findings suggest that the effects of IP at very low levels of inequality may be rather inconsequential. This corroborates with previous studies (Bjornskov 2016; Hall and Lawson 2014).

## 6. Robustness check

In the next regression, we verify the robustness of the previous results and use another technique, such as the System GMM estimator that allows addressing both the endogeneity problem and unobserved heterogeneity (unobserved time-invariant and unobserved individual characteristics). The endogeneity bias is first related to variation in income inequality that may debatably be the consequences of long-run growth variability (Bjornskov 2016). Second, institutional variables (i.e., institutions' productivity) could not be treated as exogenous regressors (Davis and Hopkins, 2011), since these variables are derived from expert opinions and survey

<sup>21</sup> To make sure that these findings are conceptually robust, we have verified the validity of our IP ratio, and especially we have made sure that the variables that constitute the ratio are not neutral. To this end we have conducted three regressions by substituting the IP ratio in equation (1) by the variables Property rights, Rent-Seeking = [10- Rigorous and Impartial Public Administration]) and Inverted Rent-Seeking = 1/(Rent-Seeking), respectively. Following Brambor et al. (2006)'s methodology, we have focused on the interpretation of the variables of multiplication between the above listed variables and Gini. They all provide the expected sign, namely, positive for Gini\*Property rights, negative for Gini\*Rent-Seeking and positive for Gini\*Inverted Rent-Seeking. The results are provided in Table 2. Since our IP ratio = Property rights × 1/(Rent-Seeking), its positive sign when interacting with Gini does not hide the role played by the Rent-Seeking variable. Hence, our IP ratio fully captures the distance between profit-seeking institutions and rent-seeking institutions, namely institutions' productivity.

**Table 3**  
Economic growth and nature of inequalities, two-way fixed effects.

Dependent Variable: GDP per capita growth				
Independent variables:	1	2	3	4
Initial income	-0.083 (-0.27)	-0.057 (-0.19)	0.228 (0.73)	-0.074 (-0.24)
GINI	-0.141*** (-3.49)	-0.249*** (-4.79)	-0.127*** (-3.10)	-0.121*** (-2.94)
Institutions Productivity	-0.147** (-2.19)			
Gini*Institutions Productivity	0.004** (2.063)			
Property rights (protection)		-0.471*** (-3.26)		
Gini* Property rights		0.013*** (3.62)		
Rent Seeking = [10- Rigorous and Impartial Public Administration]			0.543*** (3.17)	
Gini*Rent Seeking			-0.015*** (-3.58)	
Inverted Rent Seeking				-0.08 (-1.61)
Gini* Inverted Rent Seeking				0.002 (1.64)
Investments	0.196* (1.73)	0.181 (1.60)	0.241** (2.36)	0.240** (2.34)
Population	0.244 (1.31)	0.164 (0.87)	0.287 (1.61)	0.332* (1.84)
Trade	0.04 (0.44)	0.06 (0.72)	0.094 (1.03)	0.08 (0.88)
Government Consumption	-0.368*** (-3.60)	-0.392*** (-3.85)	-0.372*** (-3.79)	-0.381*** (-3.85)
Inflation	0.012 (3.310)	0.021 (0.59)	0.035 (0.98)	0.036 (0.99)
Constant	7.947*** (3.90)	12.42*** (5.10)	5.28** (2.59)	6.07*** (2.89)
R-Squared	0.53	0.54	0.55	0.54
Observations	643	643	643	643
Number of countries	114	114	114	114

Note: \*\*\*, \*\*, and \* denote significance at the 1, 5%, and 10% levels, respectively. Robust t-statistics are given in parentheses. We split the time frame into eight non-overlapping five-years periods. All models were controlled for country and fixed effect.

Source: Author's own work.

data and are potentially subject to systematic measurement error (Acemoglu et al., 2001). Further, endogeneity could be due to reverse causation: the components of institutions' productivity could be the result of economic growth. Consequently, it is desirable to explore a technique that captures the bulk of variation in the data and improves the quality of the estimated coefficients. To this end, we explore the system-GMM estimator (Generalized Method of Moments) from Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998), which not only estimates the equations in first differences but also estimates equations in levels that are instrumented with lagged first differences of the corresponding explanatory variables. To explore these additional instruments, there is a need to identify an assumption that the first differences of the explanatory variables are not correlated with the unobserved specific effect. Although the specific effect may be correlated to the explanatory variables, the correlation is supposed to be invariant over time. To check the validity of the results, two tests are used: the serial correlation test (AR (2), in which the null hypothesis is that the errors exhibit no second-order serial correlation). The standard Hansen test of overidentifying restrictions (in which the null hypothesis is that the instrumental variables are exogenous and not correlated with the residual). Further, the two steps GMM system estimator has been widely used in empirical investigation and research on the growth/income inequality debate (e.g., Shen and Zhao 2022).

Table 4 shows the results and reveals that  $IP_{it} * Gini_{it}$  coefficient is positive and significant at the level of 1%. This result confirms the findings of our two-way fixed effects estimation. As far as control variables are concerned, results show that most coefficients gain significance. This means that controlling for endogeneity has an impact not only on the nature of inequalities, but it might also affect the relationship between economic growth and a set of variables such as the convergence theory, population, trade or inflation. The results show that the convergence effect is verified since the related coefficient is negative and significant at 1% (Table 4). This aligns with most evidence on growth models (e.g., Davis and Hopkins, 2011). As discussed above, population and trade openness are pro-growth factors. The inflation coefficient is positive and highly significant. This could be driven by a high level of demand in these economies, which is supposed to put upward pressure on prices or by the ability of governments to succeed in mitigating inflation below a threshold level through an appropriate monetary policy or prudent banking activity. Another explanation could be inferred from Pitlik and Wirth (2003)'s analysis who argue that poor macroeconomic conditions (e.g., an inflation crisis) create incentives for economic reform. Since there is ample evidence of a positive relationship between economic freedom and growth (Hall and Lawson

**Table 4**  
IP indicator, GMM-System (Robustness Checks).

Dependent Variable: GDP per capita growth	
Independent variables:	
Initial income	-0.171*** (-9.70)
GINI	-0.023*** (-7.23)
Institutions Productivity	-0.045*** (-5.02)
Gini*Institutions Productivity	0.001*** (3.99)
Investments	0.375*** (11.81)
Population	0.015** (2.22)
Trade	0.167*** (7.64)
Government Consumption	0.028 (0.92)
Inflation	0.168*** (18.27)
Constant	3.049*** (9.76)
Observations	607
Number of countries	114
Arellano-Bond test for AR(1)	0.000
Arellano-Bond test for AR(2)	0.125
Hansen P value	0.977

Note: \*\*\*, \*\*, and \* denote significance at the 1, 5%, and 10% levels, respectively. Robust t-statistics are given in parentheses. We split the time frame into eight non-overlapping five-years periods. All models were controlled for country and fixed effect.

Source: Author's own work

2014), one can thus expect a positive relation between inflation and growth through this channel. The relation between investment and growth always exhibits a positive and significant sign. However, government consumption displays different sign compared to the previous results. Results show the absence of second-order serial correlation, and the P-value of Hansen test suggests that the instruments are valid (exogenous, and not weak).

Our findings on a sample of both developed and developing countries fit with the above constructive theory. Results show robustness using two techniques and reveal that the relationship between inequality and economic growth appears to be conditional: the higher the level of IP is in one country, the more likely the economy is experiencing *productive inequalities*, which in turn lead to economic growth.

## 7. Conclusion

Discussions on the effect of income inequality on a country's economic growth should not be conducted without considering the inequalities' institutional context. Capitalism and/or a free-market economy is not the only system that generates income inequality. Inequalities are not the original sin of capitalism (Facchini and Couvreur 2015). All societies are, at some point, the host of unequal distribution of income. In the countries where free market economy dominates, the inequalities are generated by the search for profit in the marketplace. On the contrary, in unfree countries, inequalities are fuelled by rent-seeking behaviours of well-organized groups to access power. The effect of inequalities on economic growth is thus conditional to the institutional quality. More specifically, the intrinsic nature of inequalities (inequalities driven by the search for profit versus inequalities driven by the search for rent) determines the sign of the statistical relation between the level of inequalities measured by the Gini coefficient and economic growth.

Such early findings suggest that a good income distribution policy should be based, first and foremost, on institutional reforms that hinder parasitism and free riding behaviours. Nobody should be able to make his or her living at the expense of others without their consent. From a public policy point of view, the priority should not be the reduction of the level of inequalities in general, but rather to reduce the predominance of the rent-seeking driven inequalities in total inequalities. Our findings should also encourage economists to reflect on inequality indicators capable to assess the respective share of inequalities driven by profit-seeking activities to those related to rent-seeking activities within each country.

## Declaration of competing interest

The authors report there are no competing interests to declare.

## Data availability

Data will be made available on request.

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## Appendix

**Table A1**  
Data Sources and Variables Definition

Variable	Definition	Source
Growth	GDP per capita growth (annual %).	WDI 2022
Population	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.	PWT
Government Consumption	Government consumption consists of spending on government administration, education and health, activities which are typically among the least exposed to international trade.	PWT.8
GDP Per Capita	GDP per capita, PPP (constant 2017 international \$) GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. Data are in constant 2017 international dollars.	WDI 2022
Investment	Share of gross capital formation at current PPPs	PWT.8
Income Inequality	Gini Index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentage of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of a represents perfect equality, while an index of 100 implies perfect inequality. World Bank, Development Research Group, data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data high-income economies are from the Luxembourg Income Study database.	WDI 2022
Inflation	Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.	WDI 2022
Rigorous and Impartial Public Administration	Rigorous and impartial public administration captures to what extent laws and regulations may be subjected to interest groups influence and government favours. If nepotism, cronyism, and discrimination are widespread in the application of public administration, countries receive a lower score.	Fraser Institute (2020)
Institutions' Productivity Indicator	$IP = \frac{\text{Property Rights}}{10 - \text{Rigorous and Impartial Public Administration}}$	Authors' calculations
Trade	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	WDI 2022

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