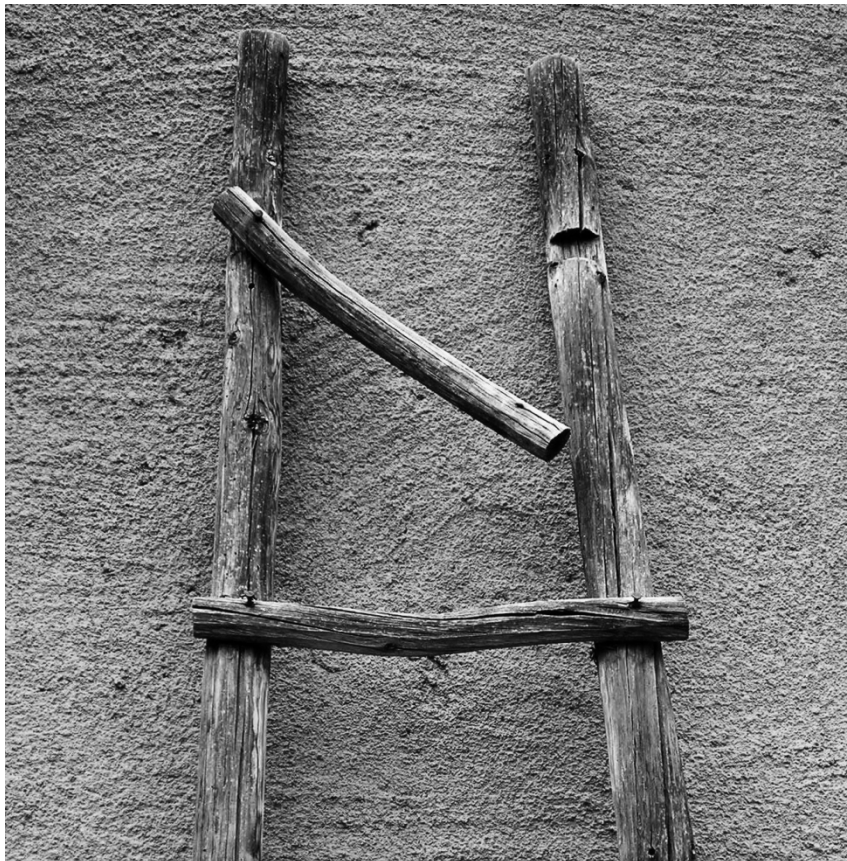


# ESCAPING THE MIDDLE-INCOME TRAP

THE IMPORTANCE OF INCLUSIVENESS FOR FURTHER GROWTH



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## ABSTRACT

This paper provides a working definition and framework for analysis of the Middle-Income Trap (MIT). Middle-income countries can be trapped between, and unable to compete with low-wage economies that dominate in mature industries and highly-skilled advanced economies that dominate in industries undergoing rapid technological change. A country is considered to be trapped if it remains in the lower or upper middle-income category longer than the average transition period of previously successful graduates. On average, countries managed to leave the lower middle-income category in 24 years and the upper middle-income category in 14 years. This means that countries have to grow with at least 4.7% to avoid the lower middle-income trap, and with at least 3% to avoid the upper middle-income trap. The second part of this study considers the importance of inclusiveness for a country's ability to escape the MIT. Inclusiveness is a concept used to denote to what extent the population shares in opportunities to contribute to economic development. Four indicator groups serve as proxies for inclusiveness: (1) (female) educational attainment; (2) life expectancy; (3) economic inclusiveness; and (4) political freedoms and civil liberties. The importance of inclusiveness is tested by comparing countries on three dichotomies: (1) Countries that have escaped the lower or upper MIT versus those that are (expected to be) or have been trapped; (2) Countries that have transitioned to a higher income category versus those that have not; and (3) Countries with strong growth versus those with slow growth. This study finds that countries that managed to escape the middle-income trap, managed to graduate to a higher income category or experience strong growth show considerable higher levels of inclusiveness.

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## AWAITING PROSPERITY

*'Once one starts to think about [economic growth],*

*it is hard to think about anything else'*

*(Lucas 1988: 5)*

### STUCK IN THE MIDDLE

Following its Golden Age of prosperity and growth in the 17<sup>th</sup> century, the (Republic of the Seven United) Netherlands was the first country to leave behind its status as a low-income country. After a long process of development the Dutch reached high-income levels in the second half of the 20<sup>th</sup> century. The development of countries is thus a progression from low-income to high-income (Felipe *et al.* 2012: 6-9, 24; Swart 1969). Early theorising on such a sequence depicted this process as 'a long drive to maturity' after an initial take-off had set the economy into motion (Rostow in Williamson 2012: 19). In reality, however, development and growth are far from such a smooth drive to prosperity (Aiyar *et al.* 2013: 3).

While standards of living in today's industrialised nations have reached unimaginable levels to our ancestors, with average real income today between 50 and 300 times larger than two centuries ago, we do not observe an equitable pattern of development across all parts of the world. Average real incomes of people in developed countries may exceed those of developing countries by a factor of 20 or more (Romer 1996/2005: 5-6). Illustrative of the consequences of such patterns is Robert Lucas' observation that 'an Indian will, on average, be twice as well off as his grandfather; a Korean 32 times' (1988: 4).

Differences in levels of development and income cannot only be explained by a lack of Rostow's 'initial take-off'. Many countries have started to climb the ladder towards higher levels of income, but have seen their progression stall along the way. Lant Pritchett (1998, 2000) therefore rightfully calls attention for the 'hills, plateaus,

mountains, and plains' in the patterns of economic growth. Understanding the cross country differences in income and growth is therefore one of the most elementary questions of economics (e.g. Hidalgo and Hausmann 2009: 10575; Lucas 1988: 5; Romer 1996/2006: 1)

Risks of decline and stagnation have been particularly underlined with respect to countries that reach the middle-income level. Indermit Gill and Homi Kharas (2007) coined the term Middle-Income Trap (MIT) for this specific phenomenon. Over the last decade the term has been widely discussed in academic circles and policy arenas. The specific concerns for the middle-income category are prevalent for three reasons. First, several middle-income countries (MICs) have failed to graduate to the high-income category despite attaining middle-income status several decades ago (in Aiyar *et al.* 2013: 3; also Griffith 2011: 39). Second, many of the world's developing growth engines, like China and India, are now MICs. Significant growth slowdowns in these economies would have a major impact on the global economy (Eichengreen *et al.* 2011). Third, three-quarters of the world's poor now live in MICs, given reason for Andy Sumner (2010: 3) to proclaim a 'new bottom billion'<sup>1</sup>, whom no longer live in fragile, poverty-stricken, and conflict-affected states. Low-income countries (LICs) now only account for a quarter of the world's poor, although it must be noted that just four countries (India, Pakistan, Indonesia and Nigeria) are responsible for much of the total of poor that have now 'moved up' to the middle-income category (Sumner 2010: 7).

Despite its popular usage, a clear and unambiguous definition of the MIT often appears to be missing. Samuelson (2014) considers slowdowns to be 'entirely predictable' part of an 'inevitable cycle' middle-income countries move through, whereas *The Economist* (2013) considers the entire concept to be 'claptrap', based on 'surprisingly thin' theoretical evidence. The concept, although widely used, is indeed under-theorised. Even Kharas, one of the authors who coined the term, acknowledges that despite the popularity of the concept 'some have interpreted and

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<sup>1</sup> This, of course, is in reference to Paul Collier's (old) Bottom Billion (2007)

used the term quite differently from what we had in mind when we first introduced the term Middle Income Trap in our writings and presentations' (Kharas and Kohli 2011: 281). This paper will therefore provide a solid theoretical framework to define and use the concept of the Middle Income Trap. This framework is subsequently used to determine who are in the MIT, and explore why some countries perform better than others.

Previous scholarship has already emphasised the importance of macro-economic factors and enabling conditions to escape the MIT (e.g. Agénor and Canuto 2012; Cai 2011; Paus 2012). This paper, instead, is centrally concerned with the importance of inclusiveness for MICs. Inclusiveness is usually associated with development and pro-poor literature, which traditionally focuses on the impact of economic growth on poverty reduction. Inclusiveness, in earlier literature, is a concept used to denote to what extent the poor share and benefit in the wealth and development of the rest of society (Ianchovichina and Lundstrom 2009: 3).

While recognising the importance of this dimension of inclusiveness, a second wave of literature has attributed a second, and arguably more important dimension to the concept. Instead of focusing on distributive outcomes, the second dimension encompasses the 'social opportunity function, which depends on two factors: (i) average opportunities available to the population, and (ii) how opportunities are shared among the population' (Ali and Son 2007: 11; Ali 2007: 1). Equity of opportunity is vital for the development of human capital, which underpins the potential for domestic innovation (Gill and Kharas 2007: 175; Kharas and Kohli 2011: 286). Amartya Sen (1999: 10), preferring 'freedom' over 'equity of opportunity' also underlines that 'freedoms are not only the primary ends of development, they are also among its principal means'. Innovation is crucial, as Hidalgo and Hausmann (2009) show that development requires the acquisition of more complex capabilities and products, rather than only improving upon existing production goods. Making the transition up the value chain of production requires adequate skills of the workforce (Griffith 2011: 41-42). Inclusiveness, in the sense of equity of opportunity

or personal freedoms, thus becomes crucial for a middle-income country to transition to the high-income category. The study of inclusiveness is thus an 'ex ante analysis of constraints to future economic development' (Ianchovichina and Lundstrom 2009: 4). Inclusiveness is not something you can only afford once you have acquired certain prosperity, but inclusiveness is rather something that becomes indispensable on the path to prosperity (Sen 1999: 35-37, 142).

#### *ARGUMENT AND APPROACH*

This study finds a strong associational relationship between inclusiveness and economic performance for middle-income countries. From the plethora of findings eight bigger trends emerge: (1) Countries that perform well show higher records of inclusiveness; (2) Countries that perform well especially outperform others in terms of educational attainment, life expectancy and economic inclusiveness; (3) Access to healthcare, primary and secondary education is significantly higher in those low-income countries that manage to graduate to the lower middle-income category, or those that are strong growers; (4) Access to secondary education is significantly higher in those countries that manage to escape the LMIT, those that manage to graduate to the upper middle-income category, or those that are strong growers; (5) Access to secondary, and especially tertiary education is significantly higher in those countries that manage to escape the UMIT or those that manage to graduate to the high-income category; (6) Countries that perform well were not necessarily more free than those that did not; (7) Countries that perform well usually become more free over time and after strong growth; (8) Countries with higher incomes record higher levels of individual freedom.

The remainder of this work proceeds as follows. The next chapter provides an overview of existing scholarship on the MIT and the concept of inclusiveness. The discussion of the literature illustrates the need for a more conceptually grounded notion of the MIT. The subsequent chapter will therefore provide a working definition of the trap, which serves as a framework for the remainder of this study.

The conceptual framework classifies countries as low-income if its GDP per capita in constant 2005 PPP dollars is less than \$2,250, as lower middle-income if its GDP per capita is between \$2,250 and \$7,500, as upper middle-income if its GDP per capita is between \$7,500 and \$14,500, and as high-income if its GDP per capita is \$14,500 or higher. This study finds that it takes the average country 24 and 14 years to escape the lower and upper middle-income trap respectively. Taking the graduation times of 24 and 14 years into consideration, a country has to grow, on average, with 4.7% to avoid the lower middle-income trap, or with 3% to avoid the upper middle-income trap. If a country remains for more than 24 years in the lower middle-income category or for more than 14 years in the upper middle-income category, it is considered to be caught in the MIT.

The final chapter is dedicated to the role inclusiveness plays in the ability of countries to escape the MIT. The importance of the concept is considered by comparing countries on three dichotomies: (1) Countries that have escaped the Lower or Upper Middle Income Trap versus those that are (expected to be) or have been trapped; (2) Countries that have transitioned to a higher income category versus those that have not; and (3) Countries with strong growth versus those with slow growth. Based on these comparisons the paper concludes that countries that escaped, transitioned, or experience strong growth have, on average, significantly higher levels of inclusiveness.



## THE MIDDLE INCOME TRAP

*'... [for] growth to be sustainable in the long run, it should be broad-based across sectors, and inclusive of the large part of the country's labour force'*

*(Ianchovichina and Lundstrom 2009: 2)*

### THE UNDERLYING CAUSES

In the early stages of development virtually all countries rely on subsistence agriculture. Around two-thirds of the population work in agriculture, with the sole purpose to feed themselves and their family (Felipe *et al.* 2012: 6-16). Since 'most of their current income must be used simply to stay alive rather than to invest in the future', the poorest nations are caught in a so-called poverty trap (Sachs 2005: 85). If poor countries do manage to escape subsistence levels of income, they mostly manage to do so because they successfully manage to move their labour force from low-productivity activities to high-productivity activities (Kharas and Kohli 2011: 284). Subsistence agriculture, by definition, is an 'unproductive sector' (Lewis 1954), in that farmers could switch to other, more productive sectors without impairing the overall productivity of the agricultural sector (Van Heuvelen 2012: 5). The development of low-income countries is thus principally concerned with what Kharas and Kohli describe as the organisation of 'the supply side of an economy, both in terms of maximising factor inputs and ensuring enabling policies and institutions' (2011: 285).

Having successfully escaped the low-income category, countries slowly start to face new problems. With rising levels of development, wages are also rising steadily. While higher incomes are, by all means, a positive development, they undermine the low-cost growth model that allowed countries to escape the low-income category in the first place (Yusuf and Nabeshima 2009: 2). At higher levels of income, and with agriculture no longer being the single dominating sector, there no

longer is a 'free' demographic dividend of moving unproductive workers to more productive sectors (Eichengreen 2011: 410-411; Williamson 2012: 18). Higher wages, thus, make it difficult to remain competitive as a high-volume, low-cost producer (World Bank 2010: 27).

To ensure competitiveness in the face of rising wages, countries must move their industries 'up the value chain' (Yusuf and Nabeshima 2009: 2), and make their production 'more capital-, human capital-, and knowledge-intensive' (Spence 2011: 100). Such a move up the value chain, however, is easier said than done, and requires significant investment in knowledge and innovation based industries (World Bank 2010: 27). Most MICs are still over reliant on labour-intensive production, and consequently struggle to compete with technological superior advanced countries (Williamson 2012: 18).

Reflecting on the struggle of MICs, in having to compete with low wages in poor countries and technological superiority in those that are advanced, Gill and Kharas (2007: 17-18; 2011: 281) described those countries as being trapped. MICs are squeezed between, and unable to compete with low wage economies that dominate in mature industries and highly-skilled advanced economies that dominate in industries undergoing rapid technological change (Gill and Kharas 2007: 5; Griffith 2011: 39; Kharas and Kohli 2011: 281-282; Paus 2012: 115-116).

#### ESCAPING THE TRAP

Moving up the value chain of production, according to Kharas and Kohli (2011: 286-288), requires that middle-income countries make three vital transitions: (i) from diversification to specialisation, in moving away from only producing a wide range of mass products that require little skill, technology and know-how; (ii) from the physical accumulation of factors to raise overall productivity to productivity-led growth; and (iii) from centralised to decentralised economic management, so that government and institutions can respond faster to new information (see also Williamson 2012: 18). Ohno, similarly to the first two transitions, emphasises the

importance of internalising skills and knowledge by accumulating industrial human capital. Countries failing to make this transition get trapped below 'the invisible “glass ceiling” in manufacturing between the second [middle-income] and the third [high-income] stage [of development]' (Ohno 2009: 27-28).

While the necessity of economic transitions seems plausible, Williamson (2012: 18) is astute in noting that often 'no empirical evidence is offered that such changes are characteristic of the move from middle to high-income, *let alone* that they are essential'. It is, however, incorrect to conclude that no empirical studies on the issue have been conducted. A substantial body of scholarship is dedicated to, among others, the importance of stable macroeconomics, sound fiscal and monetary policies, good governance, and functional infrastructure (e.g. Agénor and Canuto 2012; Cai 2011), with others focusing on the importance of a country's production and export basket or the role of FDI in technological upgrading (e.g. Paus 2012: 121, 127).

This paper, instead, focuses on the importance of inclusiveness for economic growth in MICs. To reiterate from the previous chapter, this work builds on a second wave of literature that interprets inclusiveness as a concept of 'social opportunity' or 'personal freedom'. Most importantly, inclusiveness is viewed 'both as the primary end and as the principal means of development' (Sen 1999: xii). Inclusiveness, consequently, is not something you should only care about after becoming wealthy, but rather something essential in order to become prosperous (Sen 1999: 35-37, 142).

Inclusiveness becomes vital for economic growth in the middle-income category, as it allows people to contribute to economic growth. For growth to be sustainable, Ianchovichina and Lundstrom argue that growth has to 'be *broad-based* across sectors and *inclusive* of the large part of the country's labour force' (2009: 2, emphasis in original). The World Bank's Commission on Growth and Development attaches an equal importance to inclusiveness, by stating that: 'It is our belief that equity and equality of opportunity are essential ingredients of sustainable growth strategies' (2008: 60). Equality of opportunity refers to access: access to healthcare,

education, and job opportunities (Commission on Growth and Development 2008: 61). The systematic denial of opportunities or access to a group due to its gender, ethnicity, religion or social status can be detrimental to further economic development. Discrimination and inequality of opportunity could lead to political unrest, but even without social turmoil the systematic exclusion of groups denies them the opportunity to contribute to economic growth (World Bank 2010: 13). The exclusion of women, for example, would automatically deny half of the population the opportunity to contribute and become 'potentially successful economic agents' (Commission on Growth and Development 2008: 62-63). Female education is also instrumental in reducing fertility rates, and thus for increasing the potential of women to join the labour force (Sen 1999: 144). A more inclusive utilisation of the labour force would help sustain and boost economic growth and increase the overall size of the economy (Ianchovichina and Lundstrom 2009: 3).

A fundamental underpinning for innovation, specialisation and sustainable growth is 'productive employment' (Ianchovichina and Lundstrom 2009: 37). Productive employment and the development of human capital in general, although dependent on a wide range of factors, are highly correlated with good access to healthcare and education (Gill and Kharas 2007: 175; Kharas and Kohli 2011: 286-287). Access to education is elementary to internalise skill and knowledge. Innovation and specialisation require a labour force that can generate ideas, has know-how of working practices, and can shape and develop new products and technologies (Felipe 2012: 2; Kharas and Kohli 2011: 286-287). Unlike low-income countries, where healthcare and education are predominantly presented as a social obligation to improve the quality of life of the poor, at higher levels of income access to health and learning become a necessity for further growth (Griffith 2011: 41-42; Kharas and Kohli 2011: 288; Ohno 2009: 28, 40; Romer 1990: 99). Harbison and Myers eloquently described the importance of education as 'both the seed and the flower of economic development' (in Krueger and Lindahl 2001: 1131). Equal opportunity to good health, like access to education, is 'constitutive of development'

(Sen 1999: xii). Good health, be it in the form of sufficient nutrition, access to clean water, sanitary facilities or health care, is elementary to a person's ability to exercise the full potential of their economic agency (Sen 1995: xii-4, 144). Economic inclusiveness (measured as income inequality, poverty and income shares of the poorest) is also important, as economic deprivation could keep people trapped in a state of survival, rather than allowing them to focus on their own development.

Choosing to describe 'equity of opportunity' as 'human freedoms' instead, Amartya Sen also highlights the importance of political and civil liberties, next to that of education, health and economic inclusiveness (1999: 4-5). Political freedoms and civil liberties, according to Sen, help to advance the general capability and potential of a person, and thus help to promote the economic security of people (1999: 10-11). Freedoms and liberties also contribute to economic growth in that they can prevent the continuation or imposition of 'unfreedom', or the denial of opportunity to groups or individuals. As such, individual political and civil liberties are thought to be important to guarantee participatory freedom. Broad participation ensures that the potential of the labour force is grasped to the fullest (Sen 1999: 17-18, 32-33).

The importance of civil liberties and political freedoms for economic growth has often been disputed. The former Prime Minister of Singapore, Lee Kuan Yew argued freedoms and rights impair economic growth. In addition to this so-called Lee Thesis, opponents argue that when given a choice, people would choose economic needs over political freedoms. A third argument against the need for further rights and freedom has been staunchly advocated by another Asian Prime Minister. Mahathir Mohamad of Malaysia has argued that issues of liberty and democracy are a Western priority only, clashing with 'Asian values' (Eichengreen *et al.* 2011; Sen 1999: 147-149). The first two arguments are closely related, in that they share a belief that liberty impedes growth, and that you cannot have both simultaneously (because people would face a choice between either liberty or growth). Although a widely popular notion, empirical research shows, on average, no significant effect of democracy on growth (e.g. Im 2011: 596; Knutsen 2010: 451;

Knutsen 2012: 393; Sen 1997: 1; Sen 1999: 150). Mahathir's premise of Asian values clashing with liberties, rights and freedom has also been widely disputed (e.g. Elgin 2012: 135; Sen 1997: 1).

Building on the notion that inclusiveness is a principal driver of growth, this paper will use that concept with respect to countries in the middle-income category. The next chapter will first present a framework to define the Middle Income Trap. This working definition will be used in the final chapter to discuss the importance of inclusiveness for economic performance in the middle-income category.

## TOWARDS A WORKING DEFINITION

*'... squeezed between ... low-wage ... competitors ...*

*and ... rich-country innovators'*

*(Gill and Kharas 2007: 5)*

### DEFINING THE MIDDLE INCOME TRAP

Whereas the notion, causes and results of the Middle Income Trap are extensively discussed in scholarship and policy circles, as is laid out in the previous chapter, its exact definition remains far more unclear (Felipe *et al.* 2012: 7). Scholars have advocated different ideas of what being trapped entails. For Gill and Kharas (2007: 5) middle-income countries are 'squeezed between the low-wage poor-country competitors that dominate in mature industries and the rich-country innovators that dominate in industries undergoing rapid technological change'. They also found that MICs grow less rapidly than countries that were either poorer or richer (Gill and Kharas 2007: 5).

Focusing on the observation of Gill and Kharas (2007) that economic growth in countries tends to slow down when low incomes are on the rise, a substantial body of literature has focused on the occurrence of slow-downs in MICs. The work of Barry Eichengreen is the principal example of this approach (for similar approaches, see Aiyar *et al.* 2013: 3-5; and Caldentey 2012: 186, 203). In collaboration with Donghyun Park and Kwanho Shin, Eichengreen attempts to determine when fast growing, middle-income countries slow down. Eichengreen concludes that growth slows down when per capita incomes reaches about \$17,000 (Eichengreen 2011: 410; Eichengreen *et al.* 2011).

While Eichengreen's research is praiseworthy for its attempt to empirically substantiate the MIT, Williamson (2012) is absolutely right in noting that it is not 'legitimate is to conflate a slowing-down of growth with [the] existence of a middle-

income trap'. As incomes rise, it simply is inevitable that growth will slow-down. To once more adopt the words of Williamson (2012): 'Eventual slowdown is implicit in the notion of convergence'.

Taking a somewhat different approach, Felipe *et al.* (2012: 21) use the extensive data series of Angus Maddison (2010) to 'determine the minimum number of years that a country has to be in the middle-income group so that, beyond this threshold, one can argue that it is the middle-income trap'. They determine this number of years based on the historical pattern of development. If a country has been longer in the middle-income group than other countries have on average<sup>2</sup>, they argue that a country is caught in the Middle Income Trap. The median number of years countries stay in the lower middle-income category is 28 years, while the median number is only 14 for those countries in the upper middle-income group (Felipe *et al.* 2012: 21-24). Using a different methodology, Van Heuvelen (2012: 34) argues that the appropriate benchmarks are 26 and 16 years, for the lower and upper middle-income category respectively. Felipe *et al.* acknowledge that their method 'entails an unavoidable element of subjectivity', but it nonetheless provides a first and genuine attempt to define and classify what the MIT actually is.

The next section will build on the works of Felipe *et al.* and Van Heuvelen and adopts their methodology to obtain the appropriate benchmarks. It uses, however, a different data source for the underlying GDP data. Where the aforementioned works all use the time series of Maddison, this work utilises the Penn World Tables (PWT) (Heston, Summers and Aten 2012). The GDP time series of Maddison (2010) are a much praised work, and rightly so. Maddison published an account of the world economy, with annual GDP data going as far back as 1820. Felipe *et al.* and Van Heuvelen use the Maddison data because you need long time series to study income traps.

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<sup>2</sup> Felipe *et al.* actually use the median number of years, as the sample is relatively small.



The crucial issue when comparing per capita GDP levels between different countries is that of purchasing power parities (PPP). To calculate PPP Maddison uses a supply-side approach by calculating unit-value ratios for individual products (that is, he divides the production value by the physical quantities). These unit-value ratios are considered as prices for international comparison. The Penn World Tables on the other hand uses an expenditure approach, based on the actual prices of goods and services. Although, in theory, each approach is as useful and valid as the other, the supply-side approach of Maddison is troubled by statistical issues. In many cases, especially when comparing countries at very different levels of development (which the study of the MIT requires), the overlap between production structures and individual products is rather small. The crucial PPP are consequently based on a very small sample of products, which are not necessarily illustrative or representative for the country as a whole (Verspagen 1998: 143-144). Consumer products on the other hand are significantly easier to compare, as the overlap of individual goods is significantly higher. The Penn World Tables also benefit from the data of the influential International Comparison Program (ICP), which collects prices of thousands of comparable goods and services in many countries<sup>3</sup> (Feenstra, Inklaar and Timmer 2012). Considering that price and income comparisons become less reliable as economic structures between countries are further apart, and given the 'increasing unreliability of long-run historical comparisons', a bigger basket of comparable goods is of central importance (Deaton and Heston 2009: 1-6). Taking

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<sup>3</sup> The ICP, although the most comprehensive of its kind, still struggles with the collection and comparison of worldwide prices. While the collection of prices of consumer goods and services is easier and more reliable than Maddison's supply-side approach, the process is still far from perfect. Although the ICP strives for uniformity of the methodology applied in each country, some countries still only collect urban price data. When (generally lower) rural prices are left out of consideration the price level of a country would be superficially high. Like many other countries, China only collects urban prices, to suggest a higher price level and a lower PPP converted GDP per capita. This becomes problematic when comparing China to other countries, especially if those countries do collect rural data or have different levels of urbanisation or development. As the purpose of this paper is to compare countries vis-à-vis each other, this paper chooses to accept the recommendation of Deaton and Heston (2009) to adjust the GDP levels of China. The PWT already provide such an adjusted series. The disadvantage of (only) adjusting China, however, is that is harder to compare China to other countries that only collect urban data (Deaton and Heston 2009).

these issues into consideration, to ensure reliability, this paper prefers to use the Penn World Tables over the Maddison data.

The Penn World Tables (Heston, Summers and Aten 2012, version 7.1) provides GDP data for 185 countries between 1950 and 2010. For a lack of data on inclusiveness indicators prior to 1970, especially for developing countries, the period of 1950-1969 is dropped from the analysis. As is standard in the literature (e.g. Felipe *et al.* 2012: 11), I discard those countries that: (1) have populations below 1 million in 2010 (36 countries<sup>4</sup>); (2) are successor republics of the Soviet Union, Yugoslavia and Czechoslovakia (22 countries<sup>5</sup>); and (3) former Yugoslavia and Czechoslovakia. Consequently, 124 countries remain for further study (Appendix A, Table A1).

### CLASSIFYING COUNTRIES

The next step, having determined the best source for GDP data, is to classify countries into income groups. Unfortunately there are no generally accepted or objective criteria to classify countries (Nielson 2011: 3), but classifications are nonetheless widely used for pragmatic purposes to differentiate between countries.

From the plethora of classifications in use, two rankings are most relevant for the purpose of this paper. The first ranking, published by the United Nations Development Programme (UNDP), is built around the Human Development Index (HDI). The HDI was created in 1990, according to the United Nations (2014), 'to emphasise that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone'. The index is therefore a composite of three indices measuring the status of education, health and

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<sup>4</sup> Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, Bhutan, Brunei, Cape Verde, Comoros, Djibouti, Dominica, Equatorial Guinea, Fiji, Grenada, Guyana, Iceland, Kiribati, Luxembourg, Macao, Maldives, Malta, Marshall Islands, (Federated States of) Micronesia, Montenegro, Palau, Qatar, Samoa, Sao Tome and Principe, Seychelles, Solomon Islands, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines, Suriname, Tonga, Vanuatu

<sup>5</sup> The successor states of the Soviet Union are Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. The successor states of Yugoslavia are Bosnia and Herzegovina, Croatia, Macedonia, Slovenia, and Kosovo. The successor states of Czechoslovakia are the Czech Republic and Slovakia.

income in a country. The income component is measured as Gross National Income (GNI) (Nielson 2011: 3, 8-9). As the study of income traps requires study over longer periods of the time, the relative novelty of HDI makes that it cannot be used for the study of the MIT.

The second principal ranking is that published by the World Bank. Like the UNDP, the World Bank set out to create a ranking reflecting not only income, but general well-being. Following internal studies, the World Bank concluded that GNI was 'the best single indicator of economic growth and progress', that showed 'a stable relationship between a summary measure of well-being such as poverty incidence and infant mortality on the one hand and economic variables including per capita GNI ... on the other' (in Nielson 2011: 10-11). Based on GNI, the World Bank classifies countries as either low-income, lower middle-income, upper middle-income or high-income. The income classification of the World Bank remains the principal and most widely used benchmark for any income classification of countries (Felipe *et al.* 2012: 10). However, like the HDI, the World Bank's income classification is not suitable for the study of the MIT as its time series only go back to 1987.

#### *INCOME THRESHOLDS*

As the benchmark classifications of the UN and World Bank are not long enough for the study of income traps, there is a need to develop a new classification framework based on longer time series. The following section will construct such a framework using the Penn World Tables. Unfortunately, the income thresholds of the World Bank cannot be readily applied to the data from the PWT, as the latter uses PPP Converted GDP per capita at constant 2005 prices, as opposed the former's use of GNI per capita at current prices. Following the example of Felipe *et al.* (2012) this study needs to calculate new income thresholds compatible with GDP data, while

trying to mirror the World Bank's classification as much as possible<sup>6</sup>. Mirroring this new income classification on the World Bank ensures to 'maintain the underlying information (both income and non-income measures of well-being) that is encapsulated in each of the income categories' (Felipe *et al.* 2012: 12). Mirroring is also important because the income classification of the World Bank is the principal available benchmark (Van Heuvelen 2012: 10).

The income classification of the World Bank consists of four income groups (low, lower middle, upper middle, high), and, consequently, of three income thresholds ( $t_1, t_2, t_3$ , with  $t_1 < t_2 < t_3$ ). As of 2014, the income thresholds of the World Bank (2014) are \$1,045, \$4,125 and \$12,746. This paper aims to find a similar set of thresholds for GDP data, which will result in a classification of countries that mirrors that of the World Bank as much as possible. To find this optimal set of thresholds, the methodology of Felipe *et al.* (2012) is adopted. They compare the resulting classification of a large number of sets of thresholds with the classification of the World Bank. A set of thresholds is a certain combination of three thresholds. For example, threshold set 1 is ( $t_{0,1}=\$250$ ,  $t_{1,1}=\$500$ , and  $t_{2,1}=\$750$ ), set 2 is ( $t_{0,2}=\$250$ ,  $t_{1,2}=\$500$ , and  $t_{2,2}=\$1000$ ), and set 82,160 is ( $t_{0,82160}=\$19,500$ ,  $t_{1,82160}=\$19,750$ , and  $t_{2,82160}=\$20,000$ ). The value of each threshold is built on incremental steps of \$250.

To cope with the enormous amount of calculations, Felipe *et al.* (2012: 12) only allow thresholds to fluctuate within a certain range: 'Each set of thresholds  $i$  is a combination of  $t_0$  from \$1,500 to \$4,750,  $t_1$  from \$5,000 to \$8,750, and  $t_2$  from \$9,000 to \$20,000, at \$250 intervals. This gives a total of 14 (intervals of \$250 from \$1,500 to \$4,750)  $\times$  16 (intervals of \$250 from \$5,000 to \$8,750)  $\times$  45 (intervals of \$250 from \$9,000 to \$20,000) = 10,080 sets of thresholds'. Van Heuvelen (2012: 14), although he chooses to use the same approach, notes that the optimal value of the thresholds can change if the boundaries of the ranges change. This paper therefore aims to improve

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<sup>6</sup> That is, ideally, if the World Bank classifies Bangladesh as a low-income country, and Gabon as an upper middle-income country, a new classification based on GDP data would also classify each respective country as such.

this method, by abandoning the ranges all together. Instead of using the 10,080 sets of thresholds suggested by Felipe *et al.* (2012), this paper calculates all possible permutations of thresholds between \$250 and \$20,000 (with incremental steps of \$250), that comply with the parameter that  $t_1 < t_2 < t_3$ . By abandoning the ranges I prevent that arbitrary parameters influence the final results. Where Felipe *et al.* (2012) only compare 10,080 sets, this paper compares all possible 82,160 sets of thresholds.

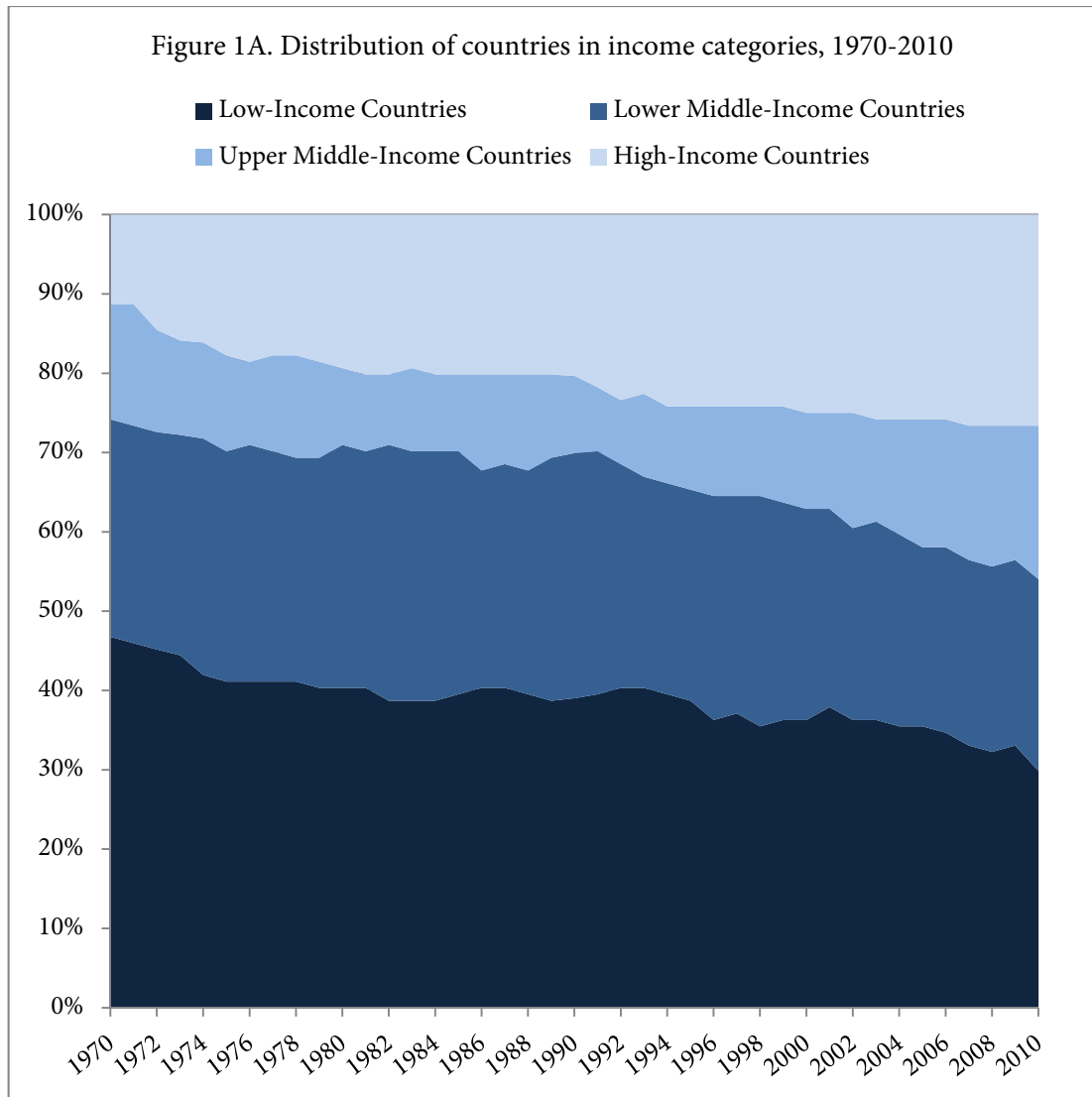
The next step is to calculate the pairwise correlations of each of the resulting 82,160 classifications with the income classification of the World Bank<sup>7</sup>. In the study of Felipe *et al.* (2012) the set of thresholds that yielded the highest correlation was  $t_1$ =\$2,000,  $t_2$ =\$7,250 and  $t_3$ =\$11,750. Based on our data the optimal thresholds are  $t_1$ =\$2,250,  $t_2$ =\$7,500 and  $t_3$ =\$14,500 instead. Given these thresholds, a country is classified as low-income if its GDP per capita in constant 2005 PPP dollars is less than \$2,250, as lower middle-income if its GDP per capita is between \$2,250 and \$7,500, as upper middle-income if its GDP per capita is between \$7,500 and \$14,500, and as high-income if its GDP per capita is \$14,500 or higher. These thresholds are constant over time.

### *DISTRIBUTION AND TRANSITION OF COUNTRIES*

Using the income thresholds of the previous section, the distribution of countries by income class over time can be calculated. Starting in 1970, nearly half (58) of all 124 countries were in the low-income category (47 percent), 34 countries (27 percent) in the lower middle-income category, 18 (15 percent) in the upper middle-income category, and 14 (11 percent) in the high-income category. The changes in income

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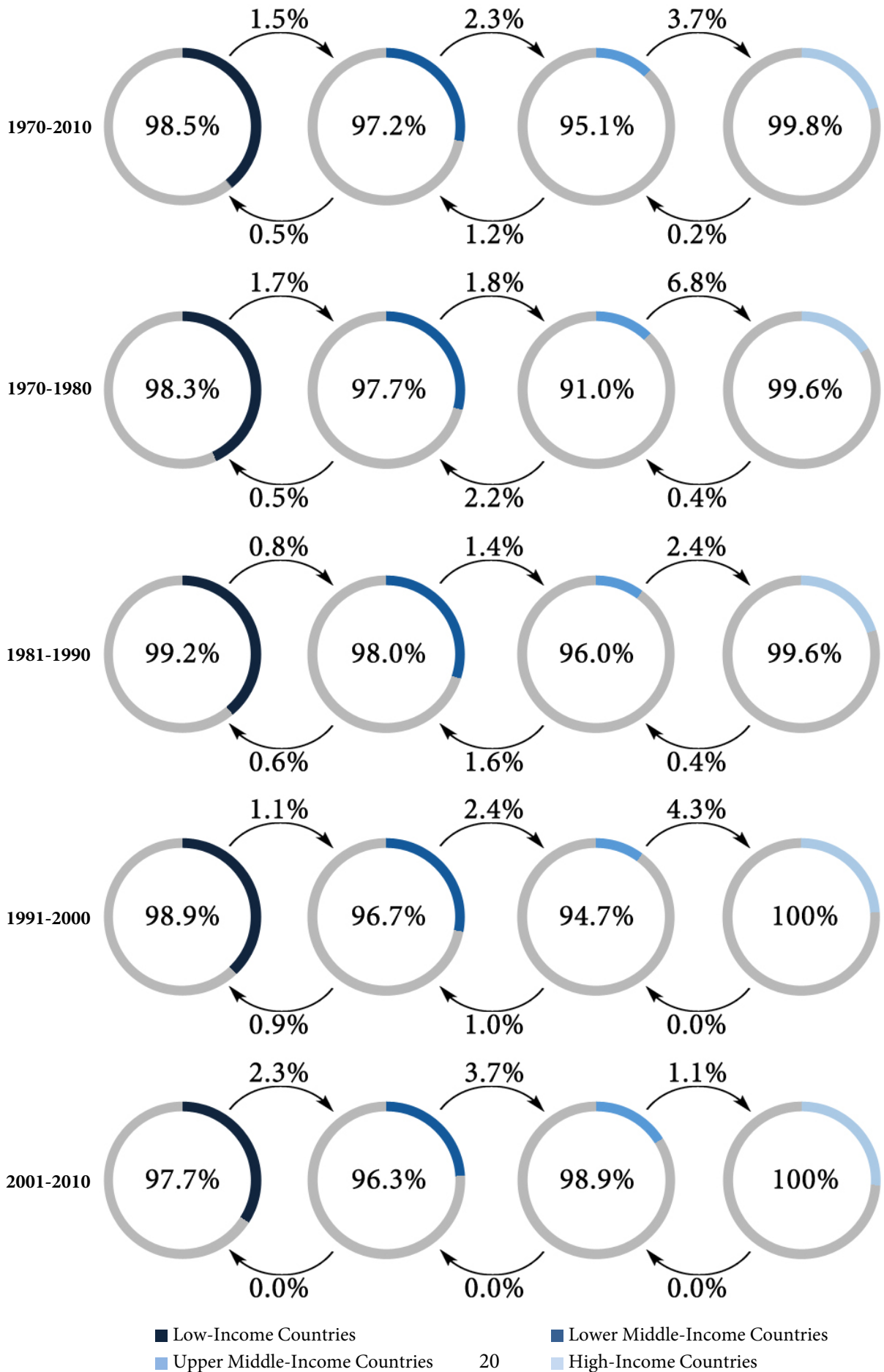
<sup>7</sup> Felipe *et al.* (2012) use a polychoric correlation to compare the new sets of thresholds to that of the World Bank. This paper uses a Pearson's correlation instead. The working paper of Van Heuvelen (2012) extensively discusses the importance of the correlation method. While he concludes that some correlation methods perform better than others, he underlines that all correlations have difficulty in correctly classifying countries. He furthermore observes that despite those differences 'similar definitions are obtained'. Nonetheless, it might be fruitful to repeat this research with different correlation techniques to test the robustness of results.



distribution over time are shown in Figure 1A.

The number of low-income countries has gradually decreased over time. In the 1970s eight countries managed to move up to the lower middle-income group. In the subsequent two decades, however, low-income countries struggled to move up the ladder, with only five countries managing to make the jump. The period between 2000 and 2010 was again very successful, with another eight low-income countries reaching the lower middle-income category. The number of countries in the lower middle-income category slowly increased from 34 in 1970 to a high of 40 in 1982. From the 1990s on, the number of lower middle-income countries slowly decreased to a final of 30 in 2010. The distribution of countries in the upper middle-income category almost shows a reverse development. The number of countries first

Figure 1B. Transition diagrams 1970-2010



decreases from an initial 18 to a low of 10 in 1991, after which the number of countries reached an all-time high of 24 in 2010. The high-income category gradually gained membership over time. In 1970 only 14 countries (11 percent) were high-income, but this number had already increased to 33 (27 percent) by 2010. The biggest mutations to the high-income category were in the 1970s (9 countries graduated), and the first half of the 1990s (5 countries graduated). After 1994 only 3 countries managed to jump the final hurdle.

Figure 1B shows the transition diagrams for the period of 1970 to 2010<sup>8</sup>. Each new row contains the transition diagram of an individual decade. The first circle of each diagram represents the low-income category, with each subsequent circle representing a higher income group. The blue colour coding on the border of each circle represents the share of countries in that income group set off against the total sample size, for example: between 1970-1980 43 percent of all countries were in the low-income category, and, subsequently, 43 percent of the first circle in that particular diagram is shaded in dark blue. The number in the middle of each circle represents the percentage of countries that remained in the same income category during the sample period. These percentages are quite high (91 percent being the lowest), indicating that transitions are relatively rare. This is to be expected, as economic growth and development are a long-term process. The right-facing arrows above each diagram illustrate the percentage of countries that managed to graduate to a higher income category. The left-facing arrows at the bottom are indicative of countries that have fallen back to a lower income category.

The most stable income groups are the low and high-income group. From 1970 to 2010 98.5 percent of the LICs remained in the low-income category, and 99.8% of the HICs remained in their income category. The stability of these income groups could be channelled back to the fact that LICs can only transition upwards and HICs only backwards, while MICs can transition both up and down. The category of UMICs is the most volatile, with the exception of the last decade studied.

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<sup>8</sup> Author's own calculations following the example of Van Heuvelen (2012).



Positively, the upwards transitions generally outnumber those that go downwards. There are two notable exceptions in the middle-income category. During the 1970s and the 1980s, the percentage of UMICs that fell back into the lower middle-income category was bigger than the percentage of LMICs that managed to graduate to the upper middle-income category. The last decade proved a positive exemption in that no country fell back into a lower income category, and that countries only transitioned upwards.

### *CAUGHT IN THE TRAP*

To reiterate from before, although the notion of the Middle Income Trap has been extensively discussed, its exact definition remains far more unclear. To provide such a working definition, Felipe *et al.* (2012: 21) suggest to 'determine the minimum number of years that a country has to be in the middle-income group so that, beyond this threshold, one can argue that it is the middle-income trap'. They determine this number of years based on the historical pattern of development. If a country has been longer in the middle-income group than other countries have on average, they argue that a country is caught in the Middle Income Trap. The median number of years countries stay in the lower middle-income category is 28 years, while the median number is only 14 for those countries in the upper middle-income group (Felipe *et al.* 2012: 21-24). Preferring to use average numbers instead, Van Heuvelen (2012: 34) argues that the appropriate benchmarks are 26 and 16 years, for the lower and upper middle-income category respectively.

Using the same methodology as Felipe *et al.* (2012) this paper finds 50 cases of a country graduating from the lower middle-income group to the upper middle-income group, or, alternatively, from the upper middle-income group to the high-income group. Van Heuvelen (2012: 24-26), however, rightfully argues that the number of graduations has to be corrected, to ensure that unwanted distortions to the average graduation times are excluded from consideration. He proposes four necessary corrections: (1) to exclude graduations if countries were already in set

income group at the beginning of the sample; (2) to ignore temporary setbacks of five years or less; (3) to exclude graduations that lasted no longer than two years; and (4) to ignore second or later transitions.

After applying all necessary corrections, twelve valid graduations remain: five from the lower middle-income category, and seven from the upper middle-income category. The valid graduations from the lower to the upper middle-income category are those of Botswana (26 years), China (15 years), Malaysia (23 years), Mauritius (27 years), and Thailand (29 years). The seven valid graduations from the upper middle-income category are those of Cyprus (16 years), Hong Kong (9 years), the Republic of Korea (8 years), Oman (17 years), Poland (32 years), Singapore (9 years), and Taiwan (10 years). The average graduation periods of the lower and upper middle-income category are thus 24 and 14 years respectively. These numbers correspond closely with the 28-14 years of Felipe *et al.* (2012: 21-24), and the 26-16 years of Van Heuvelen (2012: 34). Especially as these numbers only provide a rough indication, and are not, by any measure, a golden rule for the duration of the MIT.

To recall from before, the income thresholds of the lower middle-income category are \$2,250 and \$7,500, and \$7,500 and \$14,500 for the upper middle-income group. Taking the graduation times of 24 and 14 years into consideration, a country has to grow, on average, with 4.7% to avoid the lower middle-income trap, or with 3% to avoid the upper middle-income trap. Building on this framework the next six tables illustrate the performance of all countries in the middle-income category.

The first table lists the countries that managed to escape the LMIT between 1970 and 2010. As a result of the four corrections performed, only two valid cases remain: Malaysia managed to graduate to the upper middle-income category in 1994 after 23 years as a LMIC, while China did so in 2010 after only 15 years as a LMIC.

Table 1. LMICs that managed to escape the LMIT

	$Y_{LMIC}$	$Y_{UMIC}$	No. of years as LMIC	Classification
China	1995	2010	15	Escaped the LMIT
Malaysia	1971	1994	23	Escaped the LMIT

Table 2. LMICs caught in the LMIT

	Y <sub>LMIC</sub>	Y <sub>UMIC</sub>	No. of years as LMIC	Classification
Albania	1970	-	41	Class B
Algeria	1970	-	41	Class B
Argentina	1970	-	41	Class B
Bolivia	1970	-	41	Class B
Botswana	1973	1999	26	Class A
Brazil	1970	2007	37	Class B
Bulgaria	1970	2003	33	Class B
Chile	1970	1995	25	Class A
Colombia	1970	2010	40	Class B
Dominican Rep.	1970	2005	35	Class B
Ecuador	1970	-	41	Class B
El Salvador	1970	-	41	Class B
Guatemala	1970	-	41	Class B
Honduras	1970	-	41	Class B
Iraq	1970	-	41	Class B
Jordan	1970	-	41	Class B
Mauritius	1973	2000	27	Class A
Namibia	1970	-	41	Class B
Panama	1970	2005	35	Class B
Paraguay	1974	-	37	Class B
Peru	1970	-	41	Class B
Philippines	1976	-	35	Class B
Romania	1970	2004	34	Class B
South Africa	1970	2010	40	Class B
Swaziland	1974	-	37	Class B
Syria	1975	-	36	Class B
Thailand	1978	2007	29	Class A
Tunisia	1970	-	41	Class B
Turkey	1970	1996	26	Class A

Table 2 shows all LMICs that are or were in the lower middle-income category for more than 24 years. It is important, however, to realise that this number is not set in stone, but rather provides a working definition of the LMIT. As the cut-off of 24 years only serves the purpose of a working definition, I divide the countries in the LMIT into two groups, based on the severity of their economic problems. If countries are (or have been) in the LMIT between 24 (the average transition period) and 30 years (the average transition period plus 25 percent) they belong to the first group (class A trapped countries). Countries that have been in the LMIT for longer than 30 years are placed in the second group (class B trapped countries). In the 41 year period under review, 29 countries are found to be in the LMIT. Of those 29 countries in the LMIT, only five (Botswana, Chile, Mauritius, Thailand and Turkey) are class A trapped countries, with the other 25 belonging to class B. Twelve countries have been trapped in the past, but have since managed to graduate to the upper middle-income category. From the seventeen countries that are still trapped as of today, thirteen have been trapped for the entire 41 years of the sample period.

The third table includes all countries that are currently in the lower middle-income category, but have only been so for less than the 24 years of the LMIT threshold. As such, it is not yet possible to classify those countries on past performance. It is, however, possible to estimate whether or not a country is likely to escape the LMIT. Using the average growth rate of GDP per capita over the last ten years to extrapolate the development of income over time, provides an estimation of the time a country will most likely spend in the middle-income category. From the fourteen countries included in Table 3 only four are likely to escape the LMIT: Angola, India and Laos will most likely remain in the lower middle-income category for 20 years, with Vietnam most likely to avoid the LMIT by 3 years. Mongolia and Sudan both record strong growth rates in the past ten years, but are still likely to end up in the LMIT as class A trapped countries. The remaining eight countries are likely to become class B trapped countries, likely to spend around 40 years in the lower middle-income category. The Republic of Congo and Nicaragua are significant

Table 3. Estimated classification of LMICs below the threshold of the LMIT

	$Y_{LMIC}$	No. of years as LMIC	GDP per capita growth rate 2001-2010	Estimated time as LMIC	Classification (estimates)
Angola	1996*	15	8,56%	20	Escape LMIT
Congo, Republic of	2010**	1	0,11%	1095	Class B
Egypt	1988	23	2,88%	39	Class B
India	2004	7	6,14%	20	Escape LMIT
Indonesia	1991	20	3,74%	38	Class B
Laos	2008	3	6,78%	20	Escape LMIT
Mongolia	2002*	9	4,81%	26	Class A
Morocco	1989	22	4,03%	41	Class B
Nicaragua	2007	4	1,04%	119	Class B
Pakistan	2010	1	2,61%	47	Class B
Papua New Guinea	2006**	5	2,31%	49	Class B
Sri Lanka	1995	16	4,06%	32	Class B
Sudan	2010	1	4,62%	28	Class A
Vietnam	2007	4	6,12%	21	Escape LMIT

\* This refers to the second time Angola, Mongolia and Nicaragua became LMICs. Angola was already a LMIC from 1970 to 1977, but then slipped back to the low-income category. Mongolia attained lower middle-income status in 1980, but lost its status in 1992. Nicaragua was already a LMIC between 1970 and 1988.

\*\* The Republic of Congo had already attained lower middle-income status from 1982-1990, and in 1998 and 2000, but each time fell back into the low-income category. Papua New Guinea did the same after becoming a LMIC from 1972-1975, and from 1993-1999.

outliers, because of their very low GDP per capita growth rates.

Tables 4 to 6 show the same overview for countries in the upper middle-income category. The fourth table lists all UMICs that managed to escape the UMIT: Hong Kong, the Republic of Korea, Singapore and Taiwan all managed to graduate to the high-income category after only spending anywhere between eight and ten years in the upper middle-income category.

Table 4. UMICs that managed to escape the UMIT

	$Y_{UMIC}$	$Y_{HIC}$	No. of years as UMIC	Classification
Hong Kong	1972	1981	9	Escaped the UMIT
Korea, Republic of	1986	1993	8	Escaped the UMIT
Singapore	1971	1980	9	Escaped the UMIT
Taiwan	1981	1991	10	Escaped the UMIT

Table 5. UMICs caught in the UMIT

	Y <sub>UMIC</sub>	Y <sub>HIC</sub>	No. of years as UMIC	Classification
Chile	1995	-	16	Class A <sup>†</sup>
Costa Rica	1992*	-	19	Class B
Cyprus	1978	1994	16	Class A
Gabon	1978**	-	33	Class B
Hungary	1970	2003	33	Class B
Jamaica	1988*	-	23	Class B
Lebanon	1985*	-	26	Class B
Malaysia	1994	-	17	Class A <sup>†</sup>
Mexico	1973	-	38	Class B
Oman	1975	1992	17	Class A
Poland	1975	2007	32	Class B
Portugal	1970	1990	20	Class B
Puerto Rico	1970	1987	17	Class A
Trinidad & Tobago	1985**	2000	15	Class A
Turkey	1996	-	15	Class A <sup>†</sup>
Uruguay	1993	-	18	Class A <sup>†</sup>
Venezuela	1970	-	41	Class B

\* This refers to the second time Costa Rica, Jamaica and Lebanon became UMICs. Costa Rica had already attained upper middle-income status from 1977-1981. Jamaica had already been a UMIC from 1970-1979, and Lebanon from 1970-1975.

\*\*Gabon was already a UMIC in 1970, but graduated to the high-income category in 1975. In 1978 Gabon moved back into the upper middle-income category. Trinidad & Tobago experienced a similar movement, in that they already were a UMIC from 1970-1975, after which they graduated into the high-income category. They dropped back into the upper middle-income category in 1985.

† Chile, Malaysia, Turkey and Uruguay are here classified as class A trapped countries, because they have in the lower middle-income category for less than 125 percent of the average transition time. As of 2010, however, these four countries have not yet graduated into the high-income category. Extrapolating from the average growth of their GDP per capita in the past ten years, we find that all countries are likely to become class B trapped countries over time. Chile, Malaysia, Turkey and Uruguay are expected to remain LMICs for 21, 26, 28 and 25 years respectively.

Table 5 lists all countries that are or have been caught in the UMIT. From the seventeen countries in the UMIT, eight are classified as class A and nine as class B trapped countries. Only seven countries have managed to graduate to the high-income category after being trapped: Cyprus, Hungary, Oman, Poland, Portugal, Puerto Rico and Trinidad & Tobago. All other countries are still caught in the UMIT as of today.

Table 6. Estimated classification of UMICs below the threshold of the UMIT

	$Y_{UMIC}$	No. of years as UMIC	GDP per capita growth rate 2001-2010	Estimated time as UMIC	Classification (estimates)
Botswana	1999	12	1,30%	45	Class B
Brazil	2007	4	2,01%	32	Class B
Bulgaria	2003*	8	4,91%	15	Class A
China	2010	1	9,35%	9	Escape UMIT
Colombia	2010	1	2,68%	26	Class B
Cuba	2002*	9	4,85%	14	Escape UMIT
Dominican Rep.	2005*	6	3,82%	15	Class A
Iran	2002*	9	2,59%	26	Class B
Mauritius	2000	11	2,99%	24	Class B
Panama	2005	6	4,63%	13	Escape UMIT
Romania	2004	7	4,98%	16	Class A
South Africa	2008*	1	2,52%	28	Class B
Thailand	2007	4	3,64%	21	Class B

\* This refers to the second time Bulgaria, the Dominican Republic, Iran and South Africa became UMICs. Bulgaria attained upper middle-income status in 1988, but already lost its status one year later. The Dominican Republic did the exact same thing in 2002, and South Africa in 2008. Iran was already a UMIC from 1970 to 1979, but lost its income status at the start of the Iran-Iraq War in 1980.

The sixth table includes all countries that have been in upper middle-income category for less than the 14 years of the UMIT threshold. Based on the average growth numbers of the final ten years of the sample, three more countries are expected to escape the UMIT: China is likely graduate into the high-income category by 2019, Cuba in 2016 and Panama in 2018. Bulgaria, the Dominican Republic and Romania will probably become class A trapped countries, with the remainder of the sample likely to become class B trapped countries.

#### *ECONOMIC OUTPERFORMANCE*

The income thresholds allow us to observe which countries have graduated to a higher income category between 1970 and 2010. The working definition of the Middle Income Trap, in terms of the average graduation time, allows for a

comparison between those countries that are in the MIT, and those that have escaped it. In this section a third qualifier is introduced to distinguish between countries that perform well in terms of growth and those that perform poorly.

While maintaining the validity of the earlier argument that one should not equate growth slowdowns with the MIT, the different economic performance of middle-income countries can still provide valuable insights into their ability to graduate to a higher income category. The literature on growth upswings and downswings 'has mainly focused on using statistical techniques to identify turning points in the growth series of a sample of countries, or applying intuitive rules of thumb' (Aiyar *et al.* 2013: 8). The study of Eichengreen *et al.* (2012), which has been discussed earlier, is a good example of the latter. Their work identifies growth slowdowns based on three rule of thumb conditions: (1) the seven-year average growth rate is 3.5 percent or greater prior to the slowdown; (2) there is a decline in the seven-year average growth rate by at least 2 percentage points; and (3) the slowdowns occurs in a country with a GDP per capita of at least \$10,000 (Eichengreen *et al.* 2012).

This work prefers an econometric approach over the rule of thumb approach described above, as the former can identify turning points in economic activity to signal the beginning of an upswing or a downswing. Identifying turning points provides a statistical foundation to the study of the business cycle (Harding and Pagan 2002a: 365). Improving on existing scholarship studying economic cycles, Don Harding and Adrian Pagan (2002a) published a new statistical method to identify turning points. Their work builds on the leading algorithm Bry and Boschan published back in 1971, known as the BB algorithm (after their respective surnames), which has been widely used in earlier studies (e.g. Artis *et al.* 1997; Hall *et al.* 2006; King and Plosser 1994; Watson 1994). The quarterly version of their algorithm is called, quite cleverly, the BBQ algorithm. The cyclical turning point model of Bry and Boschan is preferable over a Markov switching (MS) model, because the MS methodology depends on the validity of the underlying statistical model (Harding



and Pagan 2002b: 1681). The BBQ algorithm searches for a local maximum of  $y_t$  relative to the two quarters on either side (i.e.  $\{\Delta_2y_t > 0, \Delta y_t > 0, \Delta y_{t+1} < 0, \Delta_2y_{t+2} < 0\}$ ), where  $y_t$  is the logarithm of GDP per capita (Harding and Pagan 2002a: 368-369).

Harding and Pagan (2002a) have extended the BBQ algorithm of Bry and Boschan. The new BBQ algorithm searches for the turning points, both peaks and troughs, in a series of GDP per capita data. They identify a peak at time  $t$  if  $y(t-k), \dots, y(t-k+1) < y(t) > y(t+1), \dots, y(t+k)$ , and a trough if  $y(t-k), \dots, y(t-k+1) > y(t) < y(t+1), \dots, y(t+k)$  (Pagan 2002). Making the algorithm more versatile, they introduce  $k$  as a so-called *SymmetricWindow* parameter, allowing others to use monthly data ( $k=5$ ), quarterly data ( $k=2$ ), and annual data ( $k=1$ ) (Pagan 2002). The periods following a trough are called an expansion or upswing, and the periods after a peak are called a contraction or downswing. The second condition introduced is the *MinimumPhase* parameter, imposing a condition on the minimum length of a phase (an expansion or a contraction). The policy standard, and recommended by the authoritative National Bureau of Economic Research (NBER), is a minimum phase length of six consecutive months. The final parameter is the *MinimumCycle*, requiring a complete cycle (an expansion plus a contraction) to last for a minimum amount of time (the NBER recommended minimum is five quarters) (Pagan 2002).

As this paper studies annual GDP per capita data, it automatically complies with the minimum recommended phase length of two quarters. Like other studies before, the only condition I impose is that the phase be at least five years long, 'to rule out one-time increases in growth in output per capita within shorter periods' (IMF 2013: 99, 122). After imposing this single condition, the algorithm calculates all expansions and contractions.

The next step is to identify which expansions would qualify as a genuine economic upswing. No objective definition is grounded in theory, but the standard threshold used in other studies is an average growth of 3.5% over a period of at least five years (e.g. *Eichengreen et al.* 2012; *Hausmann et al.* 2005; IMF 2013; and *Johnson et al.* 2007). Some growth episodes, however, still cannot be considered genuine

economic upswings, as they only reflect a recovering economy following serious internal or external conflict, rather than a well-functioning economy. The Correlates of War (COW) project has collected worldwide conflict data for the period of 1816–2007 (Sarkees and Wayman 2010). If a growth upswing commenced during or immediately (one year) after a conflict, the upswings was excluded from further analysis.

Countries that were found to have genuine upswings in economic growth are classified as 'countries with strong growth', while those without any upswings were classified as 'countries with weak growth'. In the next analytical section, this qualifier allows distinguishing between countries that perform well and those that perform poorly.

## INCLUSIVENESS

*'... the seed and the flower of economic development'*

*(Harbison and Myers in Krueger and Lindahl 2001: 1131)*

### THREE DICHOTOMIES OF DEVELOPMENT

To assess the importance of inclusiveness for growth in the middle-income class, this paper uses three previously introduced dichotomies: (1) Countries that have escaped the Lower or Upper Middle Income Trap versus those that are (expected to be) or have been trapped; (2) Countries that have transitioned to a higher income category versus those that have not; and (3) Countries with strong growth versus those with slow growth. Using these three dichotomies I find that countries that have transitioned to a higher income category, that have escaped the MIT or have strong growth have higher levels of inclusiveness.

Inclusiveness is here measured by multiple indicators covering different aspects of personal freedoms or equality of opportunity. The first indicator is equal opportunity to education. Educational attainment is used as a proxy for the development of human capital. In 2013, Robert Barro and Jong Wha Lee (2013) published a new data set of educational attainment in the world between 1950 and 2010. This data set provides figures for overall education attainment, but also contains a breakdown for primary, secondary and tertiary education. Such a breakdown is very valuable for the study of the MIT, as 'moving up the value chain of production' requires a skilled workforce with good secondary and tertiary education (Griffith 2011: 41-42). Even more useful is that Barro and Lee (2013) also distinguish between the levels of education of the overall population and those of women only. If access to education is systematically denied to a group due to its gender, ethnicity, religion or social status, this could be detrimental to further economic development, as it denies them the opportunity to contribute to economic growth (World Bank

2010: 13). As the dataset only provides entries at five-year intervals, the intermediary numbers are obtained by linear interpolation.

The second indicator for inclusiveness is the average life expectancy. This variable serves as a proxy for the access to healthcare and a more general quality of life. Data on life expectancy (in years) is drawn from the World Bank's World Development Indicators (2013). Like education, health is vital for a person to fully exploit his or hers potential as an economic agent.

The third indicator is an average composite of political rights and civil liberties. Political freedoms and civil liberties, according to Sen, help to advance the general capability and potential of a person, and thus help to promote the economic security of people (1999: 10-11). Data is obtained from the Freedom in the World dataset. Freedom House (2013) has monitored political freedoms and civil liberties since 1972. They rank countries on both issues between 7 (not free) and 1 (free).

The final indicators serve as proxies for economic inclusiveness. The most widely used variable for economic inclusiveness is the Gini coefficient, measuring income inequality on a scale of 0 (complete equality) to 1 (complete inequality). Gini data is acquired from the Standardised World Income Inequality Database compiled by Frederick Solt (2013). The other variables focus more specifically on the inclusiveness of the poorest people. The poverty headcount measures poverty as the percentage of the population living on less than \$1.25 a day (PPP) at 2005 international prices. The data is drawn from the World Bank's World Development Indicators (2013). From the same database I use the income shares held by the poorest 10 and the poorest 20 percent of the population. As all four indicators of economic inclusiveness suffer from a severe lack of data, especially for poorer countries, I only review data between 1995 and 2005, to ensure a large enough and constant underlying sample of countries. If two or more entries (for any indicator of economic inclusiveness) were available for a given country, all intermediate results were calculated by linear interpolation. Economic inclusiveness is important in that extreme deprivation could prevent people from fully participating in the economy.

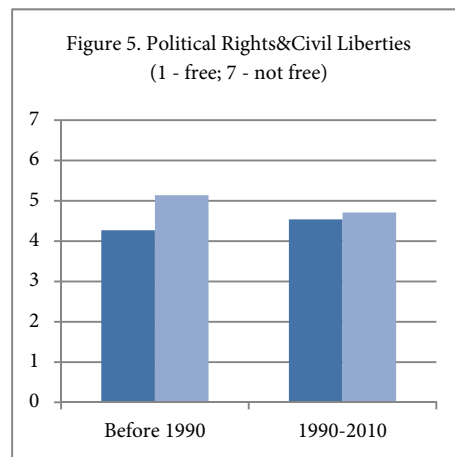
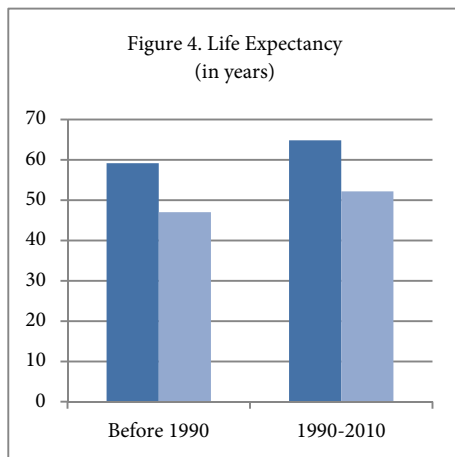
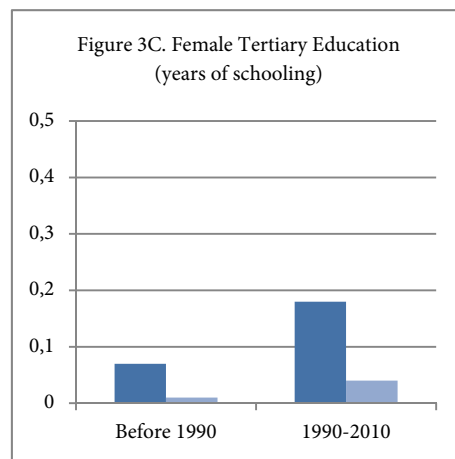
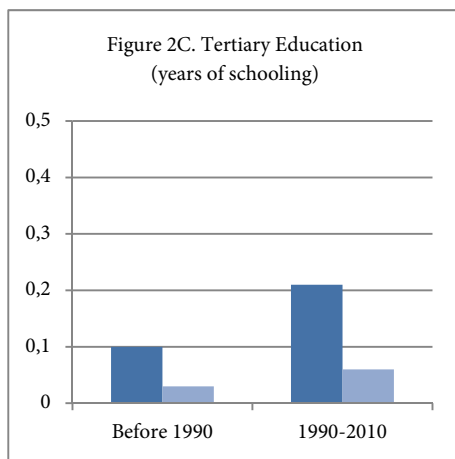
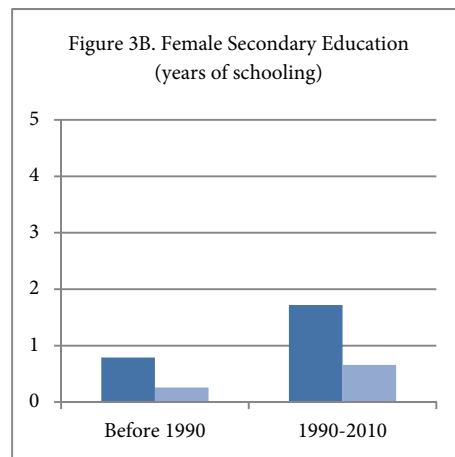
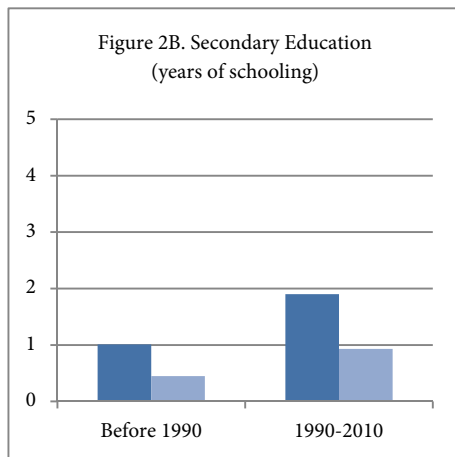
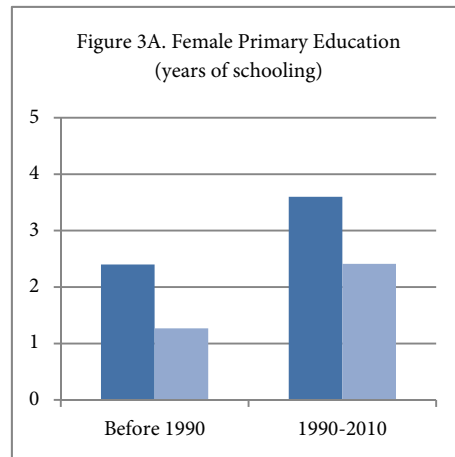
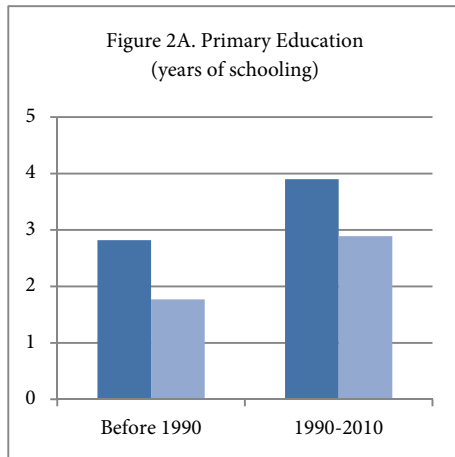
Extreme poverty could keep people trapped in subsistence agriculture, and prevent them from moving to more productive industries.

### LOW-INCOME COUNTRIES

Although this paper specifically studies countries in the middle-income category, it is still valuable to look at low-income countries. Many countries who have graduated to the lower or upper middle-income category between 1970 and 2010 have started in the low-income category. More specifically, their inclusion allows for a comparison between LICs that remained in the low-income category, and those that managed to move up to the lower-middle income category (Dichotomy 2). For each set of results, the underlying sample remains constant. For example, although the results are divided in two time periods (before 1990 and 1990-2010), the respective sample groups (e.g. countries that graduated to a higher income category versus those that did not) remain constant for the entire sample period of 1970-2010. Consequently, the division in two time periods allows for comparison over time in the same sample of countries.

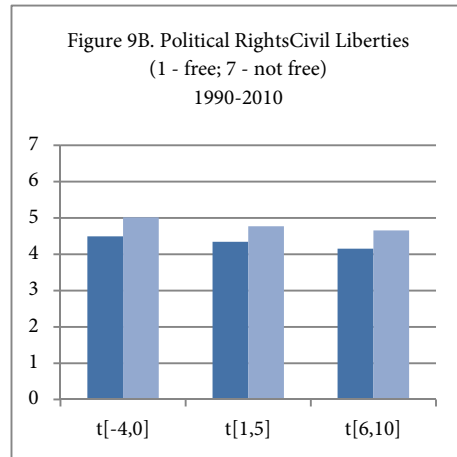
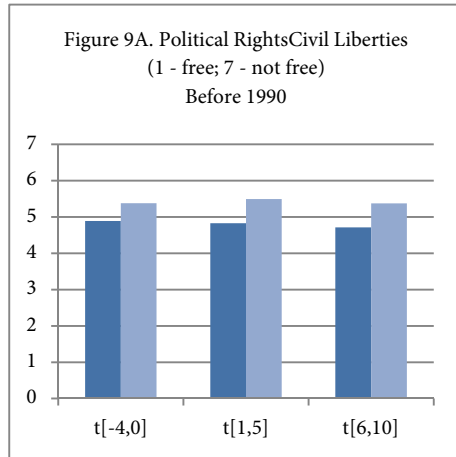
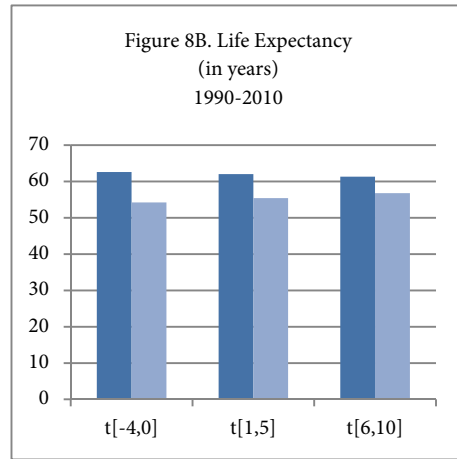
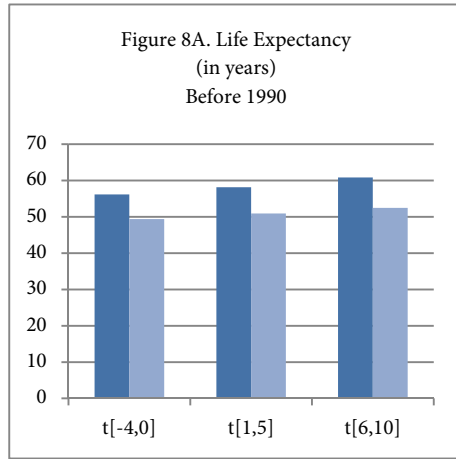
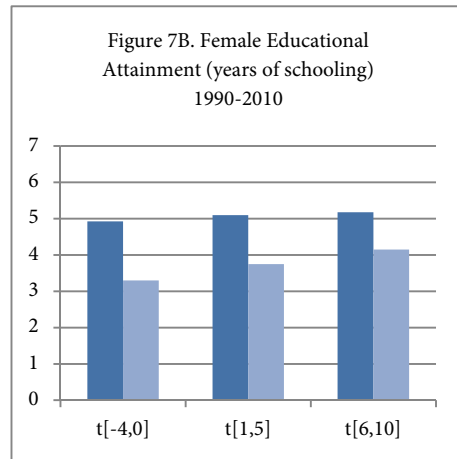
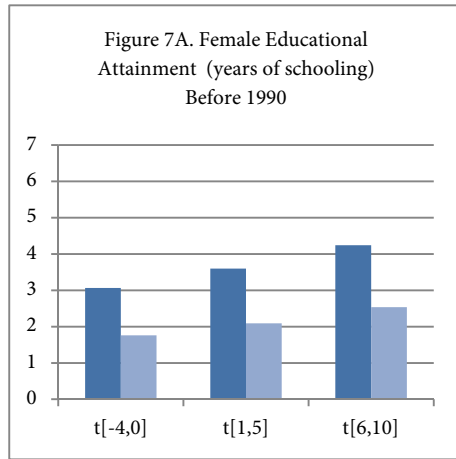
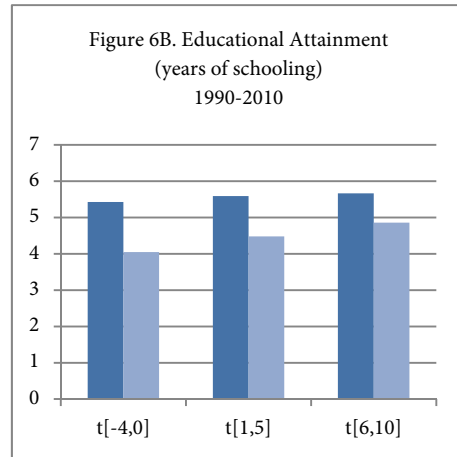
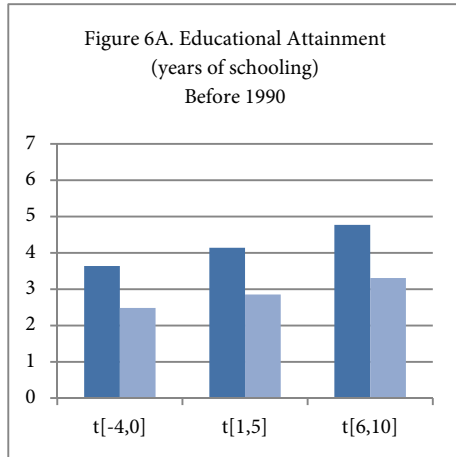
In terms of educational attainment, LICs that moved to the lower middle-income category started with education levels almost twice as high as those that failed to graduate to a higher income category (Appendix B, Figure B1). After 1990, the absolute number of years of schooling in both groups increases by around two years, with a slight edge towards those that managed to graduate. The breakdown of educational attainment shows that graduating countries are more successful in increasing the absolute number of years of schooling in secondary (Figure 2B) and tertiary (Figure 2C) education. In relative terms, educational attainment is more than double in countries that graduated. These differences are even more prominent for the female population (Figures 3B and 3C), although it must be noted that the years of schooling at higher education levels remain extremely low in absolute terms (i.e. less than two years schooling at secondary education, and less than 0.2 years at the tertiary level).

■ LICs that had graduated to the lower middle-income category by 2010    ■ LICs that failed to graduate



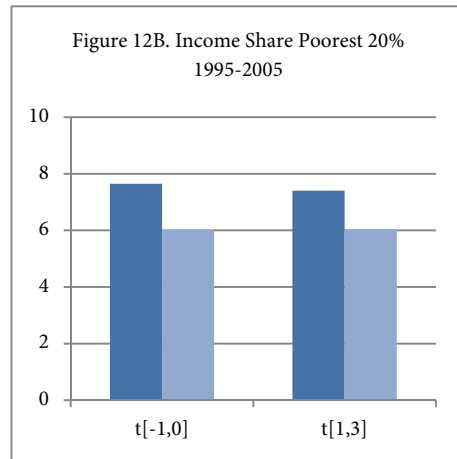
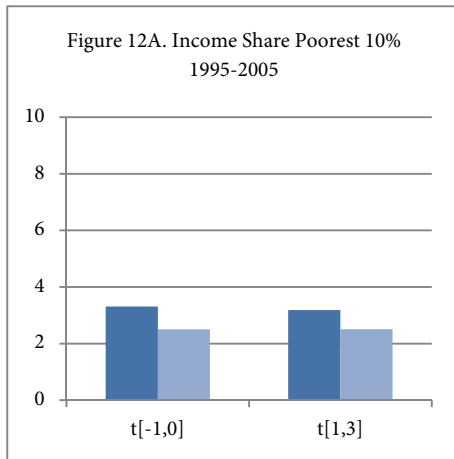
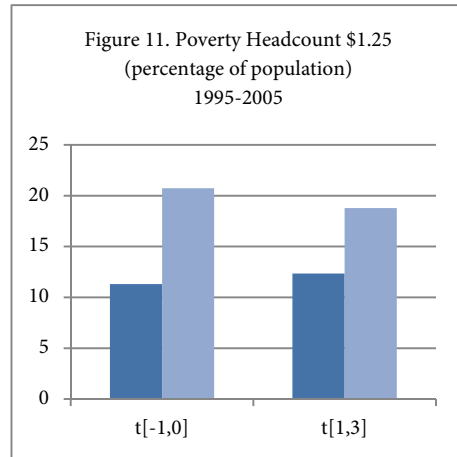
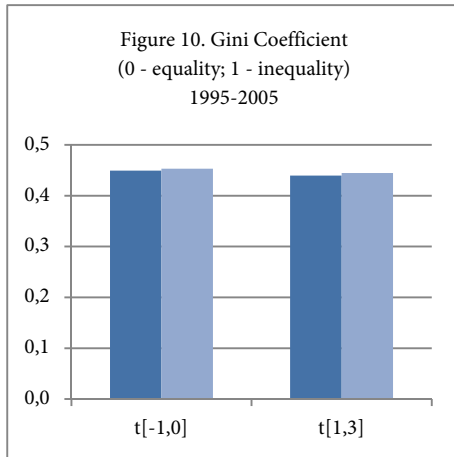
■ LICs with strong growth

■ LICs with weak growth



■ LICs with strong growth

■ LICs with weak growth





The differences in healthcare are equally significant. Countries that managed to graduate had the life expectancy of their population rise from 59 to almost 64 years, whereas the people of LICs that failed to graduate do not live, on average, over 52 (Figure 4). The picture of political rights and civil liberties is somewhat different. Figure 5 shows that graduating LICs initially were freer than those that failed to do so. After 1990, however, the gap between both groups has almost disappeared, with, interestingly, graduating countries becoming somewhat less free over time.

Next, I compare countries with strong growth versus those with weak growth (Dichotomy 3). To recall from before, this paper determined all turning points in the economic cycle using the BBQ algorithm of Harding and Pagan (2002a). If a period of extraction lasted for more than five years, with an average growth exceeding 3.5 percent, the relevant country would be classified as a LIC with strong growth. Countries without such a growth episode are classified as an LIC with weak growth. The first year of a strong growth episode, or economic upswing, in any given country is coded as  $t[1]$ . This paper compares the economic performance of countries in the five years leading up to a growth episode ( $t[-4,0]$ ), the first five years of a growth episode ( $t[1,5]$ ), and the subsequent five years ( $t[6,10]$ )<sup>9</sup>. At  $t[1]$ , all countries that experience a new or ongoing strong growth episode are grouped together as countries with strong growth. The control group, following the methodology of the IMF (2013: 102), consists of 'country-year pairs of LICs that did not experience a new or ongoing growth takeoff in the years in which the dynamic LICs took off'.

Figures 6 to 12 show that in the five years leading up to a growth takeoff, countries with strong growth have significantly higher levels of inclusiveness for all variables. Especially for educational attainment (47 percent), female education (74

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<sup>9</sup> To recall, all four indicators of economic inclusiveness (Gini coefficient, poverty headcount, income share lowest 10%, income share lowest 20%) suffer from a severe lack of data, especially for poorer countries. Consequently, we only review data between 1995 and 2005 for those four indicators, to ensure a large enough and constant underlying sample of countries. Unlike the other variables, where we compare the economic performance of countries in the five years leading up to a growth episode ( $t[-4,0]$ ), the first five years of a growth episode ( $t[1,5]$ ), and the subsequent five years ( $t[6,10]$ ), we only compare the first two years leading up to a growth episode ( $t[-1,0]$ ), and the first three years of a growth episode ( $t[1,3]$ ) in relation to those four indicators.

percent) and life expectancy (7 years) this paper finds that before 1990 pre-growth levels are substantially higher in strongly performing LICs. In the two years prior to an upswing, the poverty headcount in LICs with strong growth was also 83 percent less than in those countries with weak growth (Figure 11). A similar pattern is valid for the period 1990-2010, although the differences are less extreme. The performance gaps (i.e. the levels of education, healthcare etc.) between strong and weak growers appears to close somewhat *after* a growth episode has taken off. This would underline the notion that inclusiveness is important as a 'seed' or prerequisite for economic growth, rather than its 'flower' only (Harbison and Myers in Krueger and Lindahl 2001: 1131). Interestingly, countries with strong growth also became freer after they started growing (with 3.7 percent before 1990 and with 7.6 percent after 1990) (Figures 9A and 9B). With 0.2 percent, the control group of weak growers shows little such movement before 1990, but after 1990 weak growers do not fall far behind with an increase of freedom by 7.2%.

### LOWER MIDDLE-INCOME COUNTRIES

#### *Dichotomy 1 - Countries that escaped vs Countries that got trapped*

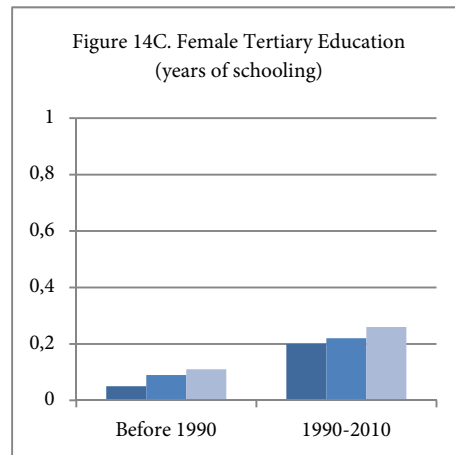
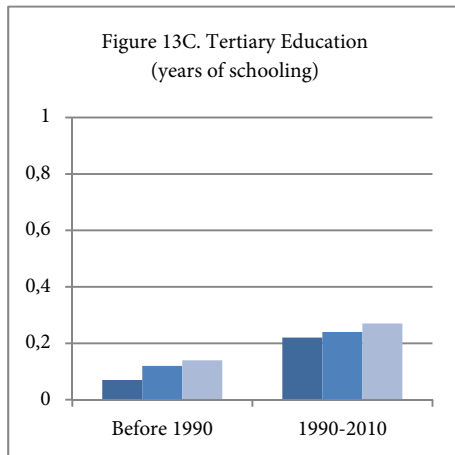
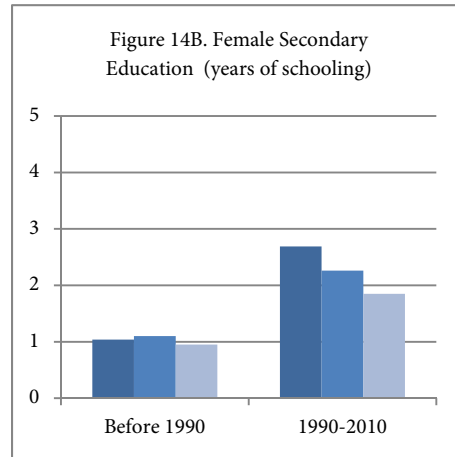
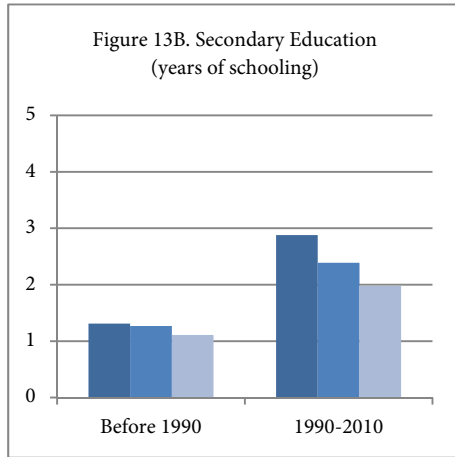
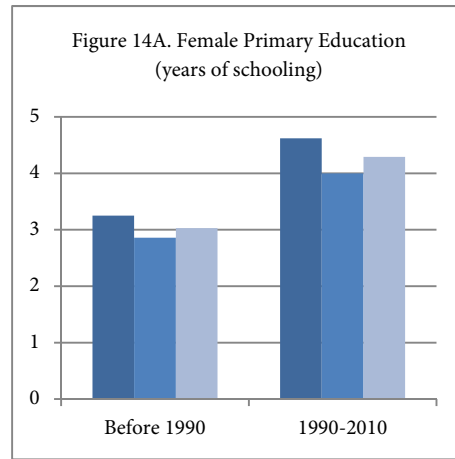
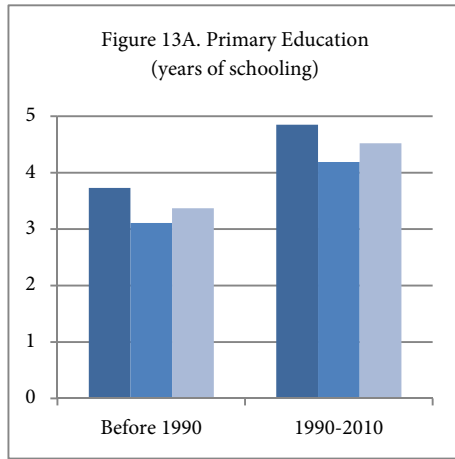
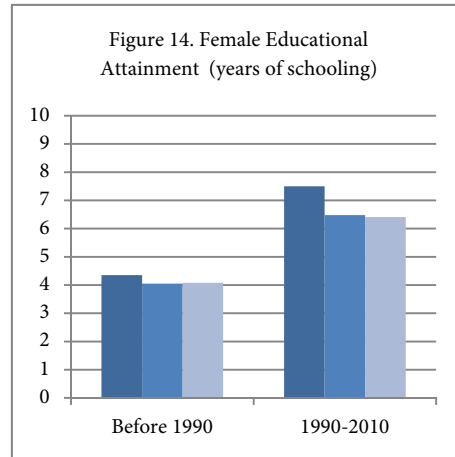
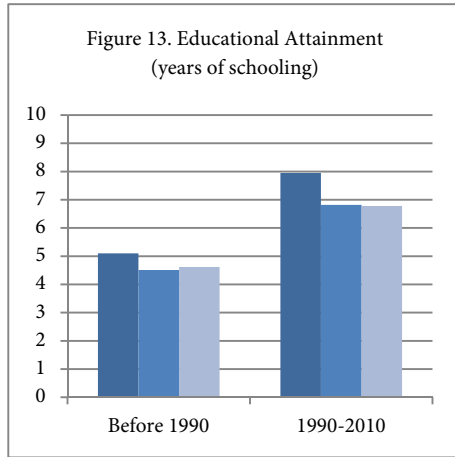
Like the analysis of LICs, the following section discusses the performance of lower middle-income countries based on the following two dichotomies: Countries that have transitioned to a higher income category versus those that have not; and countries with strong growth versus those with slow growth. For the study of the MIT, however, I also use a third dichotomy: Countries that have escaped the Lower or Upper Middle Income Trap versus those that are (expected to be) or have been trapped.

To recall from before, a country is considered to be in the lower middle-income trap (LMIT) if it remains in the lower middle-income category for more than 24 years. It is important, however, to realise that is number is not set in stone, but rather provides a working definition of the LMIT. Taking this into account, the countries are divided into three groups. The first group consists of the countries that

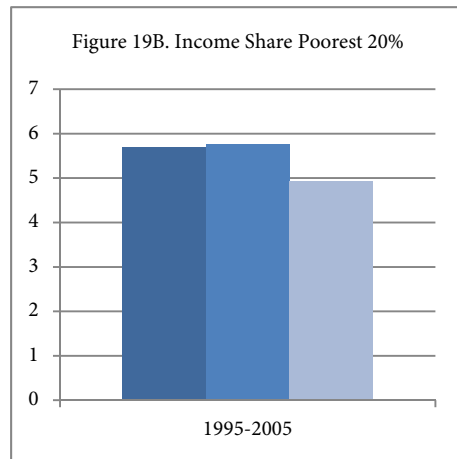
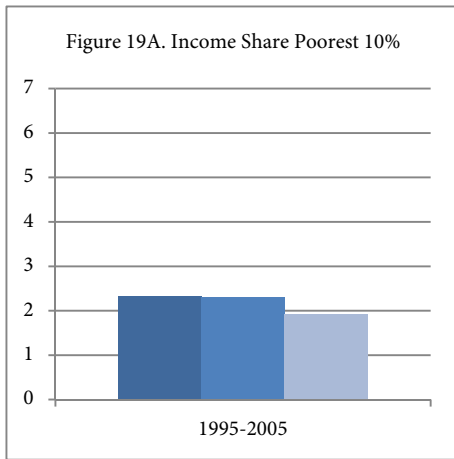
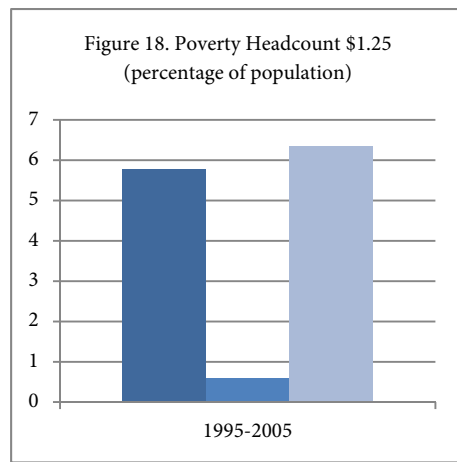
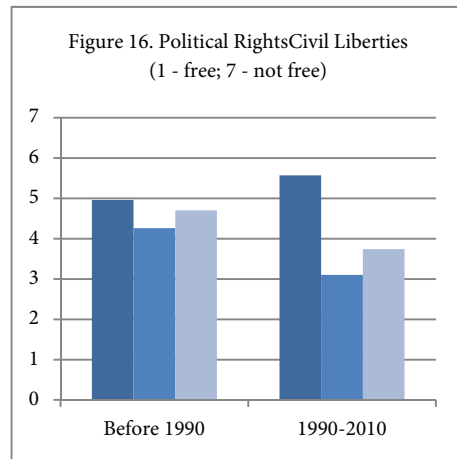
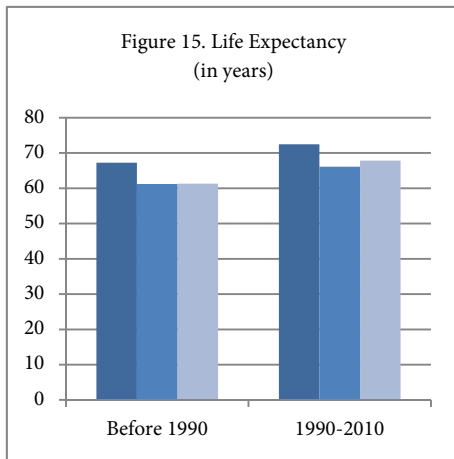
have escaped the LMIT. In our sample period, only China and Malaysia managed to do so. If Angola, India, Laos and Vietnam maintain their average economic growth of the past ten years they will also manage to escape the LMIT. These countries have not been included in the sample, as maintaining such growth levels is very difficult (and the core issue of the MIT). The control groups consist of those countries caught in the LMIT, or those that will end up in the LMIT if they maintain their current growth rates (average of the previous ten years). As the cut-off of 24 years only serves the purpose of a working definition, I divide the countries in the LMIT into two groups, based on the severity of their economic problems. If countries are (or have been) in the LMIT between 24 (the average transition period) and 30 years (the average transition period plus 25 percent) they belong to the first group (class A trapped countries). Countries that have been in the LMIT for longer than 30 years are placed in the second group (class B trapped countries).

Starting with educational attainment, the countries that escaped the LMIT have higher levels of schooling for both the overall (Figure 13) and female population (Figure 14). The educational gap between those caught in the trap and those that escaped have increased after 1990. A study of the breakdown of education shows that this gap mainly results from the lead successful countries have in primary (Figure 13A and 14A), but especially in secondary education (Figure 13B and 14B). The numbers for secondary education are particularly important with regard to the MIT, as they bring a significant improvement to the development of human capital. After 1990, on average, countries with almost 3 years of schooling at the secondary level managed to escape the LMIT, while countries with almost 2.5 years of schooling remained in the LMIT (class A). Countries with only 2 years of schooling even remained in the LMIT for a period longer than 125 percent of the average transition time (class B). Perhaps surprisingly, the average years of schooling in tertiary education played no significant role on the ability of countries to escape the LMIT. The worst performing countries even show higher levels of tertiary participation, for both the overall and female population (Figures 13C and 14C). The significance of

■ Countries that escaped the LMIT   ■ Class A trapped countries   ■ Class B trapped countries



■ Countries that escaped the LMIT   ■ Class A trapped countries   ■ Class B trapped countries



those results, however, is questionable, as the absolute differences in number of years are only marginal (the biggest difference is only 0.07 years of schooling).

As with educational attainment, three other variables follow an anticipated pattern. First, countries that have escaped the LMIT have a higher life expectancy than those that did not (Figure 15). Before 1990 both groups caught in the trap had a life expectancy of 61, while those that managed to escape already had a life expectancy of 67. After 1990, the average life expectancy increased by around 5 years, with the worst performing countries experiencing the biggest increase. Second, the income shares of the poorest 10 and 20 percent are higher for the better performing countries (Figures 19A and 19B).

Some indicators, however, show more surprising results. For instance, the countries that escaped the LMIT are less free than those that did not (Figure 16). This difference is especially significant after 1990. Countries caught in the trap had scores between 3.7 and 3.1 (partly free), while those that escaped had an average rating of 5.6 (not free). These results could be interpreted as support for the earlier discussed premise that democracy and freedom hinders growth. Such a conclusion, however, would be premature and, in all probability, be incorrect. As only two countries in our sample period managed to escape the LMIT (after the corrections), the results are highly skewed to the internal conditions of those countries. As both China and Malaysia are 'not free' countries the results simply reflect this. It would be preferable, however, to study whether these results would still hold among a larger sample. Interestingly, of the four prime candidates (Angola, India, Laos and Vietnam) to enter the sample are, with the exception of India, only 'not free countries'.

The differences in the Gini coefficient are extremely small, thus making it difficult to draw any clear conclusions from it (Figure 17). The data on the poverty headcount, however, is more diverse (Figure 18). As expected, the highest percentage of poor live in class B trapped countries. The number of poor in class A trapped countries, however, is significantly lower (at only 0.6 percent of the population). The number of poor in countries that managed to escape the LMIT is again significantly

higher, with 5.8 percent of the population living at \$1.25 per day or less. This 'anomaly' is again caused by the disproportionate representation of China, because of the small sample size. Despite its negative impact on the average poverty headcount, it must be noted that China has made impressive progress in targeting extreme poverty. In 1981 almost 40 percent of its population lived on less than \$1.25 per day, while this decreased to just under three percent in 2009.

*Dichotomy 2 - Countries that transitioned vs Countries that did not*

The second dichotomy compares countries that transitioned to those that did not. This dichotomy differs from the first one in that no conditions are placed on the graduation of a country. For the accurate calculation (of a working definition) of the MIT, the number of graduations to a higher income class were censored in four ways: (1) to exclude graduations if countries were already in set income group at the beginning of the sample; (2) to ignore temporary setbacks of five years or less; (3) to exclude graduations that lasted no longer than two years; and (4) to ignore second or later transitions. Especially condition (1) makes that many graduations are excluded, because countries were already in set income group at the beginning of the sample. Dichotomy 2 makes no such conditions. Any graduation into a higher income category (either the upper middle-income category or eventually even into the high-income category) is classified as such. The advantage of this process is that there are no unnecessary exclusions of 'valid graduations'. However, focusing strictly on graduations and not on the duration of the transition could also cause 'invalid graduations' to be included. An invalid graduation would be a country that only manages to graduate after a long period of slow growth. Even with extremely slow growth a country will eventually graduate to a higher income category, as income thresholds are constant over time. Countries that only transition after a long period of time would have to be classified as caught in the MIT, as they would in Dichotomy 1. As Dichotomy 2 only considers the fact of graduation, even slow growers and poor performing countries could be classified as 'successful graduates'. Both dichotomies,

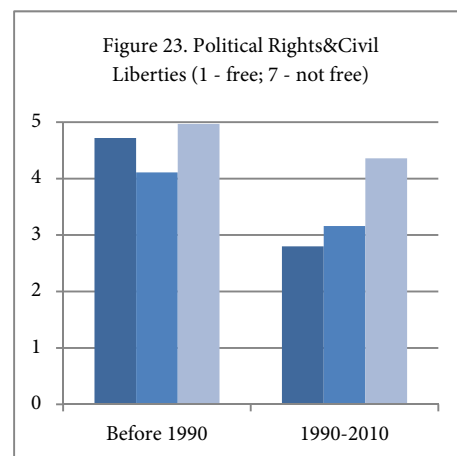
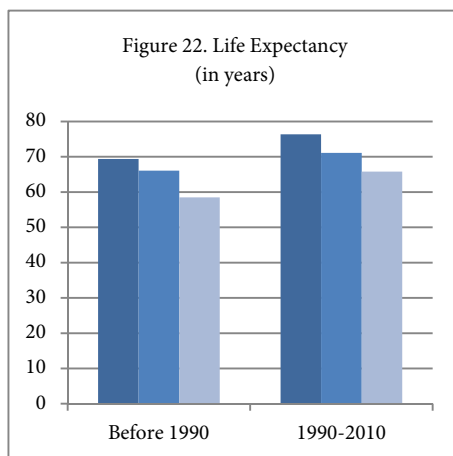
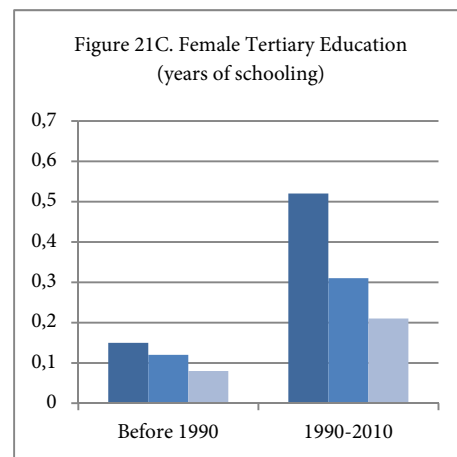
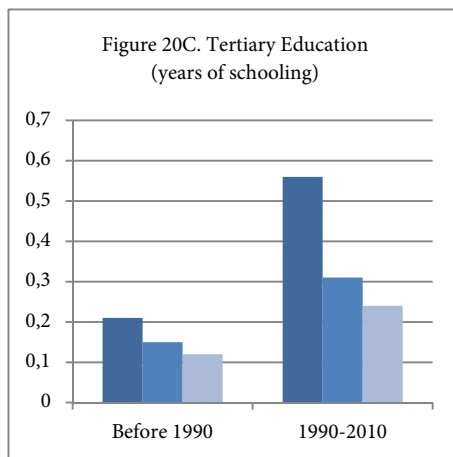
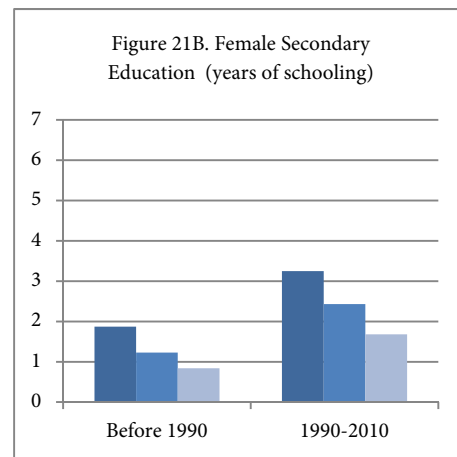
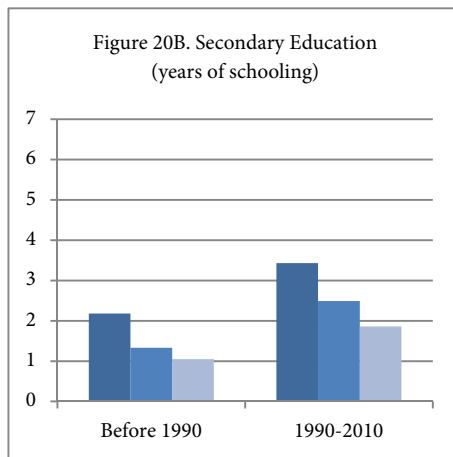
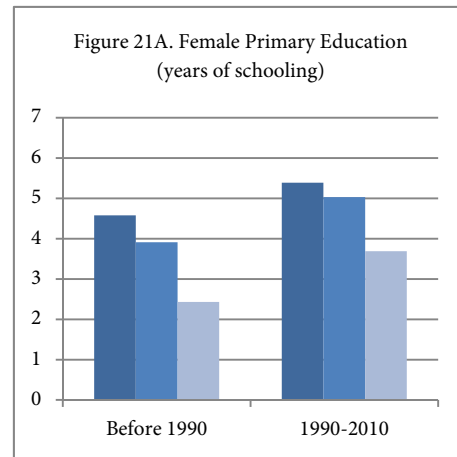
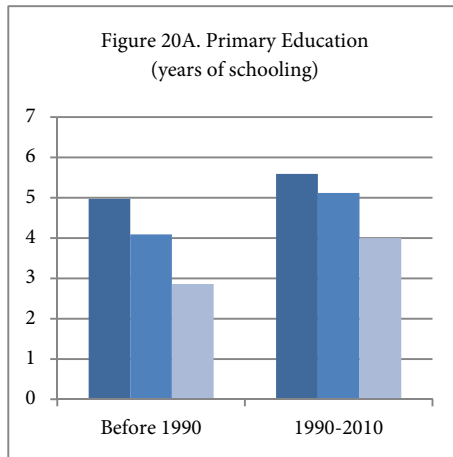
thus, have their own respective strengths and weaknesses, which makes it valuable to consider them both.

Dichotomy 2 lays bare a large disparity between the years of schooling in LMICs that remained in the lower middle-income category, and those that managed to move up one or two income categories. In the period before 1990, those LMICs that managed to move up to the high-income category had, on average, more than seven years of schooling, while those that remained in the lower middle-income category only had four years of schooling (Appendix B, Figure B2). This is a difference of no less than 83 percent. Those that moved to the high-income category had education levels 32 percent higher than those that only moved to the upper middle-income category, which, in turn, were 39 percent higher than those that did not manage to graduate at all. After 1990, education levels in the poorest performing countries increased faster (52 percent) than those in upper middle (42 percent) or high-income category (30 percent). This is unsurprising as it is easier to make quick gains in the early stages of development, while adding additional years of schooling later on is more difficult and costly. Even after this 'catch-up', the years of schooling in the best performing countries were still 57 percent higher than in those that did worst (9.6 years versus 6.1 years).

The breakdown of educational attainment (Figures 20 and 21) shows that transitioning countries outperform those that did not on all levels of education. The differences in primary education between those that graduated to the upper middle and high-income category have decreased after 1990, for both the overall and female population. Both groups, however, leave a substantial gap with those that fail to make the transition (Figures 20A and 21A). LMICs that managed to graduate to the high-income category especially outperform all others in terms of secondary and tertiary education. The number of years of schooling at the secondary level before 1990 is more than 100 percent higher for the best performing countries. After 1990 these numbers are still 84 percent higher for the overall population and 93 percent higher for female education only. The breakdown for tertiary education, especially after



■ LMICs that had graduated to the upper middle-income category by 2010    ■ LMICs that failed to graduate



1990, is even more divergent. Overall levels of tertiary education in the best performing countries are 81 percent higher than those that only transitioned to the upper middle-income category, and more than 133 percent than those that did not transition at all. For female participation in the tertiary education these numbers are 68 and 148 percent respectively. Absolute levels of tertiary education, however, remain very low for tertiary education (e.g. 0.56 years for the best performing countries between 1990-2010).

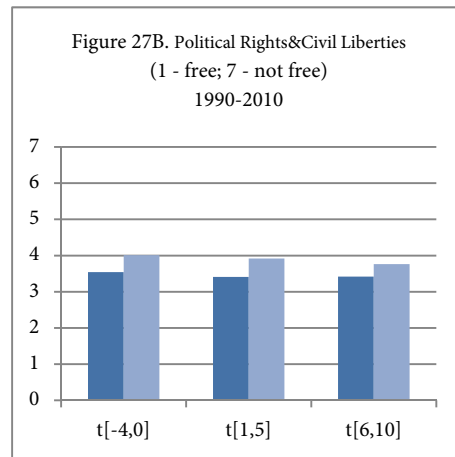
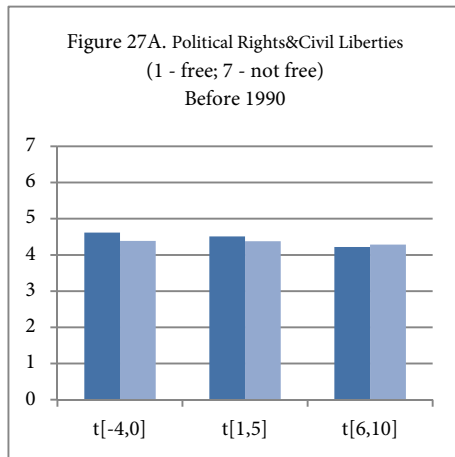
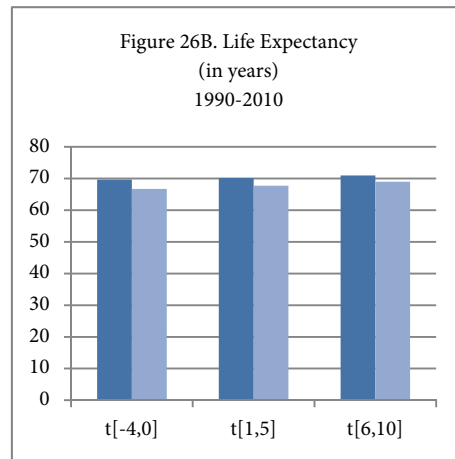
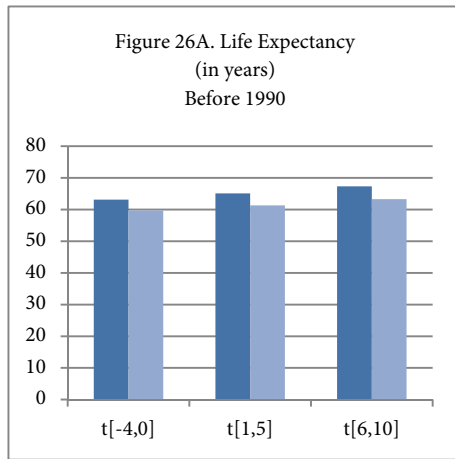
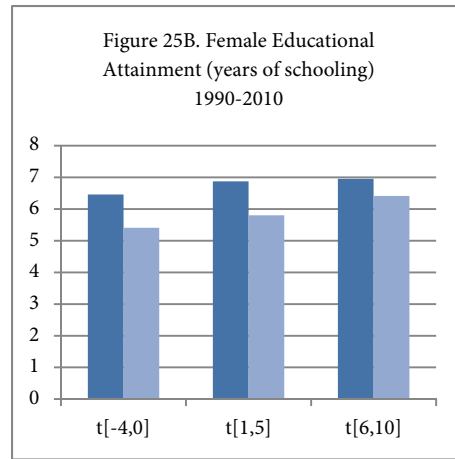
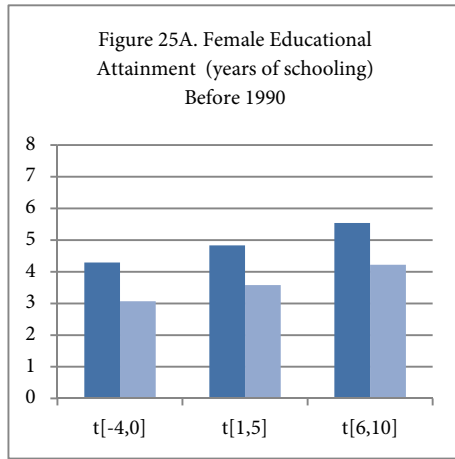
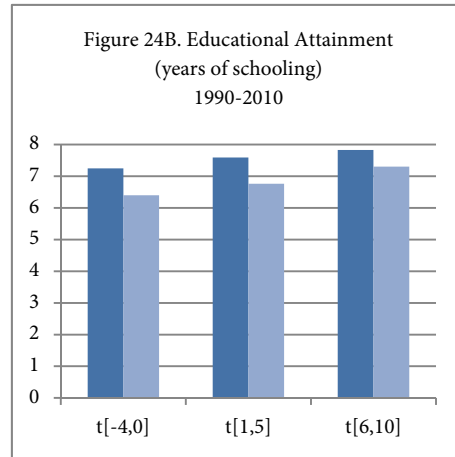
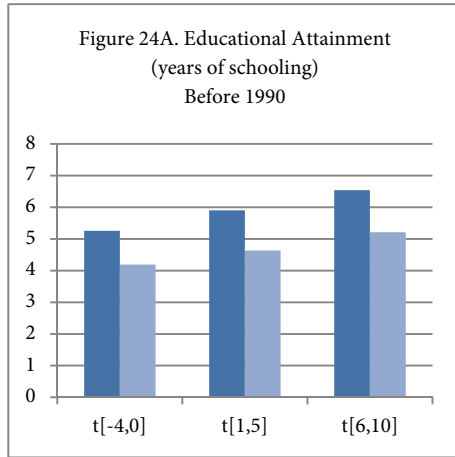
The numbers for life expectancy (Figure 22) are fully in line with expectations, with better healthcare available to those living in better performing countries. The results for political rights and civil liberties, however, require further study (Figure 23). Before 1990, better performing countries were not necessarily more free. Over time, however, better performing countries become significantly freer. LMICs that moved to the high-income category had their freedom rating decrease by 41 percent (a higher rating implies less freedom, thus, perhaps counter intuitively, making a lower rating more preferable), while the rating of those that only graduated to the upper middle-income category only decreased by 23 percent. Countries that failed to graduate only had their freedom rating drop by 12 percent. This is a significantly different picture from the one painted by Dichotomy 1, where the small sample indicated little importance for political rights and civil liberties. Although precaution should be borne in mind when drawing conclusions, the results of Dichotomy 1 and 2 might suggest that freedom is no prerequisite to initial growth, but that freedom becomes more important for the sustainability of growth. Such a premise, however, would require further study.

### *Dichotomy 3 - Countries with strong growth vs Countries with weak growth*

The comparison of strong performers versus weak performers (Dichotomy 3) shows that LMICs with strong growth have significantly higher income shares for the poorest 10 and 20 percent (Figures 30A and 30B), and higher levels of (female) education (Figures 24 and 25) and life expectancy (Figures 26A and 26B) prior to

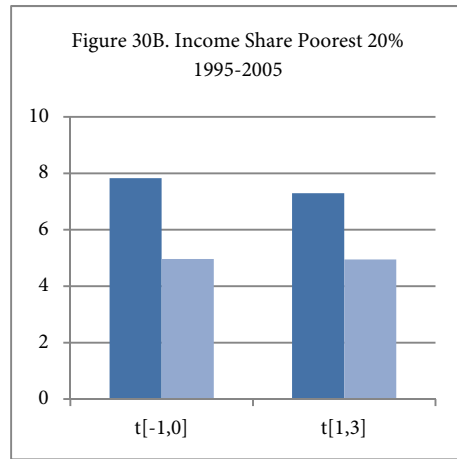
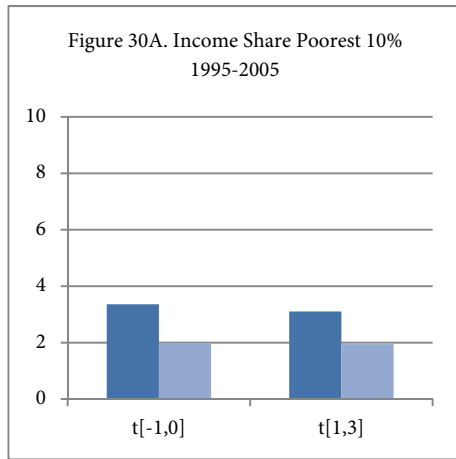
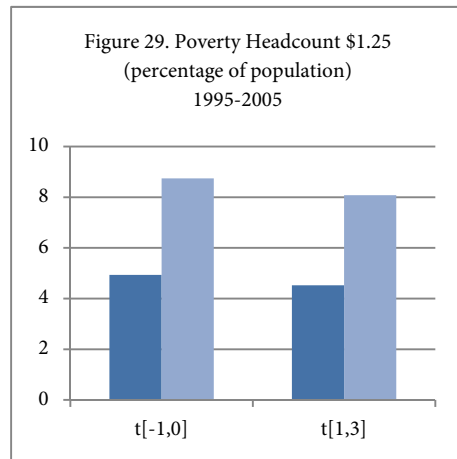
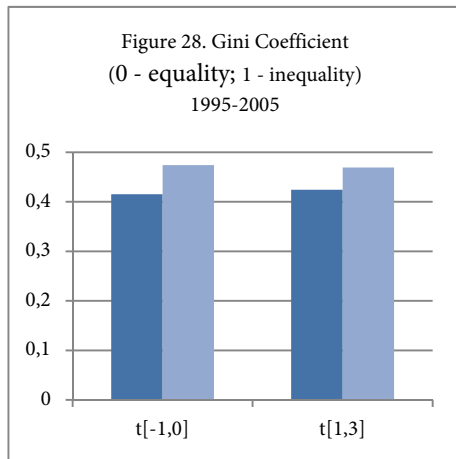
■ LMICs with strong growth

■ LMICs with weak growth



■ LMICs with strong growth

■ LMICs with weak growth



beginning of a growth episode. Similarly, income inequality (Figure 28) and levels of poverty (Figure 29) are lower among strong performers prior to an upswing. The differences between both groups are often quite significant. In the five years before the start of a growth episode (prior to 1990, after 1990 in brackets), strong performers had 26 (13) percent more years of schooling, 40 (19) percent more schooling for women, a 6 (4) percent higher life expectancy, 71 percent higher income shares for the poorest 10 percent and 58 percent higher income shares for the poorest 20. Income inequality was 12 percent lower, and the percentage of the population living on less than \$1.25 a day was 44 percent lower.

The results of political rights and civil liberties before 1990 reinforce the image established in the previous section. Strong performers were less free than weak performers prior to a growth upswing, but in the ten years following the start of the upswing the strong performers slowly become more free than those that have weak performance (Table 27A). In the period after 1990, however, LMICs with strong growth already have better freedom scores before the start of an upswing (Figure 28B).

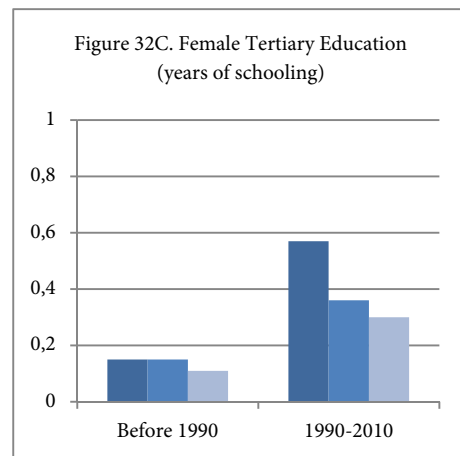
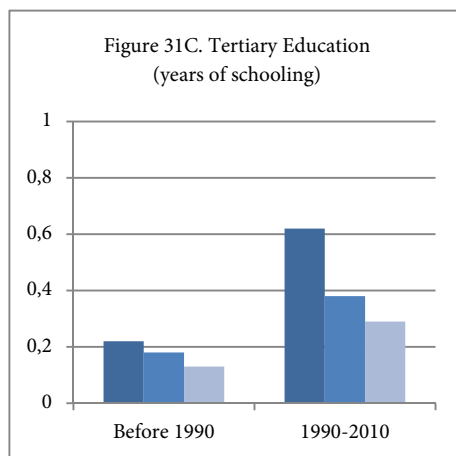
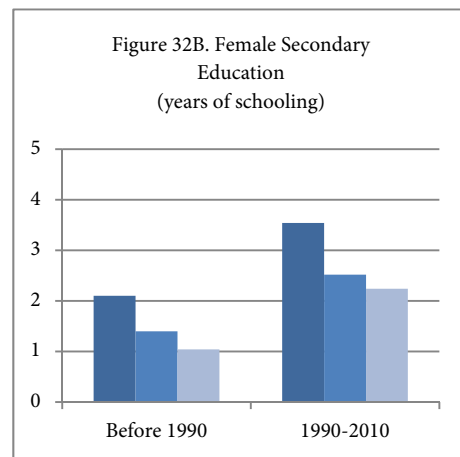
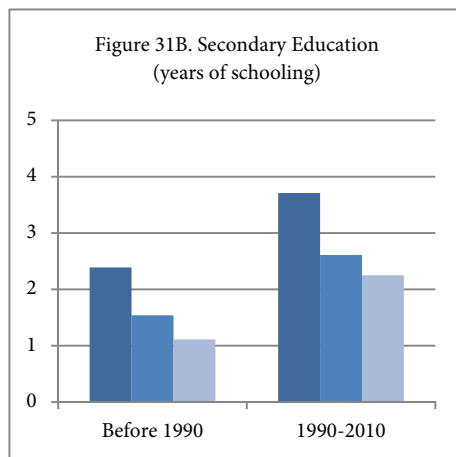
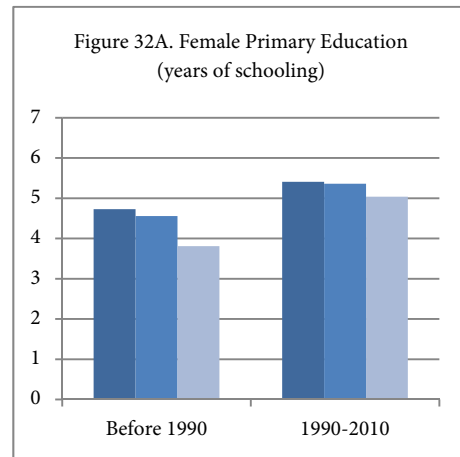
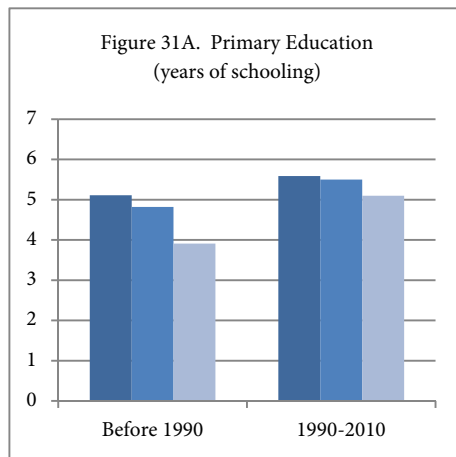
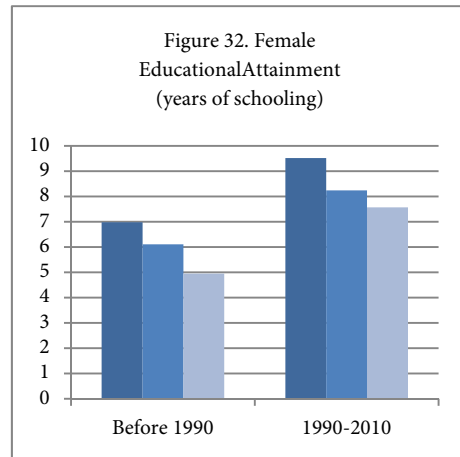
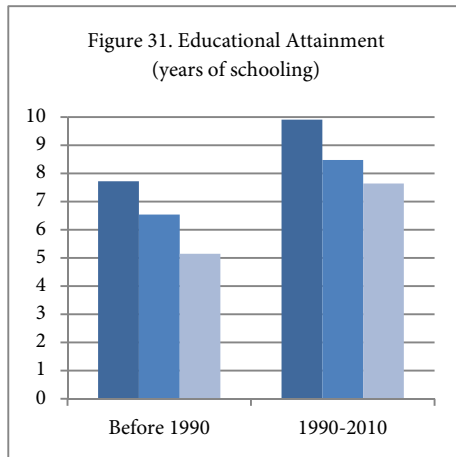
### UPPER MIDDLE-INCOME COUNTRIES

#### *Dichotomy 1 - Countries that escaped vs Countries that got trapped*

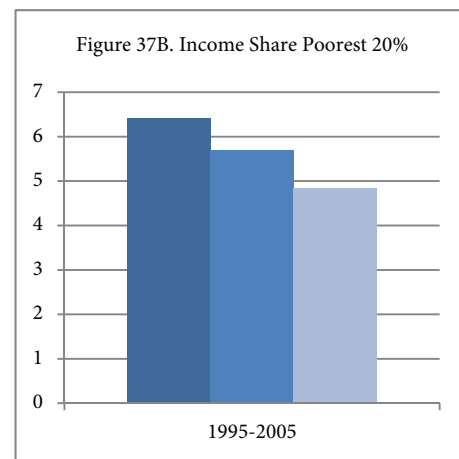
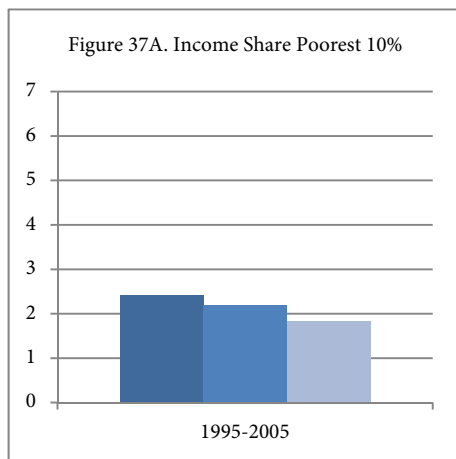
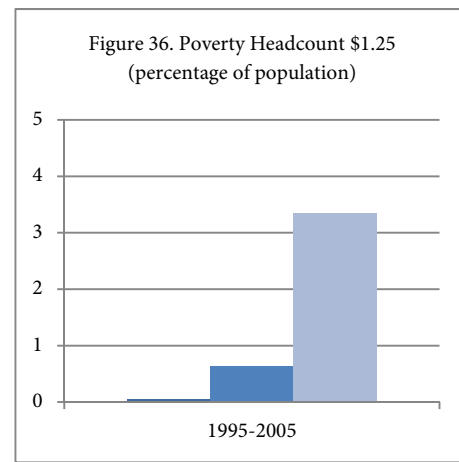
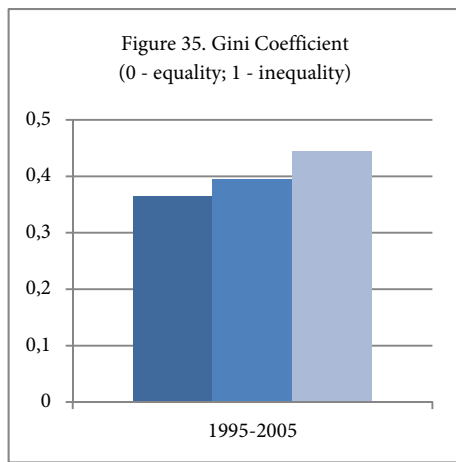
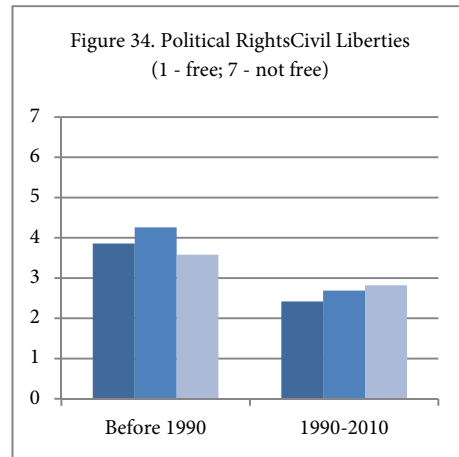
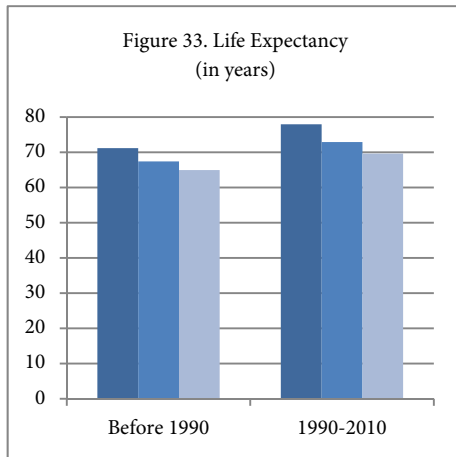
As countries move up the ladder of development, scholarship suggests that education, and especially higher education, becomes more critical for further growth. The results of Dichotomy 1 for the upper middle-income trap clearly illustrate the importance of higher levels of education. Countries that escaped the upper middle-income trap (UMIT) show considerable higher levels of schooling than class A (18 percent before 1990; 17 percent after) and class B trapped countries (50 percent before 1990; 30 percent after) (Figure 31). The numbers for female education almost completely mirror those of the overall population (Figure 32).

The breakdown of educational attainment (Figures 31A and 31C) illustrate that these significant differences mainly stem from more years of schooling in

■ Countries that escaped the UMIT   ■ Class A trapped countries   ■ Class B trapped countries



■ Countries that escaped the UMIT   ■ Class A trapped countries   ■ Class B trapped countries



secondary and tertiary education. The variation in primary education (female education in brackets) between those that escaped the UMIT and those that got caught has decreased significantly, from 31 (24) percent before 1990, to only 10 (7) percent thereafter. Where the variation in primary education is really small, it is very substantial in secondary education (Figures 31B and 32B). Countries that managed to escape the UMIT had, prior to 1990, 55 (50) percent more years of secondary education than class A trapped countries, and 115 (102) percent more than class B trapped countries. These percentages were, after 1990, 42 (40) and 65 (58) percent respectively. The difference in tertiary education between those that escaped and those that are caught in the UMIT has grown significantly over time (Figures 31C and 32C). Most results show a convergence between groups over time, most likely because it is easier to catch up from a low starting point than to keep improving from already high levels of inclusiveness. The results of tertiary education, however, show that well performing countries continue to outperform in tertiary education as time passes. Countries that managed to escape the UMIT had, prior to 1990, 22 percent more years of tertiary education than class A trapped countries and 69 percent more than class B trapped countries. In the next twenty years, between 1990 and 2010, these percentages increased to 63 and 114 respectively. While class A and class B trapped countries manage to increase the average number of years of schooling in tertiary education after 1990, by 111 and 123 percent respectively, they fall utterly short of the impressive 182 percent increase managed by countries that avoided the UMIT. The increase in female tertiary education is even 280 percent for countries that managed to escape the UMIT (and 'only' 140 percent for class A trapped countries and 173 percent for class B trapped countries). These high percentages are a result of the low absolute levels of tertiary education prior to 1990, but could reflect the importance of tertiary education for the further development of upper middle-income countries. In healthcare (Figure 33), as with education, countries that manage to escape the UMIT continue to outperform those that got caught. Instead of



convergence, the data shows that the best performing countries show higher relative increases in life expectancy, despite already higher absolute numbers before 1990.

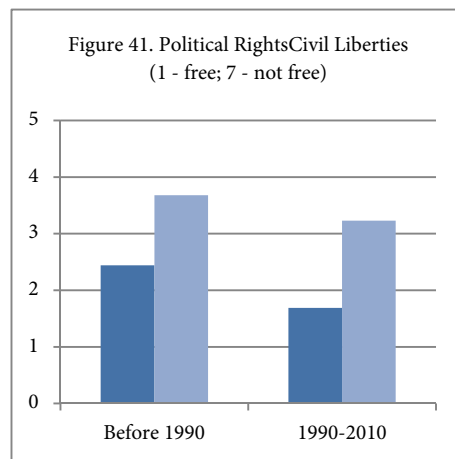
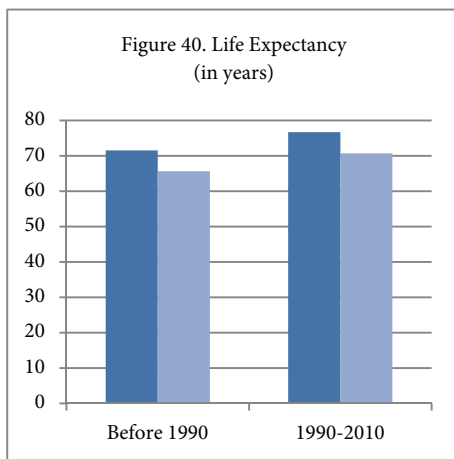
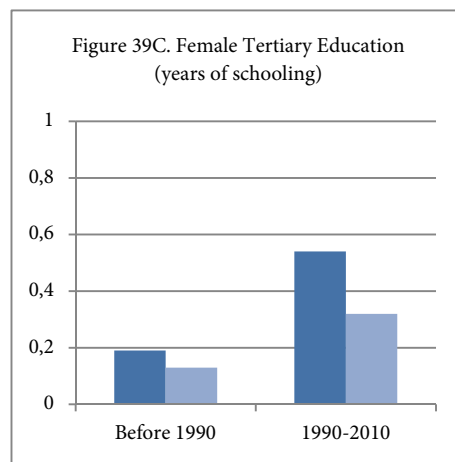
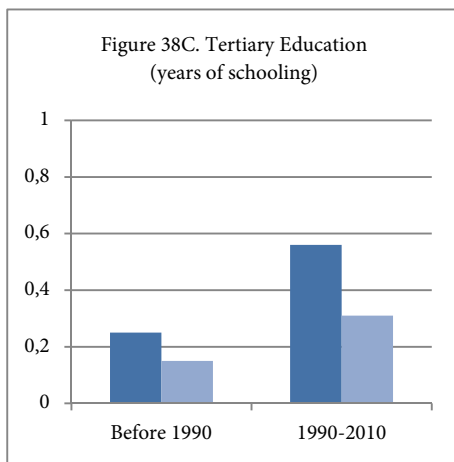
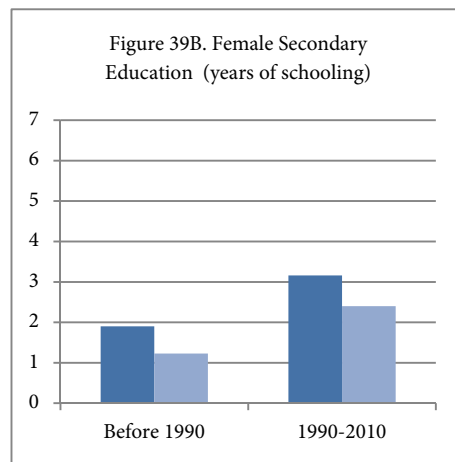
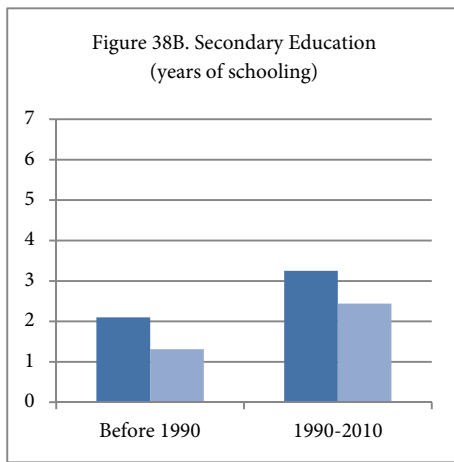
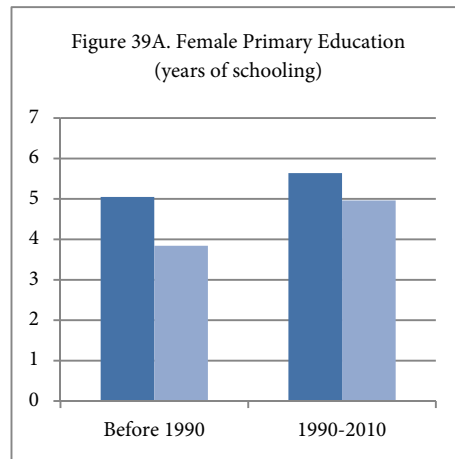
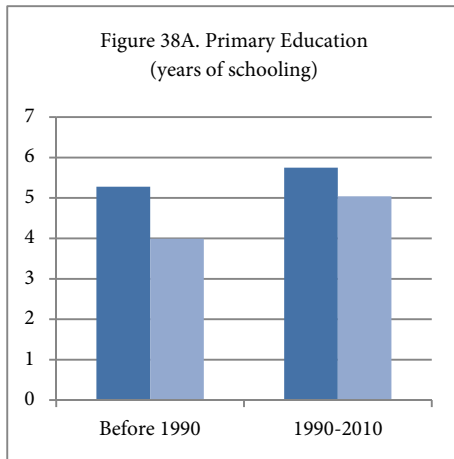
In terms of economic inclusiveness, one clear pattern emerges for upper middle-income countries (UMICs): better economic performance is accompanied by higher levels of economic inclusiveness (Figures 35 to 37). Extreme poverty, expressed in terms of people living on less than \$1.25 a day, is eradicated in countries that managed to escape the UMIT. Class A trapped countries only had 0.6 percent of their population living in extreme poverty, while class B trapped countries still had 3.4 percent of the population living on less than \$1.25 a day. The income shares of the poorest 10 and 20 percent were also lower in class A (2.20 and 2.69) and class B (1.83 and 4.84) trapped countries compared to those that managed to escape (2.41 and 6.41). With less extreme poverty and higher income shares for the poorest, this study also finds significantly lower income inequality in better performing countries. Class B trapped countries have a Gini coefficient of 0.44, class A trapped countries have a 0.39 score, and countries that escaped have a Gini coefficient of 0.36.

The results for political rights and civil liberties underwrite a notion already illustrated with LMICs (Figure 34). While personal freedoms were not the highest in the best performing countries prior to 1990, they are indeed so after 1990. Again, this might illustrate that freedoms are not essential to initiate growth, but that they become more important to sustain growth in the long run.

*Dichotomy 2 - Countries that transitioned vs Countries that did not*

The second dichotomy compares UMICs that transitioned to the high-income category to those that did not. As with the previous dichotomy, we observe that economically outperforming UMICs have higher levels of educational attainment (Appendix B, Figure B3). The average number of years of schooling prior to 1990 is 40 percent higher in countries that managed to graduate, and still 23 percent higher after 1990. The breakdown of educational attainment shows that graduating countries especially outperform others in higher forms of education (Figures 38/39).

■ UMICs that had graduated to the high-income category by 2010    ■ UMICs that failed to graduate



Graduating countries have 60 (54) percent more years of secondary schooling (female education in brackets) before 1990, and 33 (32) percent thereafter. The respective numbers for tertiary education are with 67 (46) percent and 81 (69) percent even higher. This, again, would seem to underline the importance of inclusiveness in higher education for further growth.

Graduating countries also outperform countries that did not manage to make the transition in terms of healthcare. (Figure 40) The life expectancy of the former compared to the latter is 9 percent higher prior to 1990 and 8 percent thereafter. Remarkably, the individual freedoms in graduating countries are significantly higher than in countries that failed to do so (Figure 41). The freedom score (a lower score indicates more freedom) in graduating countries is 34 percent lower than in countries that remained in the upper middle-income category before 1990. The difference even increases after 1990 to more than 48 percent, because the freedom score of graduating countries decreased by 31 percent, compared to only 12 percent of all other countries.

*Dichotomy 3 - Countries with strong growth vs Countries with weak growth*

The comparison between UMICs with strong or weak growth shows some incongruent results, in that UMICs with strong growth do not consistently have higher levels of inclusiveness before the start of a growth upswing (Appendix C, Figures C1 to C8). This is especially true for the results prior to 1990 and for non-economic inclusiveness. This inconsistency results from the methodology of dichotomy 3. To recall from before, the dichotomies use a constant sample group for each panel of results (ie. the respective sample groups remain constant for the entire sample period of 1970-2010). The advantage of a constant sample is that it allows for comparison over time. This methodology works fine for countries in the low-income or lower middle-income category, but shows more distortion as income rises. This distortional effect surfaces because the constant sample requires that all countries that manage to graduate into the upper middle-income category are included in the

sample, regardless of the year they managed to do so. Consequently, both the United Kingdom and Brazil are included in the sample of upper middle-income countries, while the former had already been in that group since 1970 and the latter only managed to graduate into that income group by 2007. Brazil experienced a strong growth episode from 1970 to 1980 while Britain only recorded weak growth (in that it had no growth upswing). It is, of course, unsurprising that despite growing faster, Brazil would record lower levels of inclusiveness than Britain in the years before and after its growth episode in the 1970s. Thus, dichotomy 3 is ill-suited to compare strong growers versus weak growers in the upper middle-income category, because the constant underlying sample creates an unfair comparison between countries in very different stages of development. This problem, of course, plays no role for LICs, but could cause a small distortion with LMICs.

#### *THE IMPORTANCE OF INCLUSIVENESS*

The previous sections have outlined the impact of inclusiveness on economic growth, using three dichotomies: (1) Countries that have escaped the Lower or Upper Middle Income Trap versus those that are (expected to be) or have been trapped; (2) Countries that have transitioned to a higher income category versus those that have not; and (3) Countries with strong growth versus those with slow growth. Each dichotomy has its own strength and weakness. Dichotomy 1 uses the working definition of the MIT as presented earlier in this paper. The advantage of dichotomy 1 is that it is grounded in a statistical framework, and does not confound 'graduations' or 'economic upswings' with 'escaping the MIT'. This paper only studies data from 1970 onwards, as statistics on inclusiveness are not widely available prior to that date. As a consequence, however, many (perhaps valid) escapes from the MIT have been excluded from consideration as countries were already in the relevant income category at the beginning of the sample. As a result, only two countries are recorded as having escaped the lower middle-income trap, and only four as having escaped the upper middle-income trap. This is, of course, a quite small sample. Dichotomy 2 does

not censor any transition, but simply records any graduations to a higher income category. The big advantage over Dichotomy 1 is that Dichotomy 2 does not unnecessarily exclude valid graduations, and thus creates a bigger sample. The other side of the coin, of course, is that Dichotomy 2 might also include graduations of slow growing countries that only managed to make the transition after a very long period of time. The inclusion of poor performing countries into the 'good category' of Dichotomy 2 would imply that this dichotomy would underestimate the inclusiveness levels of well performing countries. Interestingly, however, the gap between well and poor performing countries is often bigger in Dichotomy 2 than in Dichotomy 1, suggesting that the latter indeed excludes too many valid graduations. Further study could substantiate this idea by analysing even longer time series, although this is problematic given the lack of inclusiveness data prior to 1970.

The results of all three dichotomies for low-income countries show the importance of equality of opportunity in terms of education, health and economic inclusiveness. LICs that managed to graduate had twice as much years of schooling as opposed to those that failed to graduate at all. Levels of primary education were around 60 percent higher, and levels of secondary were more than double. The absolute differences in tertiary education were negligible. Graduating LICs also significantly outperformed in terms of access to healthcare, with the life expectancy of their people about 25 percent higher than in countries that did not graduate. Educational attainment was also significantly higher in countries in the five years countries experienced a growth upswing. Those strong growing LICs also recorded less inequality, 50 percent less poverty, and higher income shares for the poorest of the poor.

The strong performing countries in the lower middle-income category also show significant higher levels of educational attainment. LMICs that escaped the LMIT maintained their head start in primary education, and showed a significant lead of almost 45 percent in secondary education over countries that are (expected to be) trapped. The differences in tertiary education between those that escaped and

those trapped were still negligible in absolute terms, as was the case with LICs. Dichotomy 2 compared LMICs that failed to graduate with those that managed to graduate to either the upper middle-income or high-income category. The differences in educational attainment, especially after 1990, are even more profound in this comparison. Countries that managed to graduate had a lead in primary education over those that failed to graduate at all. LMICs that graduated to the high-income category especially show higher levels of schooling for secondary and tertiary education. Secondary education for women is almost double in the best performing countries compared to those that do worst. LMICs that graduated to the high-income category almost record half a year more tertiary education than those that failed to graduate (around 140 percent more). While life expectancy is clearly higher in all countries that performed better, the picture for economic inclusiveness is less conclusive. Dichotomy 3 shows that strong growers have higher levels of economic inclusiveness before a growth upswing. LMICs that managed to escape the LMIT also show a lower poverty headcount and higher income shares for the poorest. They do not, however, have less inequality than those caught in the LMIT.

Countries that managed to escape the UMIT show significant leads in secondary (65 percent) and tertiary (114 percent) education over those that got trapped. The differences in primary education are not very significant. The difference between UMICs that graduated to the high-income category and those that did not mainly comes from the lead the first group has in tertiary education. Successful UMICs also excel in terms of life expectancy and economic inclusiveness.

From the above, five broader trends seem to surface: (1) Countries that perform well show higher records of inclusiveness; (2) Countries that perform well especially outperform others in terms of educational attainment, life expectancy and economic inclusiveness; (3) Access to healthcare, primary and secondary education is significantly higher in those low-income countries that manage to graduate to the lower middle-income category, or those that are strong growers; (4) Access to secondary education is significantly higher in those countries that manage to escape

the LMIT, those that manage to graduate to the upper middle-income category, or those that are strong growers; (5) Access to secondary, but especially tertiary education is significantly higher in those countries that manage to escape the UMIT or those that manage to graduate to the high-income category.

The importance of political rights and civil liberties for growth and the potential to escape the MIT are less unambiguous. LICs initially showed higher levels of freedom in successful countries, but the lead decreased over time, with successful even becoming slightly less free after 1990. The LMICs that managed to escape the LMIT, China and Malaysia, showed significantly less freedom than those caught in the trap. Although the sample in this case is quite small ( $n=2$ ), the results would remain robust if the next four candidates (Angola, India, Laos and Vietnam) would join the club of countries that escaped the LMIT. LMICs that managed to graduate to the high-income category, however, had freedom scores 36 percent lower than those that failed to graduate and 11 percent lower than those that only graduated to the upper middle-income level (again, a lower freedom score means more freedom). After 1990, strong growing LMICs were also freer before the start of a growth upswing. UMICs that escaped the UMIT were also more free after 1990 than those that got trapped. UMICs that graduated to the high-income category had more freedom than those that failed to graduate, both before and after 1990. Again, from the above three broader trends seem to surface: (1) Countries that perform well are not necessarily more free than those that do not; (2) Countries that perform well usually become more free over time and after strong growth; (3) Countries with higher incomes record higher levels of freedom.

## THE SEED OF ECONOMIC DEVELOPMENT

### *RECAP OF THE MIDDLE-INCOME TRAP*

The development from low to high income is, for most countries, far from a smooth drive to maturity. The development of countries does not follow a simple linear growth pattern, nor is it a steady climb on the ladder of development. Countries often struggle in their search for well-being and prosperity, and experience ups and downs in economic growth instead. This paper specifically studies countries in the middle-income category that struggle to take the next hurdle of development and remain MICs for prolonged periods of time. Middle-income countries often struggle, because they have to compete with low-wage competitors on the one hand, and technological superior countries on the other. This phenomenon, of being stuck in the middle-income category, is known as the Middle Income Trap. To compete with low-cost producers and highly skilled innovators, MICs have to increase competitiveness, by moving their economy up the value chain. Since the term was coined by Gill and Kharas in 2007 it has been widely debated and studied in academia, policy circles and the media. Despite its popular usage, however, the concept remains under-theorised and generally lacks a proper working definition.

The first genuine attempt to provide a framework for studying the MIT is that of Felipe *et al.* in 2012. They 'determine the minimum number of years that a country has to be in the middle-income group so that, beyond this threshold, one can argue that it is the middle-income trap' (Felipe *et al.* 2012: 21). This paper builds on their work, and improves on their methodology in two important ways: (1) it uses GDP per capita data of the Penn World Tables instead of the Maddison data; and (2) it improves on the underlying methodology for the calculation the MIT definition.

The PWT are preferable over Maddison's time series as the calculation of PPP is more reliable in the former. Maddison's supply-side approach is troubled by the fact that his comparison of prices is often based on a very small sample of products,



which is especially true when comparing countries at very different stages of development (which is what this paper does). The PWT use the data from the International Comparison Program, which, despite its own flaws, compares many more goods and services than Maddison. The bigger basket of comparable goods is instrumental for a more reliable calculation of PPP. With the GDP data of the PWT this paper classifies countries into one of four income categories: low-income, lower middle-income, upper middle-income or high-income. As the principal benchmark for income classifications, that of the World Bank, uses GNI data instead of GDP, this paper first needed to construct a new set of income thresholds to divide each income category. Like Felipe *et al.*, this paper aims to find a similar set of thresholds for GDP data, which will result in a classification of countries that mirrors that of the World Bank as much as possible. They compare the resulting classification of a large number of sets of thresholds with the classification of the World Bank. A set of thresholds is a certain combination of three thresholds. For example, threshold set 1 is ( $t_{0,1}=\$250$ ,  $t_{1,1}=\$500$ , and  $t_{2,1}=\$750$ ), set 2 is ( $t_{0,2}=\$250$ ,  $t_{1,2}=\$500$ , and  $t_{2,2}=\$1000$ ), and set 82,160 is ( $t_{0,82160}=\$19,500$ ,  $t_{1,82160}=\$19,750$ , and  $t_{2,82160}=\$20,000$ ). To cope with the enormous amount of calculations, Felipe *et al.* (2012: 12) only allow thresholds to fluctuate within a certain range. These arbitrary parameters, however, can influence the final results. This paper therefore aims to improve on the methodology of Felipe *et al.* (2012). Instead of imposing ranges, this paper calculates all possible permutations of thresholds between \$250 and \$20,000 (with incremental steps of \$250), that comply with the parameter that  $t_1 < t_2 < t_3$ , and therefore abandons the ranges altogether. Where Felipe *et al.* (2012) only compare 10,080 sets of thresholds, this paper compares all possible 82,160 sets of thresholds. The set of thresholds with the highest correlation to the income classification of the World Bank yielded the following optimal thresholds:  $t_1=\$2,250$ ,  $t_2=\$7,500$  and  $t_3=\$14,500$ . Given these thresholds, a country is classified as low-income if its GDP per capita in constant 2005 PPP dollars is less than \$2,250, as lower middle-income if its GDP per capita is

between \$2,250 and \$7,500, as upper middle-income if its GDP per capita is between \$7,500 and \$14,500, and as high-income if its GDP per capita is \$14,500 or higher.

As the income thresholds are constant over time, and economies generally keep growing (although perhaps slowly), we see that more and more countries manage to leave the low-income category. In 1970 nearly half (58) of the countries were in the low-income category, whereas only 37 countries remained in that same category by 2010. The number of countries in the lower middle-income category slowly increased from 34 in 1970 to a high of 40 in 1982. From the 1990s on, the number of lower middle-income countries slowly decreased to a final of 30 in 2010. The distribution of countries in the upper middle-income category almost shows a reverse development. The number of countries first decreases from an initial 18 to a low of 10 in 1991, after which the number of countries reached an all-time high of 24 in 2010. The high-income category gradually gained membership over time. In 1970 only 14 countries (11 percent) were high-income, but this number had already increased to 33 (27 percent) by 2010.

This study finds 50 cases of a country graduating from the lower middle-income group to the upper middle-income group, or, alternatively, from the upper middle-income group to the high-income group. Following Van Heuvelen (2012: 24-26), however, this paper corrects the number of graduations, to ensure that unwanted distortions to the average graduation times are excluded from consideration. The following corrections are applied: (1) to exclude graduations if countries were already in set income group at the beginning of the sample; (2) to ignore temporary setbacks of five years or less; (3) to exclude graduations that lasted no longer than two years; and (4) to ignore second or later transitions. After applying all necessary corrections, twelve valid graduations remain: five from the lower middle-income category, and seven from the upper middle-income category. The valid graduations from the lower to the upper middle-income category are those of Botswana (26 years), China (15 years), Malaysia (23 years), Mauritius (27 years), and Thailand (29 years). The seven valid graduations from the upper middle-income category are those of Cyprus (16

years), Hong Kong (9 years), the Republic of Korea (8 years), Oman (17 years), Poland (32 years), Singapore (9 years), and Taiwan (10 years). The average graduation periods of the lower and upper middle-income category are thus 24 and 14 years respectively. These numbers only provide a rough indication, and are not, by any measure, a golden rule for the duration of the MIT. Taking the graduation times of 24 and 14 years into consideration, a country has to grow, on average, with 4.7% to avoid the lower middle-income trap, or with 3% to avoid the upper middle-income trap.

This paper also distinguishes between countries with strong and weak growth. Using the BBQ algorithm, a cyclical turning point model of Harding and Pagan (2002a), this study determines the turning points in economic growth. The periods following a trough are called an expansion or upswing, and the periods after a peak are called a contraction or downswing. If an extraction last for more than five years with an average growth of at least 3.5% it is classified as an economic upswing. Upswings that follow serious internal or external conflict are excluded from further study. The first year of a strong growth episode, or economic upswing, in any given country is coded as  $t[1]$ . This paper compares the economic performance of countries in the five years leading up to a growth episode ( $t[-4,0]$ ), the first five years of a growth episode ( $t[1,5]$ ), and the subsequent five years ( $t[6,10]$ ). At  $t[1]$ , all countries that experience a new or ongoing strong growth episode are grouped together as countries with strong growth. The control group consists of country-year pairs of countries that did not experience a new or ongoing growth takeoff in the years in which the dynamic countries took off.

#### *INCLUSIVENESS AND LESSONS FOR GROWTH*

The working definition of the MIT allows for further study of middle-income countries. This paper analyses the role of inclusiveness as an enabling condition to escape the MIT. Inclusiveness is usually associated with development and pro-poor literature, which traditionally focuses on the impact of economic growth on poverty

reduction. Inclusiveness, in earlier literature, is a concept used to denote to what extent the poor share and benefit in the wealth and development of the rest of society. A second wave of literature approaches inclusiveness more in terms of equality of opportunity. Equality of opportunity is important in that it allows the whole of society to contribute to economic productivity and growth. The ability of potential economic agents to contribute to economic development is, among others, highly dependent on the access individuals and groups have to education, healthcare and economic resources. If individuals or groups are systematically excluded, and do not have equal opportunity, they are almost automatically denied the opportunity to play any significant role in the development of the national economy.

When countries enter the middle-income stage, and domestic wages steadily rise, MICs can no longer rely on a low-cost model of development. MICs need to increase competitiveness and move up the value chain. Here too inclusiveness is of fundamental importance. Access to education and healthcare allow for the development of human capital, which, in turn, is essential for innovation, specialisation and sustainable growth. Economic inclusiveness (measured as income inequality, poverty and income shares of the poorest) is important, as economic deprivation could keep people trapped in a state of survival, rather than allowing them to focus on their own development. This paper also considers the importance political freedoms and civil liberties as these freedoms can help to advance the general capability and potential of a person, and thus help to promote the economic security of people. Freedoms and liberties also contribute to economic growth in that they can prevent the continuation or imposition of 'unfreedom', or the denial of opportunity to groups or individuals.

As inclusiveness, in theory, is important for the development of human capital, which in turn is fundamental to escaping the MIT, this paper studied the importance of inclusiveness on the growth performance of countries. This analysis is carried out by reviewing the role of inclusiveness in three dichotomies: (1) Countries that have escaped the Lower or Upper Middle Income Trap versus those that are

(expected to be) or have been trapped; (2) Countries that have transitioned to a higher income category versus those that have not; and (3) Countries with strong growth versus those with slow growth.

The subsequent study in this work illustrates the importance of inclusiveness for further growth. In addition to the plethora of findings documented in this work, eight broader trends emerge from the research: (1) Countries that perform well show higher records of inclusiveness; (2) Countries that perform well especially outperform others in terms of educational attainment, life expectancy and economic inclusiveness; (3) Access to healthcare, primary and secondary education is significantly higher in those low-income countries that manage to graduate to the lower middle-income category, or those that are strong growers; (4) Access to secondary education is significantly higher in those countries that manage to escape the LMIT, those that manage to graduate to the upper middle-income category, or those that are strong growers; (5) Access to secondary, and especially tertiary education is significantly higher in those countries that manage to escape the UMIT or those that manage to graduate to the high-income category; (6) Countries that perform well were not necessarily more free than those that did not; (7) Countries that perform well usually become more free over time and after strong growth; (8) Countries with higher incomes record higher levels of individual freedom.

The described relationship between inclusiveness and economic growth should be interpreted principally as associational, rather than causal. The lack of data for some variables, and the relative rarity of a escaping the MIT or experiencing a growth takeoff provide reason for caution. This study does not suggest that only inclusiveness is essential for growth, or that high levels of inclusiveness are by itself enough for growth. Other macroeconomic conditions and domestic variables are also important for the overall success of a country's economic performance. The fact, however, that well performing countries consistently display higher levels of inclusiveness does serve as an important lesson in itself.

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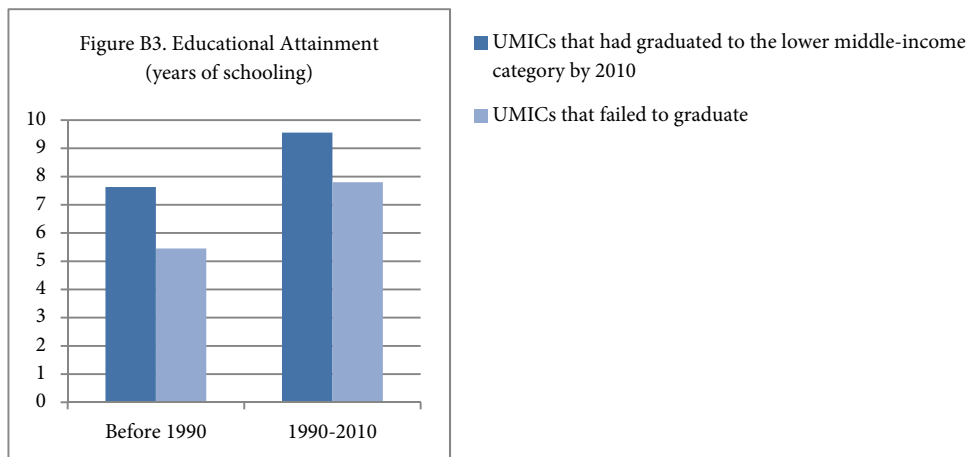
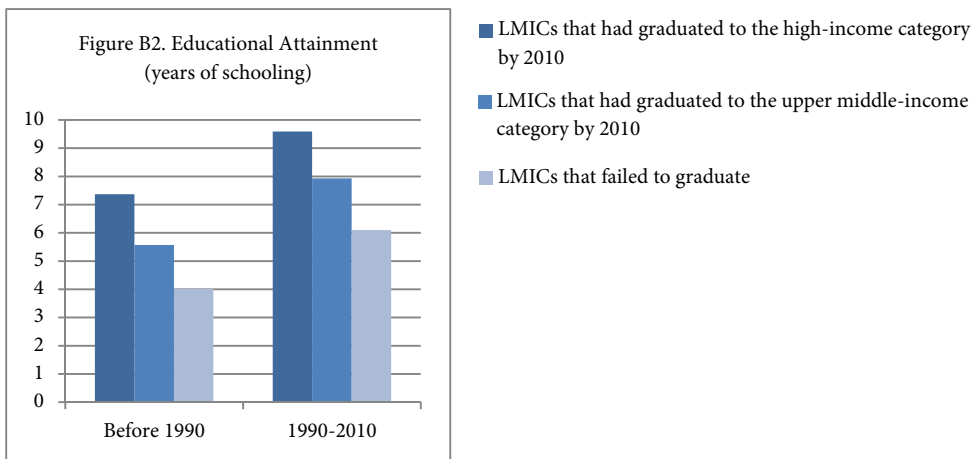
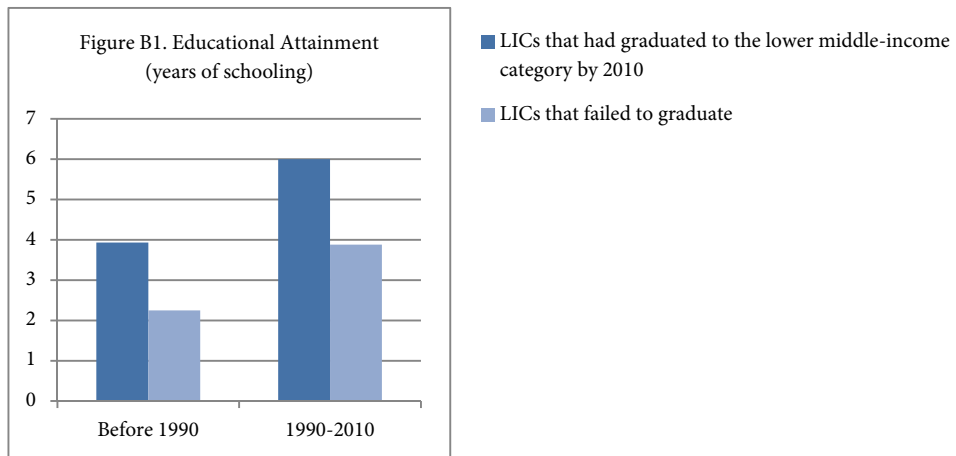
## APPENDIX

### APPENDIX A: THE 124 COUNTRIES OF THE SAMPLE

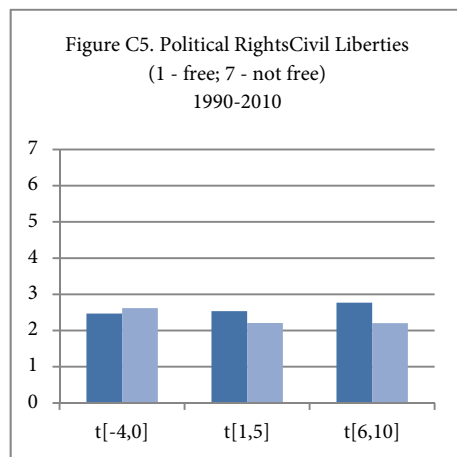
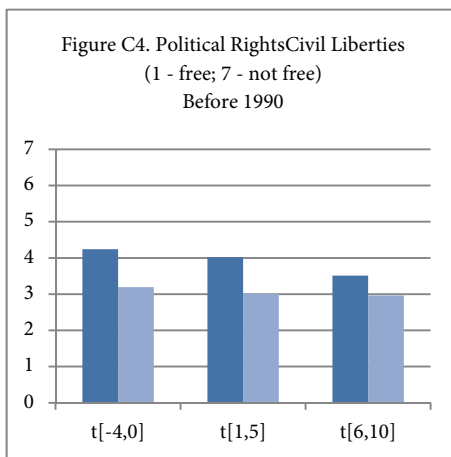
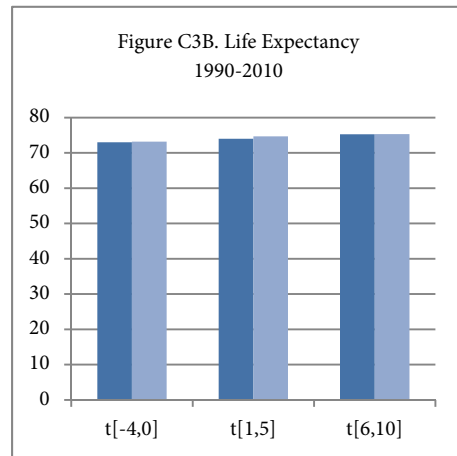
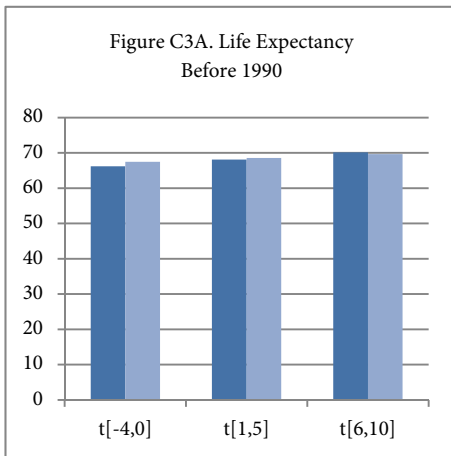
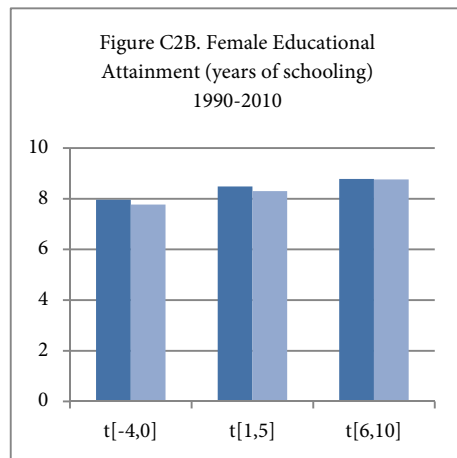
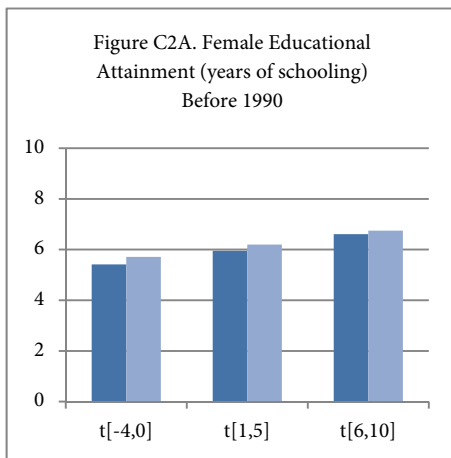
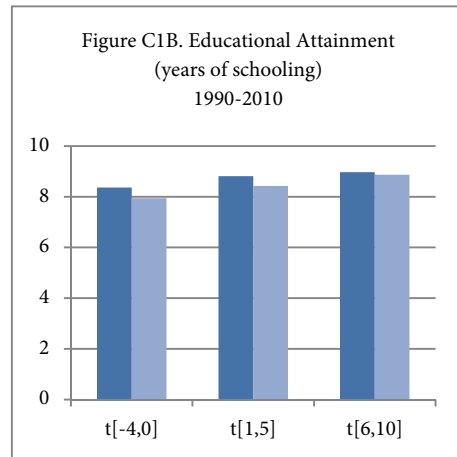
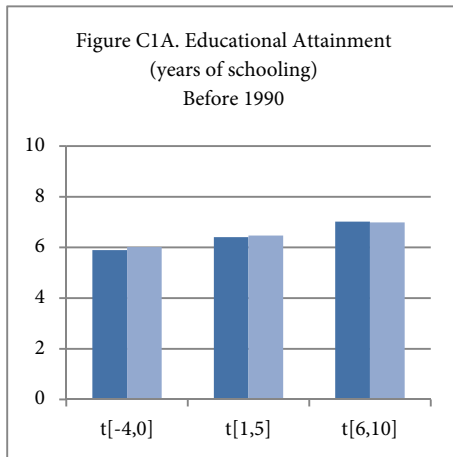
Table A1. Alphabetical list of included countries

Afghanistan	Denmark	Korea, Republic of	Portugal
Albania	Dominican Republic	Laos	Puerto Rico
Algeria	Ecuador	Lebanon	Romania
Angola	Egypt	Lesotho	Rwanda
Argentina	El Salvador	Liberia	Senegal
Australia	Ethiopia	Madagascar	Sierra Leone
Austria	Finland	Malawi	Singapore
Bahrain	France	Malaysia	Somalia
Bangladesh	Gabon	Mali	South Africa
Belgium	Gambia, The	Mauritania	Spain
Benin	Germany	Mauritius	Sri Lanka
Bolivia	Ghana	Mexico	Sudan
Botswana	Greece	Mongolia	Swaziland
Brazil	Guatemala	Morocco	Sweden
Bulgaria	Guinea	Mozambique	Switzerland
Burkina Faso	Guinea-Bissau	Namibia	Syria
Burundi	Haiti	Nepal	Taiwan
Cambodia	Honduras	Netherlands	Tanzania
Cameroon	Hong Kong	New Zealand	Thailand
Canada	Hungary	Nicaragua	Togo
Central African Rep.	India	Niger	Trinidad & Tobago
Chad	Indonesia	Nigeria	Tunisia
Chile	Iran	Norway	Turkey
China	Iraq	Oman	Uganda
Colombia	Ireland	Pakistan	United Kingdom
Congo, Dem. Rep.	Israel	Panama	United States
Congo, Republic of	Italy	Papua New Guinea	Uruguay
Costa Rica	Jamaica	Paraguay	Venezuela
Cote d'Ivoire	Japan	Peru	Vietnam
Cuba	Jordan	Philippines	Zambia
Cyprus	Kenya	Poland	Zimbabwe

APPENDIX B: EDUCATIONAL ATTAINMENT FOR DICHOTOMY 2



APPENDIX C: DICHOTOMY 3 FOR UMICS



■ UMICs with strong growth

■ UMICs with weak growth

