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Global and domestic inequalities and the political economy of the middle-income trap*

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Abstract

Some middle-income economies, many of which Latin American, have not achieved to make the transition into high-income status for long years and are allegedly trapped in middle-income status. While there is considerable consensus on the proximate causes of this phenomenon, we present a global political economy perspective to the discussion, arguing that global and domestic inequalities, both political and economic, are key to understand the issue. We subject our argument to empirical scrutiny, using fuzzy-set qualitative comparative analysis (fsQCA) on data spanning the years 1976-2009. Both domestic economic equality and political independence from the influence of an external power turn out to be robust characteristics supporting growth convergence of middle-income countries.

Keywords: inequality, independence, income distribution, distribution of wealth, dependence, Latin America

JEL categories: B52, D31, D63, F15, N36, O15, O29, O54

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1 Introduction

South Korea is a striking development success. One of the poorest countries in the world in the 1950's, it was assigned middle-income status for the first time in 1969 by the World Bank. In 1995, it was listed as a high-income country, remaining a middle-income country for no more than 26 years. Other countries, many of which Latin American, have attained middle-income status decades and even centuries ago, but have either been unable to converge with high-income economies ever since or have taken a very long time for the process. Chile, recently hailed as a Latin American tiger", became a middle-income country as early as 1891 (Felipe 2012), but was part of the World Bank's high income group for the first time only in 2012, thus taking 121 years or almost 5 times as long as South Korea to traverse middle-income status.

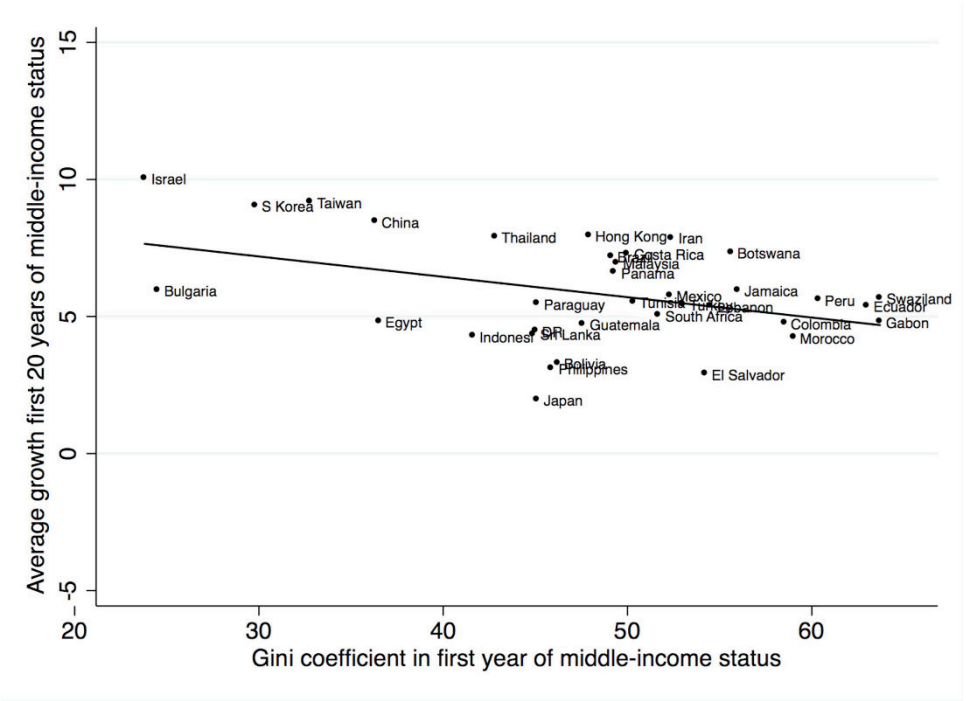
The academic debate over the reasons for such differences in the ability of countries to leave behind middle-income status has intensified over the last years under the heading of the so-called "middle- income trap". The cases of success-stories like that of South Korea or Taiwan have been analysed in detail, and by and large the policy changes necessary to overcome middle-income status are by now fairly well understood and technical policy-advice on how to overcome middle-income status is increasingly abundant. However, the question of why some countries were able and willing to implement favourable policies and why others were not able to do so has not been resolved. We argue that in order to understand the dynamics behind such divergent development processes, one needs to adopt a political economy perspective.

On the domestic level, our key argument is that the concurrence of multiple high inequalities - in terms of income distribution, ownership of productive assets and access to political power -, leads to low institutional quality and prevents the adoption of favourable policies and the emergence of institutional structures which would be necessary for the transition into a high-skill, high-productivity economy. On the international level, we argue that high levels of dependency of a country on another, both politically and economically, interact in nonlinear ways with domestic conditions: While we see high levels of foreign dependence as compatible with continued convergence to high income status when economic and political power are relatively equally distributed, we consider them a potential stumbling block on this path when combined with strong inequalities.

Figure 1 shows the average growth rates of middle-income economies during the first 20 years after they attained middle-income status and the Gini coefficient of income distribution in the year of entry. The entry years vary greatly, from 1882

(Uruguay) to 2002 (India).[1] For middle-income economies, the average growth rate during the first 20 years as middle-income country and the degree of inequality at transition is significantly correlated (Spearman correlation coefficient: 0.33). Countries with lower inequality at transition have higher average growth rates. This simple correlation does of course not take account of the different moments in time the transition to middle-income status occurred and the different technological and external economic and policy conditions which this entails, and can tell us nothing about causality. Still it is an interesting point of departure for our analysis, as it suggests that economic inequality has a role to play for the velocity a country traverses middle-income status.

Figure 1: Gini coefficient in first year of middle-income status and 20-year average growth rate



Data source: UNU-WIDER (2014) and World Bank (2014c)

We proceed as follows. Section 2 characterizes the middle-income trap literature and the policy advice to overcome or avoid the middle-income trap. Our message here is that the policy measures required to not to remain at middle-income level very long are on the table, but that the problem of allegedly trapped countries is not technical in nature. Section 3 then develops our theoretical argument on the political economy of the middle-income trap. In section 4, we present our empirical analysis using fuzzy-set qualitative comparative analysis (fsQCA). This method allows us to discuss necessary and sufficient conditions that lead to countries becoming trapped or not from a comparative perspective. Section 5 concludes.

1 Later entries into middle-income status are not included in the graph because of the interest in medium-term growth averages of at least 10 years.

2 The middle-income trap: A brief summary of the literature

In recent years, the contrasting growth experiences of Latin American and some East Asian economies have been discussed in development research under the heading of the "middle-income trap" (Griffith 2011; Felipe 2012; Agénor et al. 2012; Eichengreen et al. 2013; Woo 2012; Lin/Treichel 2012).[2] The concept refers to the problems or failure of middle-income countries to transition into a high-income economy. While many countries have achieved to grow from a low- income to a middle-income economy since the 1950s, only few have reached high-income status (Agénor/Canuto 2012).

There is a fair amount of consensus that the step from low-income to middle-income is comparatively easy as countries undergo Lewis-type structural changes, shifting labour from low- productivity sectors like traditional agriculture and informal services to sectors with higher productivity, benefiting from imported technologies. This is regularly accompanied by specializing in low-cost, low-skill activities. When these productivity gains are exhausted, countries face the challenge to further increase their per capita income - and this means: wages - without losing competitiveness.

On a first level, it is fairly straightforward to name the changes necessary in order that countries can overcome a middle-income trap or avoid falling into it in the first place. By analysing both successes and failures to leave middle-income status, the literature emphasizing structural change has reached consensus that the key for a successful transition to high income status is the diversification of economic activity and its development toward high-quality activities, where much more of the product "design", be it technological or in other areas (like marketing and branding), is undertaken inside the country, by country nationals and by firms owned by country nationals. Thus innovation and investment, especially into education, are essential to create further productivity growth and fuel the increased wage level (Griffith 2011; Paus 2011; Ohno 2009; Agénor et al. 2012). Policies discussed to support this include investment in high quality infrastructure (Agénor et al. 2012) and R&D (Lin/Treichel 2012), but as well improvements regarding the efficiency and rationality of policy formation and implementation (Ohno 2009).

When it comes to policy, one major general advice is that it is necessary on the one hand to mobilize creative talent through education. On the other hand, it is decisive to give talent the right incentives so that it is used to assimilate best-

2 See Paus (2014) for a recent survey of the literature. She distinguishes two groups of authors, a larger group emphasizing structural change issues and a smaller group discussing the growth-slowdowns. This paper takes the structural change approach as its base.

practice technologies and organizational routines, adapt and apply them to local tasks and create cutting edge innovations in technology, management, design, marketing, etc. (Agénor et al. 2012; Rodrik 2013). While the details of doing so will depend on the local circumstances, a few elements of how these two tasks may be achieved are undisputed. In education, this includes a clear shift from quantity to quality. Yes, higher enrolment rates in secondary and tertiary education will be necessary, but what is more important, education on all levels should be of high quality, building up cognitive and social skills for mastering cutting edge science and unleashing creativity. In order to get there, it may be necessary to change the training of the teaching profession accordingly, to work on the prestige of school teachers, to raise their pay, to improve the teaching materials, etc. Such an argument has been modelled recently by (Cantoni/Yuchtman 2013).[3] Such policies will be able to „harvest" the larger an amount of excellent talent, the more comprehensive they will be socially. Discriminating access to high quality education along lines of gender, ethnicity or social class will inevitably reduce the pool of talent a country can draw upon.

When it comes to the incentives necessary to transform educated talent into the mastering of cutting edge technologies and the creation of innovation, it is essential that doing exactly that be the way to richness and prestige in a society. Put differently, creation of wealth must be rewarded, and gaining wealth by taking it from others must be made as difficult as possible. Robinson and Torvik (2011) provide a general model on this; Acemoglu et al. (1995) is a classic. Looking at the economic policy consequences of this, the profession is divided – at least it is easy to portrait two ideal types of policy recommendation. On the one hand side, liberal economists would maintain that the best way to reward wealth creation is to unleash market forces: competition and free entry. This allows the rapid introduction of innovations into the market and eliminates market power. On the other hand, many scholars emphasize the role of the state in providing complementary incentives through industrial policy of some kind, including subsidization of technologies during early stages of their development (see e.g. Rodrik (2013) for the latter argument) as well as complementary infrastructures, most recently in the area of information and communication technologies (see Agénor/Canuto (2012) for an argument and model along these lines explicitly related to the middle-income trap).

If this is a debate, we will not enter it. Both increasing competition and provision of complementary incentives and infrastructure will in general be necessary - the specific mix being determined by local circumstances. In any case, the task for countries aspiring to attain high-income status can be described as constructing their own national innovation systems (Paus 2014; Vivarelli 2014). It is clear what is not beneficial for talent to be rewarded: Ample opportunities to accumulate riches

3 Hanushek and Woessmann (2012) recently found that school attainment has been relatively high in Latin America, but educational achievement has remained low. In other words, relatively high quantity of schooling has not come along with high quality of schooling. The authors argue that this lack of quality accounts for Latin America's poor overall growth performance.

by either grand or petty corruption, by using public funds or political power for private enrichment or by any other kind of rent seeking.

While the discussion on the middle-income trap is relatively new, the policies described in the previous section have been discussed for a considerable time. Policy advice for Latin American countries today repeats many aspects that have been central in policy advice from the 1950s already. Moreover, some governments had applied them before they were discussed and recognized in academia. What prevented other governments to try and find their own successful policy mix using the experience of others and policy advice?

3 A political economy perspective

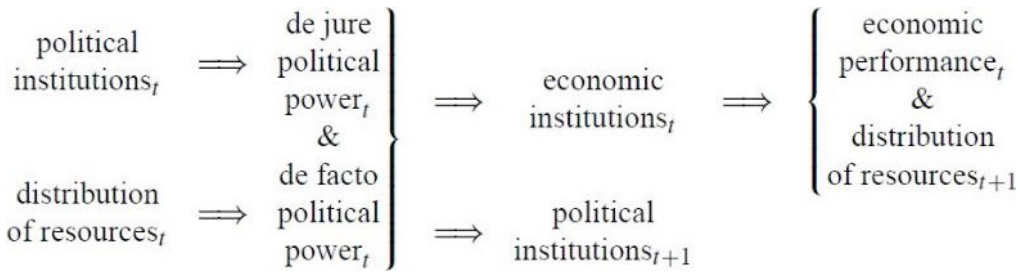
3.1 A synthesized framework

Inequality at a national level and institutional capacity

Acemoglu (2006) and Acemoglu and Robinson's (2012; 2008; 2006; 2005; AR henceforth) political economy framework is the starting point for our analysis of middle-income economies from a political economy perspective. In their 2005 chapter in the *Handbook of Economic Growth* with Simon Johnson, AR summarize their general approach using the diagram in figure 2.

By making the economic performance at any point in time depend on the institutions regulating the economic sphere, AR reaffirm the prevailing institutionalist orthodoxy which has been established over the last two decades. By emphasizing their distributional preconditions and consequences, they transform it into a political economy: Any economic outcome implies a certain distribution of income and wealth. The distribution of material resources, in turn, is a key determinant of the distribution of political power in a society. The second key determinant of this "de facto political power" is the ability of a group to overcome the collective action problem. While the latter ability is a kind of shift parameter for their analysis, the distribution of resources is a cornerstone. AR recognize the – partial – autonomy of the political sphere, the sphere of collective decision-making about the rules of the game. Hence, political power is determined also by constitutional rules – „political institutions" in the AR parlance - resulting in „de iure political power".

Figure 2: AR's Political Economy of Development Approach



Source: Acemoglu et al. (2005)

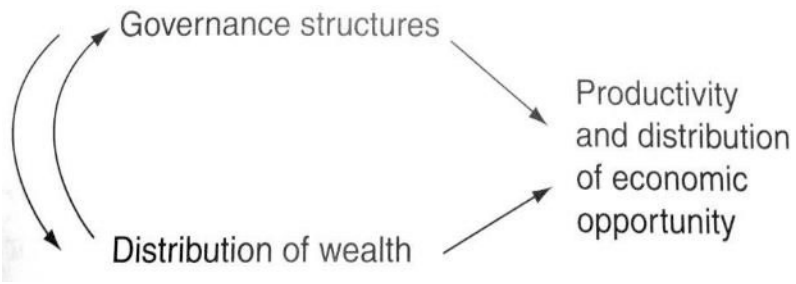
Actors use their de iure and de facto political power to influence decisions about economic institutions and about the rules of future rule-making – that is, political institutions. In AR (2008), the authors propose a model that studies how political institutions and the de facto practice can diverge: when a democracy is "captured", political institutions are changed, but actors invest resources in de facto political power. The model explores interactions of the de iure and de facto levels and concludes that changes at the institutional level do not necessarily change behaviour, if not accompanied by a change in the distribution of de facto political power.

Given the recursive dynamic nature of the system, it will gravitate towards certain more or less stable configurations of the component factors. As a first approximation, AR describe two such configurations, which they name inclusive and extractive institutions, respectively. Inclusive economic institutions are those that feature "secure private property, an unbiased system of law, and a provision of public services that provides a level playing field in which people can exchange and contract; it also must permit the entry of new businesses and allow people to choose their careers" (Acemoglu/Robinson 2012, 74f.). Inclusive political institutions are both "sufficiently" pluralistic and centralized, where pluralism is defined as a relatively broad diffusion of political power combined with considerable constraints on the use of that power, and centralisation is defined as monopoly of the legitimate use of violence. Extractive institutions, both economic and political, are characterized by the absence of the characteristics of inclusive institutions. AR call them extractive "because such institutions are designed to extract incomes and wealth from one subset of society to benefit a different subset" (Acemoglu/Robinson 2012, 76). Inclusive institutions will generate and will be supported by a relatively equal distribution of income and wealth and high average income, while exclusive institutions will be associated with highly unequal distributions of income and wealth and low average income.

Key to the inefficient low level equilibrium in the AR framework is what they call the non-existence of a political Coase theorem[4] (Acemoglu 2003): certain technological or economic changes leading to an increased national income may threaten the economic or political position (or both) of the dominant group, which then has the choice between having a large share of a small pie or a smaller share of a larger pie – and may well go for the former. In other words: a systematically unequal distribution of political and economic resources may be a stumbling block for economic growth.

Samuel Bowles (2012) comes to similar conclusions. Discussing the benefits of egalitarian societies for economic performance, he argues that high inequality is detrimental for productivity because it dilutes incentives, discourages trust, and diverts resources from productive uses to the enforcement of the rules of the game. Inequality is an "impediment to economic performance when it precludes the implementation of productivity-enhancing governance structures" (Bowles 2012, 6). The other way around, unproductive governance structures reproduce inequality (see figure 3) and may endure, despite their being unbeneficial or even undesired, " because they are favoured by powerful groups for whom they secure a large slice of a given pie, not because the structures foster the growth of the pie itself" (p. 5).

Figure 3: Governance structure, wealth inequality, productivity, and inequality of opportunity



Source: Bowles (2012, 5)

AR's and Bowles' approaches to institutional lock-in situations where institutions favour the interests of a ruling elite in unequal societies are both compatible and convincing. Note also that in both cases we have multiple feedback loops opening up the possibility of multiple equilibrium and extensive covariation of the different features involved.

This is also the case in a third general approach underlying our argument, Besley and Persson (2011, BP from now on). Indeed, the covariation of different forms of political violence, weak state institutions and low incomes per capita motivates

4 A political Coase theorem fails due to the inability of political parties to commit not to use a major shift in political power implied by a political deal to renege on it. Under these conditions distributional issues may adversely affect efficiency and therefore growth.

their research. More specifically, the monograph of BP develops a family of models centering on the explanation of two forms of institutional variables and two forms of political violence which are seen to be central for the explanation of income per capita. The institutional variables are the ability of the state to mobilize resources, "fiscal capacity".[5] Political violence may be one-sided in the form of repression by the state or two-sided in the form of civil unrest or even civil war. Both covary negatively with the two institutional measures of state capacity and income per capita. As stated above, one key result of BP is the explanation of this co- variation of all of these factors in a model of self-interested political actors.

Among the different exogenous factors determining the equilibria of this covarying system – resource dependence, development aid, cohesiveness of political institutions and common vs. redistributive interests – the latter two help our analysis in this chapter. Fundamentally, "cohesiveness of political institutions" expresses the idea that the power of any political incumbent to redistribute resources from one group to another is constitutionally limited. This adds a characteristic to de iure power which does not feature explicitly in AR, i.e. the ability to commit to restrict state power. Indeed, North, Wallis and Weingast (2012) have made this feature a cornerstone of their approach. Relevant for our analysis below, they interpret this as the ability of elite coalitions to commit to binding agreements among themselves.

The other exogenous factor in the BP approach, common vs. redistributive interests, reinforces rather than complements the insights by AR and Bowles. BP model this factor as the common interest in the provision of public goods by those groups of society which may conceivably become political incumbents. If these groups value the same public goods highly, investments in state capacity will be likely; if they value them differently or not at all, redistributive motivations dominate government action.

BP explicitly analyse the effect of income inequality on investment in fiscal capacity, which turns out to be negative: Bearing a larger share of the costs of the establishment of state capacity and facing the risk of adverse redistributive results, rich incumbents do not invest into fiscal capacity of the state and do not use existing fiscal capacity fully.[6] BP do not consider rich and poor sections of society valuing public goods differently in a systematic fashion in their analysis.[7] However, the logic of their argument is easily transferred to a case where poor sections of society value different types of public goods than rich sections (basic health services, broad based education, …) or where both differ substantially in the valuation of a given public good.

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5 To those two dimensions, we would add "administrative capacity" in the sense of a "Weberian" capable bureaucracy. Cingolani (2013) provides an overview of the history, the present use and different dimensions of the concept of state capacity in the social sciences.

6 The incentive of poor incumbents to invest in the fiscal capacity of the state is reduced also, since the effectiveness of fiscal capacity, not used by rich incumbents, is reduced (Besley/Persson 2011).

7 Heterogeneity of group interests in their discussion is much more related to ethnic or ideological differences (Besley/Persson 2011).

In sum, the three approaches of AR, Bowles and BP taken together suggest that societies with highly unequal access to political power and economic resources will display low state capacity and be prone to political violence. Also, powerful elites may block economically advantageous policies due to fear of loss of relative power.

International inequality, dependence and the national political economy

The second part of our argument takes account of the international dimension of inequality, the fact that countries differ sharply in the economic and political power which they can project externally. Both the insertion of a country in the global system of political power and its position in the international economy influence the possibilities of national political and economic actors. Far from being able to analyse this field in its entirety,[8] we will only touch upon those factors relevant for our present purposes. Some of our arguments are of a general nature and will be explained fully below; others are more directly related to the political economy of the middle-income trap and will be discussed in the next section.

The idea that political and military domination of one country by another has important consequences has a long tradition. Recently, David Lake (2012) has provided an extensive analysis of what he calls "international hierarchy", a state of affairs where a dominating country exercises authority over another, subordinate country. Authority is defined as the expectation that the subordinate country takes actions according to the wishes of the dominating country in certain policy areas if so desired by the dominating country. If the subordinated country does not comply, it is considered legitimate by both that the dominant country enforces compliance. Subordinate states delegate sovereignty partially to dominant states.

The benefit of the subordinate country is the provision of an "international order" by the dominant country. The order as such, understood as a set of rules in various policy areas, quite plausibly is a benefit for the subordinate country compared with a state of international anarchy. This may be so even if the dominant country shapes the rules of the international order such that they are particularly favorable to it. Moreover, the dominant country bears a disproportionate share in the maintenance of that order, subordinate countries saving especially military expenses; various arguments support this latter prediction. Reduced military spending is the result of the dominant power ensuring its dominance, of the subordinate power counting on the dominant power in the case of an external threat, and of the strategic incentive of the subordinate power to exploit the dominant powers dominant strategy of securing its international order.[9]

It is at this point that the argument of the previous section ties in. BP emphasize in their account that one of the major public goods likely to generate a common interest situation leading to the buildup of state capacity is the need to react to an

8 See Panther (2014) for a general discussion.

9 The idea of the latter argument is derived from framing the situation as a suasion game. Other major factors influencing military spending are geographical closeness to major conflict zones and the existence (or legacy or threat) of a military dictatorship.

external security threat (see Besley/Persson 2011, 16-18 and chapters 2 and 3). Following this line of argument, being under the security umbrella of a dominant power will thus reduce the incentives to build up state capacity.[10] Note that this will be of great impact in states which except for external security have a highly divisive, redistribution- oriented public sphere, and much less so in states where other public goods are desired by broad sections of society, as we conjecture will be the case in less unequal societies. In those latter societies, being politically/militarily dependent may actually be beneficial for further development – after all, the resources saved can be used for other public investments, like education and health. In other words, being politically/militarily dependent will be a drag on development in highly unequal and a boon in relatively egalitarian societies.

Lake himself has directed his own effort into a different direction, suggesting, in our own terminology, the covariation of dependence on the global hegemon of our time, the US, and authoritarian government in the global south (Lake 2012). The hypothesis he discusses: The larger the benefit from domination for the subordinate country and the closer the preference of the median voter in the subordinate country to the preferences of the dominant country, the more compatible is democracy with foreign domination. The smaller the gains and the more distant the preferences of the median voter from the preferences of the dominant state, the more likely foreign domination is only compatible with an autocracy.

Let us discuss the argument for a given level of gains from subordination. As the preference distance of the median voter increases from complete coincidence with the dominant state, at first she still is in favor of subordination. As preference distance increases, eventually the median voter will start to prefer full sovereignty to subordination. For some range she still can be compensated by those who gain from subordination, but eventually the only way to realize subordination is to disenfranchise those voters who object to subordination the most. Authoritarian government enters the picture. More generally, in Lakes argument, subordination always becomes cheaper if a smaller part of the population has to be compensated for the loss of sovereignty.

Lake remains agnostic about causation, arguing that both an authoritarian government, whose interest coincides broadly with the interests of the dominant state, will be more likely to seek its help and submerge itself into its realm as well as that foreign domination may create autocracies where none had been before.

Lake relates some of the arguments on the winners and losers of trade to his approach (Lake 2012, 18f.). Against a Heckscher-Ohlin background and arguing that the US dominated economic order favors free trade, he speculates that the owners of abundant factors of production, gaining from trade, will be more in favor of US

10 This argument was introduced prominently by Charles Tilly (1990, 192ff.), who also argues that the threat of external war lead to the build-up of the modern nation state in Europe.

dominance than the owners of scarce factors of production, losing from trade. This for example could contribute to an explanation of US dominance in Latin America. In Latin America the abundant factor is land and – autocratic – landowning elites are the historical allies of the US in that region. Note that this argument makes democratic forms of government more easily compatible with US dominance in Asia, where the abundant factor tends to be low-skilled labor.

Summing up, by reducing the external security threat of a country, international political and military dependence is likely to reduce institutional capacity in all those countries where redistributive agendas dominate in the absence of an external threat. Highly unequal countries tend to belong to that category. In relatively egalitarian societies, the resource saving effect of reduced military spending is likely to dominate. Moreover, in highly unequal societies, democratic regimes are less likely to be compatible with the interest of a high-income hegemon. The effects of economic dependence will be discussed in the next section.

3.2 A political economy explanation of the middle-income trap

The institutional level

To create a political economy of the middle-income trap against this theoretical background, let us first look at the institutional requirements specific to the policies needed to overcome or avoid the middle-income trap. First, providing high-quality education to as large as possible a section of the population will always require a highly capable bureaucracy. This is obvious in the case of public provision of education, where the state controls both the rules of the educational system and also trains and staffs it. However, regulating a system where part of the provision of education is private in order to achieve high-quality education in all parts of the system is certainly not less challenging, if not more. In both cases, the fiscal capability of the state has to be considerable, even if this is somewhat less so under mixed provision.

On the other hand, the establishment of the right incentives and opportunities for technological and market innovation, the "liberal component" of a successful national innovation system - free entry into markets, which are kept as competitive as possible - certainly is not harmed by a capable and well-financed bureaucracy. Nevertheless, the focus here is on the ability of a state apparatus to institutionally commit to respect private property rights and refrain from idiosyncratically protecting political supporters from the forces of competition. Recall, however, that according to BP, investment in market supporting regulation and fiscal capacity will be complementary in any case.

When it comes to the more activist elements of an innovation policy - the establishment of technical universities, the financing of strategically important basic research, the subsidization of technologies at an early stage, the provision of key infrastructures, etc. -, the picture is very similar to the one sketched when

discussing education. Institutionally, a state capable to finance the necessary expenditure and to direct these finances effectively using a capable bureaucracy is the base of the necessary policies.

Overall, a fiscally potent and bureaucratically and legally capable state which is able to institutionally commit to self-restraint by guaranteeing competition and private property is the institutional base for avoiding or overcoming a middle-income trap. This is certainly compatible with the concept of inclusive institutions as described by AR, and very much so with the concept of "state capacity" in BP (2011). Legal capability is incompatible with extractive institutions almost by definition. As to the determinants of a capable, "Weberian" bureaucracy, it is obvious that this needs meritocratic recruitment procedures. However, increasing the meritocratic element in the staffing of government bureaucracies in order to provide the complementary public goods needed by a thriving private sector reduces the basis of power of a clientelistic regime. The incentives to install a clientelistic regime in the first place are particularly strong in high-inequality countries[11] (Robinson and Verdier (2013). Finally, as stated above, BP (2011) find that increased inequality of income and wealth will reduce the likelihood of a fiscally and legally capable state. Overall, there are good arguments to conjecture that the institutional prerequisites of the policies needed to avoid or overcome a middle- income trap are less likely to exist in countries with high economic inequality.

The policy level

Leaving the institutional level and turning to policies, there are additional lines of arguments strongly suggesting that the policies discussed above have a large potential to undermine a regime based on the concentration of political and economic power in the hands of a narrow elite.

Broad based education has historically been regularly associated with the demand for greater participation in political decision-making, and this is likely to be true for broad based quality education with a vengeance (Glaeser et al. 2007 and others).[12] More equitable access to educational opportunities increases the competition over, and therefore reduces scarcity rents from, whatever income opportunities education might lead to, to the disadvantage of those with formerly privileged access to education. In other words, extending quality education to the poor is exactly that kind of public expenditure which is of little (immediate) benefit to the dominating wealthy elites, while being highly beneficial to disadvantaged sections of society: A constellation leading to decreased investment in state capacity according to BP (2011).

Some of the complementary infrastructure needed in an innovative economy may furthermore threaten the power of the privileged directly. Improved transport may

11 This can be connected to Greif's "administrative power": is the administration to some extent independent of the government and a real political countervailing power? This requires a certain level of preparation and education (Greif 2008).

threaten the hold of local monopolies on the local labour market, improved information may do so too, and the role of the internet in recent revolutionary uprisings has been documented by a lot of anecdotal evidence. Moreover, one obvious way to finance the necessary expenditures on education and research, namely the reduction of tax privileges for the well-to-do, closes the doors to redistribution from the poor to the rich.

Finally, the very nature of a dynamic high-income economy itself, with its permanent threats to any established income and social position due to rapid technological and social change, might be perceived as a threat by those benefiting from a narrowly based regime (North et al. 2012).

Overall there are good reasons to believe that also the policies necessary to achieve high-income status are high-risk steps for any elite based on excluding others from the access to wealth and political power. By their very nature they will tend to level the economic playing field and lead to increased demands for political participation.

The international level

The argument developed in the previous section about the relationship between miliary dependence and the predominance of redistributive interests in unequal societies does hold with a vengeance when applied to the middle income trap. The race for superior military technological capabilities has been a major motivation for policies and institutions fostering technological advance. A country which is militarily dependent will have much less incentive to follow this route, buying military equipment from its hegemon, if necessary.

Economic dependence strengthens this effect. We will consider two forms of economic dependence, the large role of MNCs in a country, and, somewhat less specific and more speculative, the dependence on international trade in general. Up to the beginning of the 1980's, MNCs have increasingly been considered as problematic for the economic development of a country. Since then and up to today, their presence has been conjectured to be an important element in a process of catching up, not least in the area central to the discussion above, technological catch up. The political economy approach on the middle income trap developed above suggests that the two positions just outlined may well be both correct - conditional on the quality of the institutional environment.

Essentially, the arguments in favour of positive results of the presence of MNCs rests on the chance they offer for an economy to learn technologically (and perhaps organisationally) and to diversify its activities. For this to happen, a country needs sufficient absorptive technological capacity to transform the new ideas and potential backward and forward linkages into actual economic activity. This, as we have seen, depends on the institutional framework in place, both in the economic and, by extension, in the political sphere. If it is absent, MNCs tend to be

isolated islands, outcompeting any actual or potential national competitors insofar they are market seeking.

Particularly interesting in our context is the work of Ben Ross Schneider on Latin America (Schneider 2009; 2009b; 2009c and others) - after all the region with most middle-income countries - and many of them likely to be in a middle income trap. Schneider's Latin American variety of capitalism emphasizes some distinctive structural features of Latin American economies.

We argue that these features are highly compatible with our framework. According to Schneider, the Latin American variety of capitalism can be characterised as hierarchical market economy (HME). Typical of this variety are the existence of large business groups (*grupos económicos*), and the heavy presence of MNCs, the dominance of low-skilled labour and atomistic labour relations, coming along with high degrees of informality (Schneider 2008). We argue that these institutional features are product of the mechanisms described above.

Large business groups are diversified conglomerates, often family-owned. The existence of such groups and their dominance of many sectors reflect the high concentration of productive capital and economic power in Latin America. These groups have a high - short-term - interest in low wages and low degrees of organization of labour, and have been able to influence policy-decisions accordingly. They concentrate on the production of consumer products, which is technologically not very demanding. Multinational companies are present in more technologically advanced sectors, both in mining and in industry. Their technological dynamism is created outside the region, where R&D departments are located, and has only limited linkage effects.

This constellation - one could call it a historically grown market division - is stabilized by the MNCs depending on the cooperation of the *grupos* when in need to access government at various levels. Since such access tends to be highly personalized in Latin America, precise knowledge of the relevant networks is necessary, which the *grupos* can provide. Note, however, that this constellation does depend on influence on government being highly personalized and intransparent, and indeed government action itself being intransparent to some extent. Schneider interprets this as a stable socio-political constellation. It may well be at the heart of the Latin American middle income trap.

Trade dependence

Similarly to foreign direct investment (FDI), international trade has been considered beneficial for development, both providing static efficiency gains and

dynamic effects on technology. Again we consider this to be dependent on the institutional and technological environment. The argument is classic and essentially the same as concerning FDI: Trade provides dynamic learning possibilities to those countries which have high enough institutional and technological capacities to exploit them. If the technological and institutional gap is too wide, however, a disincentivising effect may prevail: since goods using advanced technologies are available through trade, it is not necessary to develop the required conditions to produce them inside the country. This argument prevails to rich elites especially, which may well enjoy high standards of living, benefitting from imported advanced consumer goods, in conditions where a country could never produce these themselves, thus reducing the pressure for institutional and policy reform.

On rationality and perfect foresight

Acemoglu and Robinson (2012) give wonderful anecdotal evidence of European monarchs consciously acting on an understanding of their situation akin to the picture described so far, consciously trying to stop growth-generating policies due to the threat they would pose to their power. However, we do not claim conscious decisions of elite members are the usual channel through which the regularities conjectured above are created. In a complex system, it is likely that actors do not realize how they contribute to system logics. Thus, elites may desire economic modernization and embark on the road to it, only to be confronted with the challenges to their power during the process. This then may lead to increased political instability or outright social unrest and repression, to coups and civil wars, thus decreasing investment in state capacity and income, as explained in the BP framework. Thus, the middle-income trap is not unlikely to be associated with political violence in one form or another.

Second, institutional equilibria may be complementary in the sense of Aoki (2007): agents do not consciously coordinate their choices and expected payoffs across domains, but consider institutions in other domains (taken as given) and make choices in other domains under consideration of them, and vice versa. This way, interdependent and mutually reinforcing institutions may arise. Schneider (2009a, 2009b) and Schneider and Soskice (2009) have argued forcefully that this is indeed responsible for the mediocre performance of Latin American economies over time.

4 A QCA Analysis of the middle income trap

4.1 The QCA method

In earlier research, we have assembled case study evidence on this subject (see Flechtner/Panther 2015). Due to the emerging causal complexity involved, in this paper we zoom out and deal with the entire population of middle-income countries. To do so, we explore the above arguments using fuzzy-set qualitative comparative analysis (fsQCA). Qualitative comparative analysis (QCA) has its origin in comparative political science (Ragin 1987). We have chosen it as an empirical approach for both of its strengths: First and pragmatically, it is well suited to deal with an intermediate number of cases under consideration, greater than suitable for in-depth case studies, and too small for classic large-N analysis. Second, epistemologically, and more important, it is directed at analysing causally complex cases where the effects of different causal factors are not considered to be linear and additive.

The fundamental logic of QCA is based on set-theoretic logic and Boolean algebra. It is aiming to find sufficient or necessary conditions (and several interesting combinations thereof) for different factors and factor constellations hypothesized to be causal for a certain outcome. A special interest lies in the idea of equifinality, i.e. different constellations of factors being sufficient or necessary for the same outcome.[12]

While QCA analyses quickly become computationally demanding, they remain qualitative in nature. The set-theoretical logic is build upon the idea that cases and causal factors belong to conceptually defined sets. Membership in these sets is based on prior theoretical and empirical knowledge. In fsQCA, membership is not a dichotomous variable (in/out), but may be a matter of degree, an observation counting as “more in” or “more out” on a scale from 1 to 0. This allows using fine grained information wherever it is available.

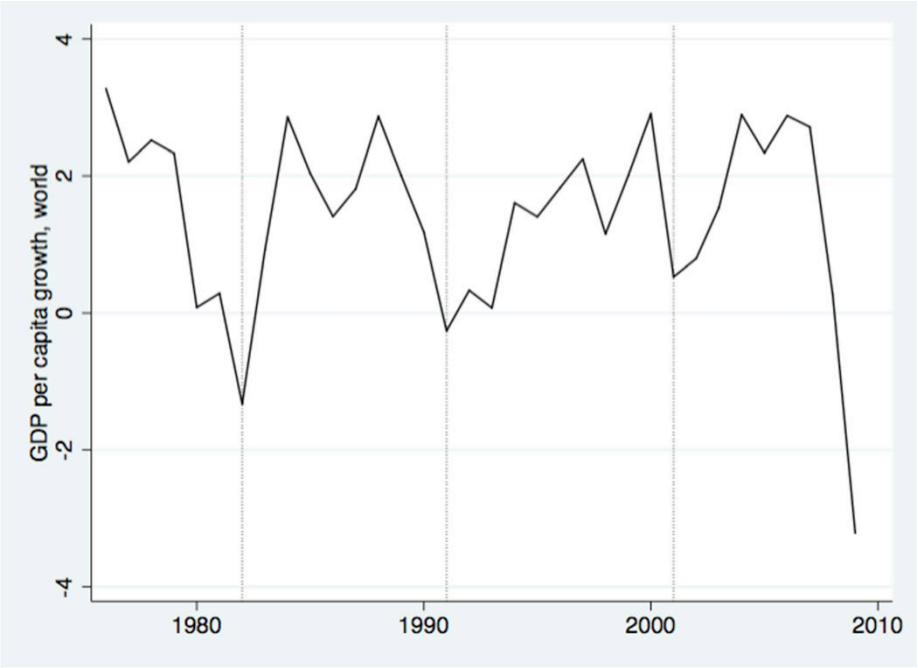
4.2 Data

The middle-income trap is characterized by the missing convergence of middle-income countries with high-income countries in terms of GDP per capita over a long time. In other words, middle- income trapped countries experience slow growth over decades on average. As we will see, typical middle-income countries do experience periods of high growth, but these are countervailed by other periods in which the economy does not grow or even shrink. The volatility of growth rates thus deserves some attention.

12 See Rihoux and Ragin (2009) or Schneider and Wagemann (2012) for recent comprehensive introductions.

Performance of a country may not only depend on domestic factors, but also on the international environment. We attempt to capture this by separating our analysis into the four global growth cycles contained in our data: 1976-1982, 1983-1991, 1992-2001 and 2002-2009. Each of these timespans comprise one full cycle of growth and downturn in terms of world average GDP per capita growth (see figure 4).

Figure 4: GDP per capita growth, average (1976-2009)



Data source: World Bank (2014e)

Our sample consists of all those countries which may (have) become trapped in middle-income status at some point during the period of analysis, 1976-2009, i.e. all countries classified as middle income countries during this period. Some of these countries, like Singapore or South Korea, have attained high-income status in the meantime. Other countries like Honduras or Nicaragua were low-income countries in timespan 1, but attained middle-income status somewhere during the period of analysis. We include them as soon as they have attained middle-income status.

Table 1 gives an overview of all countries in our sample and their developments in terms of economic growth convergence in all four timespans. A country converges in terms of economic growth if its average growth rate in a given period is higher than the average growth of high-income countries.[13] Table 1 summarizes the findings per country. Column 1 is 0 when a country's growth was in no period higher than that of high-income countries; 0.25 if it did in 1 out of 4 and so forth. The second column indicates in how many periods a country was included. Reasons for non-inclusion can be either due to lack of data or because a country had low-income or high-income status.

13 Details about the calibration of all variables follow below.

Table 1: Growth convergence summary, 1976-2009

	TIMESPAN 1 Growth	TIMESPAN 2 Growth	TIMESPAN 3 Growth	TIMESPAN 4 Growth	# convergence periods		TIMESPAN 1 Growth	TIMESPAN 2 Growth	TIMESPAN 3 Growth	TIMESPAN 4 Growth	# convergence periods
Jamaica	-2,05	-0,58	-1,30	-0,99	0	Turkey	-0,44	0,53	1,73	3,09	0,75
Bolivia	-0,37	-1,72	-0,45	-0,19	0	Ireland	-0,02	1,57	3,54	0,48	0,75
Colombia	-0,02	-0,97	-1,36	-0,02	0	Ukraine		0,11	1,51	4,60	0,75
Yemen, Rep.		-1,36	-0,63	-0,87	0	El Salvador	0,82	-1,64	0,56	0,06	0,75
Guatemala	0,12	-1,32	-0,61	-1,43	0,25	Congo, Rep.	7,13	0,74	-0,73	0,57	0,75
Ecuador	-0,65	-1,53	-1,29	0,07	0,25	Romania	0,86	-0,31	1,63	5,53	0,75
Philippines	-0,69	-1,09	-0,42	0,99	0,25	Albania	-0,97	2,45	7,94	3,57	0,75
South Africa	-1,67	-1,73	-1,36	0,77	0,25	Botswana	4,82	3,78	-0,55	1,76	0,75
Algeria	1,30	-1,13	-0,28	-0,65	0,25	Cyprus	3,69	2,55	0,22	-0,69	0,75
Gabon	-0,64	1,70	-0,84	-1,46	0,25	Chile	2,13	2,34	2,18	0,93	1
Saudi Arabia	-1,19	-0,34	-0,57	0,50	0,25	India	0,42	0,58	1,55	3,38	1
Namibia		-0,69	-1,53	1,37	0,33	Syrian Arab Republic	0,47	2,30	0,32	0,68	1
Honduras	1,95	-1,32	-0,53	1,06	0,5	Venezuela, RB	0,55	0,49	0,07	5,65	1
Portugal	-0,23	2,30	0,08	-1,46	0,5	Malaysia	2,47	2,31	0,37	1,67	1
Paraguay	4,84	-0,40	0,51	-0,13	0,5	Hong Kong	3,52	2,86	0,55	1,77	1
Jordan	2,80	1,22	-0,08	2,15	0,5	China	3,79	4,54	0,67	7,98	1
Panama	1,36	-0,29	-0,23	1,31	0,5	Korea, Rep.	5,32	6,22	3,91	0,70	1
Mexico	0,74	-0,89	0,26	-1,06	0,5	Hungary			0,13	0,75	1
Nicaragua	-0,14	-0,69	0,10	0,47	0,5	Thailand	1,97	3,36	2,35	2,24	1
United Arab Emirates	5,17	5,79	-0,51	-0,10	0,5	Singapore	3,26	2,91	2,97	3,20	1
Vietnam		-0,55	3,48	3,41	0,5	Argentina	2,24	0,17	2,77	5,86	1
Libya			-0,23	1,43	0,5	Indonesia	2,80	1,95	2,22	1,75	1
Equatorial Guinea	-2,41	-0,73	23,42	11,74	0,5	Russia			2,71	5,05	1
Swaziland	7,47	0,82	-1,58	-0,52	0,5	Lebanon		2,75	0,05	4,27	1
Uruguay	0,01	-0,62	0,26	1,75	0,75	Cambodia			1,92	5,41	1
Costa Rica	0,65	-0,17	0,14	0,92	0,75	Oman	1,31	3,13	0,33	0,11	1
Egypt, Arab Rep.	2,77	-0,85	0,49	0,70	0,75	Morocco	0,97	0,61	2,16	1,36	1
Tunisia	0,35	-0,26	0,18	1,09	0,75	Bulgaria	0,37	1,85	1,40	4,88	1
Brazil	0,58	0,40	-0,11	0,93	0,75	Poland			0,19	1,80	1
Greece	0,47	-0,97	0,23	1,02	0,75	Mauritius	0,60	2,87	1,30	0,75	1
Peru	0,46	-0,70	0,90	3,00	0,75	Croatia			2,86	2,24	1
Dominican Republic	0,27	-1,40	0,69	3,08	0,75	Czech Republic			1,27	1,82	1
Iran, Islamic Rep.	8,30	4,63	-0,76	2,50	0,75	Estonia			1,96	6,45	1
Sri Lanka	0,49	-0,64	0,32	2,36	0,75						

Data source: World Bank (2014e)

Against this background, the following paragraphs seek to analyse the determining conditions of economic growth convergence in middle-income countries in each timespan. It is clear now that we do not seek to identify conditions that prevent countries from growth or convergence all the time, but those that do not allow countries to do so consistently and sustainably.

As explanatory conditions, we use, in accordance with our theoretical arguments, the following variables: the Gini coefficient of income for the measurement of economic inequality; the polity2 score from the Polity4 database for measuring political inequality, two standard measures in economics and political science respectively.

We use trade as % of GDP data (World Bank 2014f) and the inward FDI stock (UNCTAD 2015) divided by the GDP size for measuring the two dimensions of international economic dependence discussed previously, the congruence with our theoretical concepts being rather direct. For measuring external political dependence we use two indices which are both imperfect but in complementary ways: the index of security hierarchy (Lake 2007, 2009) was created by Lake as a measure for dependence on the US. While we consider this a highly useful indicator, since the US, despite of its declining relative power, is the undisputed

hegemon in this period (at least in the "West"), external dependence may of course also occur relative to other countries, e.g. regional powers. Also, the index of security hierarchy is not available for our timespan 4, 2002-2009. Alternatively we use the CINC index to measure political/military power (national material capabilities database). This has the disadvantage of not being a relational index, but only a scale for measuring absolute power, which is, however, a related concept.

Table 2: Overview of explanatory variables

Variable in theoretical framework	Variable used in empirical analysis	Variable name	Data source	Coverage of usage
Economic inequality	Income Gini coefficient	G	UNUWider v4.0	Earliest year of each period
Political inequality	Polity2 score	Q	Polity4 database	Arithmetic mean in each period
Presence of MNCs and foreign economic interests	Inward FDI as % of GDP	F	UNCTAD	Available as of 1980; Arithmetic mean in each period
Trade dependence	Trade openness as % of GDP	T	World Bank	Arithmetic mean in each period
Dependence on an external power	Index of security hierarchy	L	Lake (2007)	Arithmetic mean in each period; available for periods 1-3 only
Independence from an external power proxied by absolute national power	CINC index	C	National Material Capabilities database	Arithmetic mean in each period
Dependence on specific economic activities, e.g. resource dependency	Economic complexity score	E	Economic Complexity data base (Hausman et al. 2011)	Arithmetic mean in each period; punctual data for 1978 and 1988

Finally, we use "economic complexity" to measure the diversity of exports of a country, a concept created by a group of researchers led by Ricardo Hausman. We use it to separate those countries which depend on a few primary goods exports (low complexity) from those who are exporting a greater variety of more technologically advanced goods (high complexity). The former may converge to high incomes in some periods or even in all if they are lucky in the "commodity lottery" and benefit from a commodity boom without showing any of the structural characteristics discussed in the previous sections.

As we work with the above defined periods and not with years as temporal units of analysis, we use arithmetic and geometric means as appropriate, except in the case of inequality, where we use the first Gini coefficient that is available from a period.

4.3 Calibration and Hypotheses

In fsQCA, all variables need to be defined within a range from 0 to 1. A value of 0 indicates full non- membership in a specific set, 1 denotes full membership. 0.5 is the crossover point that defines until which point a country is rather a member of, say, high-income countries or not. For the analysis of variables that come along in different shapes, fsQSA thus requires the definition of the borders of full (non-) membership (defined as the points 0.05 and 0.95, respectively) and of the crossover point. These points should be chosen for theoretical reason rather than for pure calculatory convenience or arithmetics. Table 3 reports the range of the variables before calibrations as well as our calibration points.

Table 3: Calibration

Variable	Full membership	Full non-membership	Crossover point
Convergence (X)	(Geometric mean of growth rate of country *x* in timespan *t*) - (geometric mean of growth rate of high-income countries in timespan *t*) >= 1	(Geometric mean of growth rate of country x in timespan t) - (geometric mean of growth rate of high-income countries in timespan t) <= -1	(Geometric mean of growth rate of country x in timespan t) - (geometric mean of growth rate of high-income countries in timespan t) = 0
Economic inequality (G)	Gini coefficient >=55	Gini coefficient <=25	Gini coefficient =40
Political equality (Q)	Polity2 score=10	Polity2 score<=0	Polity2 score=7.5
High presence of MNCs (F)	Inward FDI stock divided by GDP >= 0.7	Inward FDI stock divided by GDP <=0.05	Inward FDI stock divided by GDP =0.1
Trade dependence (T)	Trade as % of GDP >=209.49	Trade as % of GDP <=12	Trade as % of GDP =50
Index of security hierarchy (I)	International security hierarchy >=2	International security hierarchy <=0.4	International security hierarchy =0.00001
National Power (C)	CINC index >=0.1	CINC index <=0.0000391	CINC index =0.01
Diversified exports (E)	Economic complexity score >=1.5	Economic complexity score <=-1	Economic complexity score =0

We are now ready to restate our theoretical argument in set theoretical terms.[14] The main argument about domestic economic and political equality comes in two variants, a narrow one

$$g * Q * \ldots ,$$

where both economic and political equality together are sufficient for the absence of a middle- income trap, regardless of the remaining conditions, and a wide one,

$$(g + Q) * \ldots .,$$

14 The symbol "*" denotes the Boolean "and", the symbol "+" the Boolean "or".

where either political or economic equality is sufficient for the same result. The latter is a somewhat optimistic interpretation of our above arguments, since especially the arguments based on BP suggest that democratic rule will scantly be able to counterbalance the debilitating effects of high economic inequality on state capacity. The wide version is therefore both more challenging and empirically more interesting.

As for global economic and political inequalities, leading to dependencies of various sorts, we conjectured that their effects are contingent on domestic inequalities. Thus, for global economic integration/dependence, using the wide variant above,

$$(g + Q) * (F + T) * \ldots$$

should be part of any sufficiency condition. Conversely

$$(G * q) * (F + T) \ldots.$$

should not be part of any sufficiency condition. Note that we have used a wide variant of international economic dependency, encompassing high reliance on FDI or high trade integration.

Similarly, political dependence can be handled under egalitarian conditions,

$$(g * Q) * L(c) * ....$$

being part of any sufficiency conditions (note that here we used the narrow version of our egalitarian hypothesis), whereas

$$(G + q) * L(c) * .....$$

should not be. The “C” and “c” in brackets denote the analogous condition using the theoretically weaker absolute power index C.

Finally, note that by generating four observations (from four separated timespans) for each country, we make life difficult for us. Even under very good conditions, countries may not converge to high income in one, rarely two periods, and even under unsuitable conditions countries may converge in one, rarely two periods. This makes it more difficult for the algorithm applied to generate results.

4.4 Results and Discussion

Table 4 shows the first results of our fsQCA with six conditions: economic inequality (G), political inequality (Q), inward FDI (F), trade (T), external political dependency (L) and economic complexity (E). As pointed out earlier, data for L are available for timespans 1-3 only. Therefore the second analysis we present will use the variable C (CINC Index) in order to include the period from 2002 to 2009 as well. As stated above, L is closer to our theoretical idea.

Table 4 is a truthtable. As such it contains all constellations of the explanatory factors contained in our data that are empirically observed together with the observed outcome. Ideally, each constellation should lead to only one type of outcome. This is, however, rarely the case empirically, and it is not the case below. Even though Table 4 is the result of a fsQCA, it does contain only binary constellations. This should be read as “belonging more to” or “belonging less to” the respective constellation and is the standard procedure.

	CONDITIONS					No.	Cases	OUTCOME	
	G	Q	F	T	L	E	cases	X	~X
1	1	0	1	1	1	1	2 Panama1, Panama2	Panama2	Panama1
2	1	0	1	1	1	0	2 Chile2, Paraguay3	Chile2, Paraguay3	
3	1	0	1	1	0	1	6 Malaysia2, Malaysia3, Tunisia1, Tunisia2, South Africa1, Jordan3	Malaysia2, Malaysia3, Tunisia1	Tunisia2, South Africa1, Jordan3
4	1	0	1	1	0	0	7 Tunisia3, Malaysia1, Gabon3, Papua New Guinea3, Namibia3, Indonesia3, Sri Lanka3, Gabon2	Tunisia3, Malaysia1, Papua New Guinea3, Indonesia3, Sri Lanka3, Gabon2	Gabon3, Namibia3
5	1	0	1	0	1	1	3 Mexico3, Chile1, Turkey1, Brazil2	Mexico3, Chile1, Brazil2	Turkey1
6	1	0	1	0	1	0	3 Guatemala2, Guatemala3, Peru3	Peru3	Guatemala2, Guatemala3
	1	0	1	0	0	1	1 South Africa2		South Africa2
	1	0	0	1	0	0	1 Cameroon2	Cameroon2	
7	1	0	0	1	1	1	1 El Salvador1	El Salvador1	
8	1	0	0	1	1	0	7 Honduras2, Philipines2, Dominican REpublic2, Paraguay2, Nicaragua2, Nicaragua1, Bolivia1		Honduras2, Philippines2, Dominican Republic2, Paraguay2, Nicaragua2, Nicaragua1, Bolivia1
9	1	0	0	1	0	1	2 Thailand2, Russia3, South Korea1	Thailand2, Russia3, South Korea1	
10	1	0	0	0	1	1	6 Uruguay1, Mexico2, Uruguay2, Philippines1, Dominican Republic1, Brazil1, Peru1	Uruguay1, Mexico2, Uruguay2, Philippines1, Peru1	Dominican Republic1, Brazil1
11	1	0	0	0	1	0	2 Ecuador1, Guatemala1, El Salvador2	Ecuador1	Guatemala1, El Salvador2
12	1	0	0	0	0	1	2 Algeria2, Thailand1	Thailand1	Algeria2
13	1	0	0	0	0	0	3 Iran1, Iran2, Iran3	Iran1, Iran2	Iran3
14	1	1	1	1	1	1	2 Jamaica1, Panama3		Jamaica1, Panama3
15	1	1	1	1	1	0	9 Trinidad & Tobago2, Trinidad & Tobago3, Costa Rica2, Chile3, Jamaica2, Jamaica3, Costa Rica1, Costa Rica3, Philippines3	Trinidad & Tobago2, Chile3, Costa Rica1, Costa Rica3	Trinidad & Tobago3, Costa Rica2, Jamaica2, Jamaica3, Philippines3
16	1	1	1	1	0	1	2 Thailand3, Ireland1	Thailand3	(Ireland1)
17	1	1	1	1	0	0	1 Botswana3		Botswana3

Table 4: Truthtable 1 (continued)

	CONDITIONS					No.	Cases	X	OUTCOME	~X	
	G	Q	F	T	L	E	cases				
18	1	1	1	0	0	1	3	Turkey2, Brazil3, Portugal1	Turkey2, Portugal1	(Brazil3)	
19	1	1	1	0	1	0	5	Bolivia2, Colombia3, Ecuador3, Bolivia3	Bolivia2, Colombia3, Ecuador3, Bolivia3		
20	1	1	1	0	0	1	1	South Africa3		South Africa3	
	1	1	0	1	1	0	3	Dominican Republic3, El Salvador3, Venezuela1	Dominican Republic3, El Salvador3, Venezuela1		
21	1	1	0	1	0	1	1	Mauritius1	Mauritius1		
	1	1	0	1	0	0	3	Mauritius2	Mauritius2		
22	1	1	0	0	1	1	5	Colombia1, Colombia2, Argentina2, Greece1, Turkey3, Peru2	(Colombia1), Colombia2, Peru2	Argentina2, Greece1, Turkey3	
23	1	1	0	0	1	0	2	Ecuador2, Venezuela2	Venezuela2	Ecuador2	57%
24	0	0	1	1	0	1	6	Kazakhstan3, Jordan1, Morocco1, Estonia3, Singapore1, Jordan2	Kazakhstan3, Jordan1, Morocco1, Estonia3, Singapore1, Jordan2		
25	0	0	1	1	0	0	3	Egypt2, Morocco2, Morocco3	Morocco2, Morocco3	Egypt2	
26	0	0	1	0	0	1	1	China3	China3		
27	0	0	1	0	0	0	1	Egypt3	Egypt3		
28	0	0	0	1	0	1	8	Ukraine3, Macedonia3, Belarus3, Bulgaria1, Georgia3, Lebanon2, South Korea2, Romania3	Ukraine3, Belarus3, Bulgaria1, Georgia3, Lebanon2, South Korea2, Romania3	Macedonia3,	
29	0	0	0	1	0	0	2	Algeria3, Uzbekistan3	Uzbekistan3	Algeria3	
30	0	0	0	0	1	1	1	Argentina3		Argentina3	
31	0	0	0	0	0	1	1	Romania2	Romania2		87%
32	0	1	1	1	1	1	1	Portugal2	Portugal2		
33	0	1	1	1	0	1	5	Czech Republic3, Israel1, Lithuania3, Hungary3, Latvia3	Czech Republic3, Israel1, Lithuania3, Hungary3, Latvia3		
34	0	1	1	0	1	1	1	Greece2		Greece2	
35	0	1	1	0	1	0	1	Venezuela3	Venezuela3		
	0	1	1	0	0	1	1	Poland3	Poland3		
36	0	1	0	1	0	1	1	Bulgaria3	Bulgaria3		
37	0	1	0	1	0	0	1	Mauritius3	Mauritius3		
38	0	1	0	0	1	1	2	Spain1, Uruguay3	Uruguay3	Spain1	85%

Let us first discuss the configurations generated by the algorithm with respect to our central idea, the importance of egalitarian access to economic and political resources. In this regard, we can divide our sample into three broad groups: those countries that are both economically and politically unequal (G=1, Q=0, configurations 1-13); those that verify one of these conditions, but not both (G=1 and Q=1 or G=0 and Q=0; configurations 14-31) and those which are both politically and economically equal (G=0, Q=1; configurations 32-38). According to our narrow set theoretical hypothesis, we would expect countries in the last group to converge economically and to grow out of middle-income status consistently, whereas the second group is expected to do so only if we apply the wide version of our hypothesis. Indeed, 85% of all cases converge in the equal group, but only 57% do so in the unequal group. In the mixed group, there are strong differences: the combination of high income inequality with political equality converges in only 57% of the cases, while the combination of political inequality and economic equality yields higher growth rates in 87% of the cases – slightly more than in the equal group.

In terms of necessity and sufficiency, this suggests that the narrow version of our egalitarian hypothesis holds. Already at this stage, however, a highly interesting modification of the wide version of our egalitarian hypothesis seems appropriate: economic equality combined with authoritarian rule seems indeed sufficient for growth convergence, while economic inequality combined with democratic rule is not.

The computational analysis carried out with the user-written Stata add-on "fuzzy", applying the so called "truth table algorithm" in order to find the logically minimal set of sufficient conditions, confirms this but also goes beyond.

Table 5: Sufficient conditions for economic convergence[15]

Configuration	Raw coverage	Unique coverage	Solution consistency
g*l*f*T	0.3388	0.004	0.820
g*l*F*E	0.250	0.008	0.869
g*l*q	0.451	0.060	0.801
Total coverage: 0.464 - Solution Consistency: 0.802			

Note first that high economic inequality, G, is not part of any of the sufficient conditions the algorithm identifies, whether paired with democratic rule or not, while low inequality is part of every sufficient condition identified. This is a

15 The four columns of the table show from left to right: first, the configuration of factors identified as sufficient for success, second, raw coverage, which is the percentage of observations counting as a success which are covered by the constellation identified, third, unique coverage, which is the percentage of observations counting as success which are *only* covered by the constellation identified and lastly, solution consistency, which shows the percentage of observations belonging to the identified constellation, which do in fact show success.

remarkably clear result: inegalitarian "de facto power" does undermine the egalitarian effects of democratic rule in the present context, supporting our arguments based on BP above. As we have seen, this does not mean that no convergence takes place under high economic inequality. It simply means that convergence under high economic inequality is haphazard, interrupted and unsystematic in the sample considered.

For the further discussion of the results in Table 5, it will be useful to transform the three conditions into a logically equivalent form.

$$g * l * q + g * l * F * E + g * l * f * T =$$

$$g * l * (q + F * E * (q + Q) + f * T * (q + Q)) =$$

$$g * l * q + g * l * Q(F * E + f * T)$$

Note first that political dependency (here: on the US) has a more far-reaching negative effect in our sample than we conjectured. High political dependency is not part of any sufficient condition, not even in an economically and politically egalitarian constellation, g*Q. Going back to the truthtable, we have 5 observations in this constellation, 3 of them converging, 2 not. All of them, however, only weakly belong to the constellation they are assigned to.

Second, we do have interesting non-linear effects of high integration in/high dependency on the global economy. Note first, that under more authoritarian political conditions, if paired with relative economic equality and international independence, both low and high integration into the world market is compatible with income convergence. Second, high dependence on trade, T, if paired with low dependence on foreign investment, f, and high dependence on foreign investment, F, if paired with highly diversified exports, E, make politically and economically egalitarian countries converge (as long as they are relatively independent politically). Again we think this to be highly remarkable because it indeed means that in this sample, a qualified integration into the world economy is a *necessary* part of a sufficient condition for the convergence of strongly egalitarian countries. It is a *qualified* integration into the world economy, because it is undertaken in a position of relative political independence, l, high diversification, E, or trade under relative independence from foreign investment, T*f.

The analysis so far had the benefit of including Lake's index of security hierarchy as a measure for external political dominance. The downside of this index is that is excludes period 4, 2002-2009, from our analysis because no data are provided for this period. We therefore repeat our analysis using the Composite Index of National Capability (CINC) index which we have coded as C. As stated before, C is an imperfect substitute for the Lake's index. Table 6 reports all configurations and the convergence or non-convergence of all countries and timespans in this analysis.

Table 6: Truthtable 2

	CONDITIONS						No. case	Cases	OUTCOME		
	G	Q	F	T	C	E			X	~X	
1	1	1	1	1	1	1	1	Mexico4		Mexico4	
2	1	1	1	1	0	1	6	South Africa4, Panama4, Jamaica1, Ireland1, Thailand3, Panama3	South Africa4, Panama4, Thailand3	Jamaica1, Ireland1, Panama3	
3	1	1	1	1	0	0	24	Bolivia4, Botswana3, Botswana4, Chile3, Chile4, Cotsa Rica1, Costa Rica2, Costa Rica3, Costa Rica4, Dominican Republic4, El Salvador4, Guatemala4, Honduras4, Jamaica2, Jamaica3, Jamaica4 Moldova4, Nicaragua4, Paraguay4, Philippines3, Philippines4, Trinidad & Tobago2, Trinidad & Tobago3, Uruguay4	Botswana4, Chile3, Chile4, Costa Rica1, Costa Rica3, Costa Rica4, Dominican Republic4, El Salvador4, Honduras4, Moldova4, Nicaragua4, Philippines4, Trinidad and Tobago3, Uruguay4	Bolivia4, Botswana3, Costa Rica2, Guatemala4, Jamaica2, Jamaica3, Jamaica4, Paraguay4, Philippines3, Trinidad & Tobago2	
4	1	1	1	0	1	1	3	Brazil3, Brazil4, Turkey2	Brazil4, Turkey2	Brazil3	
5	1	1	1	0	0	1	2	Portugal1, South Africa3		Portugal1, South Africa3	
6	1	1	1	0	0	0	7	Argentina3, Argentina4, Bolivia2, Bolivia3, Colombia3, Ecuador3, Peru4	Argentina3, Argentina4, Peru4	Bolivia2, Bolivia3, Coombia3, Ecuador3	
7	1	1	0	1	0	1	1	Mauritius1	Mauritius1		
8	1	1	0	1	0	0	4	Dominican Republic3, El Salvador3, Mauritius2, Venezuela1	Dominican Republic3, El Salvador3, Mauritius2, Venezuela1		
9	1	1	0	0	1	1	1	Turkey3	Turkey3		
10	1	1	0	0	0	1	5	Argentina2, Colombia1, Colombia2, Greece1, Peru2	Argentina2, Greece1	Colombia1, Colombia2, Peru2	
11	1	1	0	0	0	0	2	Ecuador2, Venezuela2	Venezuela2	Ecuador2	58%
12	1	0	1	1	1	1	2	China4, Russia4	China4, Russia4		
13	1	0	1	1	1	0	1	Indonesia3	Indonesia3		
14	1	0	1	1	0	1	10	Jordan3, Malaysia2, Malaysia3, Malaysia4, Panama1, Panama2, South Africa1, Thailand4, Tunisia1, Tunisia2	Malaysia2, Malaysia3, Malaysia4, Panama1, Thailand4, Tunisia1	Jordan3, Panama2, South Africa1, Tunisia2	
15	1	0	1	1	0	0	16	Angola4, Azerbaijan4, Chile2, Ecuador4, Gabon2, Gabon3, Georgia4, Malaysia1, Namibia3, Namibia4, Papua New Guinea3, Paraguay3, Sri Lanka3, Tunisia3, Tunisia4, Venezuela4	Angola4, Azerbaijan4, Chile2, Ecuador4, Gabon2, Georgia4, Malaysia1, Namibia4, Papua New Guinea3, Paraguay3, Sri Lanka3, Tunisia3, Tunisia4, Venezuela4	Gabon3, Namibia3	
16	1	0	1	0	1	1	2	Brazil2, Mexico3	Brazil2, Mexico3		
17	1	0	1	0	0	1	2	Chile1, South Africa2	Chile1	South Africa2	
18	1	0	1	0	0	0	5	Cameroon2, Cameroon4, Guatemala2, Guatemala3, Peru3	Cameroon2, Peru3	Cameroon4, Guatemala2, Guatemala3	

Table 6: Truthtable 2 (continued)

	CONDITIONS						No.	Cases	OUTCOME	
	G	Q	F	T	C	E	case		X	~X
19	1	0	0	1	1	1	2	South Korea1, Russia3	South Korea1, Russia3	
20	1	0	0	1	0	1	2	El Salvador1, Thailand2	El Salvador1, Thailand2	
21	1	0	0	1	0	0	8	Bolivia1, Dominican Republic2, Gabon4, Honduras2, Nicaragua1, Nicaragua2, Paraguay2, Philippines2		Bolivia1, Dominican Republic2, Gabon4, Honduras2, Nicaragua1, Nicaragua2, Paraguay2, Philippines2
22	1	0	0	0	1	1	2	Brazil1, Mexico2	Brazil1	Mexico2
23	1	0	0	0	1	0	1	Iran3		Iran3
24	1	0	0	0	0	1	7	Algeria2, Dominican Republic1, Peru1, Philippines1, Thailand1, Uruguay1, Uruguay2	Dominican Republic1, Peru1, Thailand1, Uruguay1	Algeria2, Philippines1, Uruguay2
25	1	0	0	0	0	0	4	Ecuador1, El Salvador2, Guatemala1, Iran1	Ecuador1, El Salvador2	Guatemala1, Iran1
26	0	1	1	1	1	0	1	Indonesia4	Indonesia4	55%
27	0	1	1	1	0	1	12	Bulgaria4, Czech Republic3, Hungary3, Hungary4, Isral1, Latvia3, Latvia4, Lithuania3, Lituania4, Poland4, Portugal2, Romania4	Bulgaria4, Czech Republic3, Hungary3, Hungary4, Israel1, Latvia3, Latvia4, Lithuania3, Lituania4, Poland4, Portugal2, Romania4	
28	0	1	1	1	0	0	3	Albania4, Macedonia4, Mauritius4	Albania4, Macedonia4, Mauritius4	
29	0	1	1	0	0	1	2	Greece2, Poland3	Poland3	Greece2
30	0	1	1	0	0	0	1	Venezuela3	Venezuela3	
31	0	1	0	1	0	1	1	Bulgaria3	Bulgaria3	
32	0	1	0	1	0	0	1	Mauritius3	Mauritius3	
33	0	1	0	0	1	1	1	Spain1	Spain1	
34	0	1	0	0	0	1	1	Uruguay3	Uruguay3	91%
35	0	0	1	1	1	1	1	Ukraine4	Ukraine4	
36	0	0	1	1	0	1	9	Belarus4, Estonia3, Jordan1, Jordan2, Jordan4, Kazakhstan3, Lebanon4, Morocco1, Singapore1	Belarus4, Estonia3, Jordan1, Jordan2, Jordan4, Kazakhstan3, Lebanon4, Morocco1, Singapore1	
37	0	0	1	1	0	0	7	Egypt2, Egypt4, Kazakhstan4, Morocco2, Morocco3, Morocco4, Turkmenistan4	Egypt4, Kazakhstan4, Morocco2, Morocco3, Morocco4, Turkmenistan4	Egypt2
38	0	0	1	0	1	1	1	China3	China3	
39	0	0	1	0	0	0	1	Egypt3	Egypt3	
40	0	0	0	1	1	1	2	South Korea2, Ukraine3	South Korea2, Ukraine3	
41	0	0	0	1	1	0	1	Iran4	Iran4	
42	0	0	0	1	0	1	6	Belarus3, Bulgaria1, Georgia3, Lebanon2, Macedonia3, Romania3	Belarus3, Bulgaria1, Georgia3, Lebanon2, Romania3	Macedonia3
43	0	0	0	1	0	0	3	Algeria3, Syria4, Uzbekistan3	Syria4, Uzbekistan3	Algeria3
44	0	0	0	0	0	1	2	Argentina1, Romania1	Argentina1	Romania2
										88%

Table 7 shows the results from the corresponding computational analysis presenting several configurations that are sufficient to prevent countries from entering middle-income traps. Overall, the picture looks reassuringly similar to the previous one.

First, the central role of economic equality for avoiding the middle income trap shows again. The condition with the highest raw and unique coverage is low economic inequality. No matter with which political system or patterns of integration into the world economy low economic inequality comes along, it quite reliably allows countries to catch up with high income countries. The bulk of an –otherwise– quite heterogeneous group of countries achieves economic convergence being economically rather equal. This finding is driven by transition economies, Arab and Asian countries. 91% of the observations with economic *and* political equality achieve convergence, and 88% with only economic equality (see Table 6).

The picture is quite different in observations generated by countries with high economic inequality. 55% of politically *and* economically unequal observations converge, and 58% of those with high income inequality but high democracy scores. Together with the bulk of Latin American countries, this group is made up by early developmental states like South Korea in period 1 as well as China in the first decade of the 2000s (due to rising income inequality). As for most Latin American countries, our data reflect that income inequality has remained high while the continent increased its democracy scores between periods 2 and 3 with the third wave of democratization. Nevertheless, this does not seem to make a big difference. Our earlier analysis with two country cases from the Dominican Republic and Brazil (Flechtner/Panther 2015) has illustrated that dispersed economic interest finds manifold ways to translate itself into politics and political systems. Thus it is not surprising that Latin American countries achieve high scores on formal democracy rankings, while the reality in policy-making continues to reflect segmented interests.

Table 7: Sufficient conditions for economic convergence

Configuration	Raw coverage	Unique coverage	Solution consistency
T*E	0.437	0.016	0.852
F*E	0.379	0.008	0.839
g	0.484	0.126	0.843
C	0.222	0.021	0.845
Total coverage: 0.639 - Solution Consistency: 0.816			

Second, the analogue to political independence in this sample, strong military capability, C, also is a sufficient condition for convergence. While only 22% of all observations of convergence belong to this constellation, they converge 85% of the time. Again this is independent of all other characteristics of the constellation and thus also includes 10 observations which combine C with highly inegalitarian regimes, G*q. This accentuates one of our arguments which we have not translated into our set theoretic hypotheses: The BP argument that the need for external defence may provide strong common interests in the build up of state capacity and technological capabilities, apparently even under inegalitarian settings. By complementarity, this configuration also implies that, if not being a political

heavyweight internationally, convergence requires additional factors, like economic equality.

Third, qualified integration into the world economy again appears prominently, being now centered even more on the diversification of exports, E, to qualify this exposure than in the previous sample. E combined with either high trade openness, T, or high foreign direct investment stock, F, is sufficient for convergence, irrespective of any other characteristics of the constellation.[16] However, by virtue of this independence, these two first constellations in Table 7 do also contain aspects which contradict our hypotheses about sufficient conditions. Specifically, they apply to 15 observations in Table 6 which display a strongly inegalitarian regime, G*q, and convergence, which we explicitly stated as being contradictory to our "conditional integration into the world economy" hypothesis.

Remember, however, that we apply the formal analysis to observations, not countries. As previously stated, we consider our arguments as predicting the sustained, comparatively smooth and quick rise of countries fulfilling our conditions. Countries not displaying favourable characteristics will nevertheless converge some of the time. If we look at the table, we can see that not many countries appear more than once in those 15 contradicting observations. Both Russia and Thailand appear twice, Malaysia 3 times. If at all, it is these three countries which contradict our "conditional integration into the world economy" hypothesis – which makes especially Thailand and Malaysia interesting candidates for in depth case studies (Russia, belonging to the "powerful country" constellation too, being somewhat less interesting).

Looking at the whole group of countries displaying high income inequalities, G, most of the time, the first two constellations of Table 7 allow us to differentiate. In this group, we find some rather successful upper-middle income countries like China, Thailand or Malaysia achieving convergence in most of the periods our analysis covers, and other countries that oscillate between convergence and divergence. The coincidence of T*E as well as of F*E seems to draw somewhat of a line between these two subgroups. Brazil, for instance, has achieved high complexity scores *and* high inward FDI scores as of period 2. As long as FDI does not encounter and exploit very one-sided activities like in the bulk of Latin American countries in configurations 3 or 6, it seems, it is less of a risk: Brazil has achieved economic convergence in 3 out of 4 periods despite high economic inequality, as well as Malaysia, Thailand or early South Korea. In the case of Brazil, economy complexity and export diversity might of course be linked with the country size (at least indirectly, as we argue in Flechtner/Panther 2015) and would thus be reflected in the CINC index as well. On the other hand, this does not capture the whole argument, as it does not apply to Thailand or Malaysia. In table 6, all configurations with the presence of T*E (light orange) and F*E (dark orange) or both are highlighted.

16 In this paragraph we have summarized the first two sufficient conditions in Table 7 in the logically equivalent form E*(F+T).

5 Conclusion

Our paper has build up an argument relating domestic and international inequalities, both political and economic in nature, to the convergence or non-convergence of middle income countries with rich countries, the latter constituting the middle income trap. Building on the contributions of Acemoglu and Robinson, Bowles (2012), and Besley and Persson (2011) we have argued that relatively egalitarian access to both political and economic resources will be sufficient for income convergence of middle income countries. Drawing on Lake (2009, 2012) and again Besley and Persson (2011) we have argued that high political dependence on an external power will only be part of a sufficient condition for growth convergence if combined with relative economic and political equality. Finally, drawing especially on Schneider (2009 a and b) we have conjectured high integration into the world economy to be compatible with convergence again only under egalitarian conditions.

We used fuzzy-set comparative qualitative analysis (fsQCA) to scrutinize these arguments empirically on a dataset spanning the years 1976-2009. The results confirm the idea, that both domestic and global inequalities are central impediments to growth convergence. However, far from simply confirming our hypotheses, the empirical analysis has generated important modifications, which we consider to be highly interesting.

As to domestic inequalities, our analysis strongly suggests that economic equality is more important than political equality when it comes to catching up with rich countries. Only in one of our two analytical runs high democratic quality is part of a sufficient condition for convergence, in a conditional form. It seems that high economic inequality frequently corrupts the ability of democratic institutions to deliver for broad sections of society, while in several instances relative economic equality makes more authoritarian governments willing and able to do so. As to global inequalities, being able to determine your path as a country more or less independently from a dominant external power is a robust element of sufficient conditions for convergence, irrespective of the domestic political regime. The role of integration into the world market is less clear, especially regarding our argument of its beneficial effects being tied to egalitarian domestic structures, which only one of the two analytical runs confirmed. In any case, high export diversification is essential. Finally, contradicting observations from our second empirical run suggest Malaysia and Thailand as strong candidates for in depth case studies, due to their consistent convergence despite being more on the inegalitarian side on both economic and political accounts.

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