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Middle-income transitions: trap or myth?*

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ABSTRACT

The newly coined term 'middle-income trap' has been widely used in recent years by policymakers to refer to those middle-income economies that seem to be stuck in the middle-income range of the income distribution. This has been done despite that there is no accepted definition of the term in the literature. In this paper, we study historical transitions across income groups to see whether there is any evidence that supports the claim that some middle-income economies do not advance. Overall, the data refute this proposition and, as a consequence, we reject the existence of a middle-income trap as a generalized phenomenon. Instead, we argue that what distinguishes economies in their transition from middle to high income is the speed of these transitions, fast versus slow, a standard growth question. We find that, historically, those economies that graduated from lower-middle income ($2000 in 1990 purchasing power parity [PPP] $) to upper-middle income ($7250 in 1990 PPP $) did it in about 55 years. Likewise, we find that, historically, it took 15 years for an economy to graduate from upper-middle income to high income (above $11,750 in 1990 PPP $). Our analysis implies that, as of 2013, there were 10 (out of 39) lower-middle-income economies and 4 (out of 15) upper-middle-income economies that were experiencing 'slow transitions' (i.e., above 55 and 15 years, respectively). The historical evidence presented in this paper indicates that economies move up across income groups. The analysis of a large sample of economies over many decades also indicates that many economies that today are high income spent many decades traversing the middle-income segment.

KEYWORDS

Middle-income trap; middle-income transition; East Asia; Latin America; middle income

JEL CLASSIFICATION

O10; O40

1. Introduction

Since Gill and Kharas (2007) introduced the term 'middle-income trap' in the lexicon, the number of papers mentioning this supposedly observable phenomenon, as well as indirect references to it, has increased significantly. In many developing economies, policy discussions center on it and governments even speak of drawing plans to avoid it.

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The problem is that despite the numerous references to it, the idea of a middle-income trap is rather vague, not to mention that the term is not part of development-growth literature. The idea derives from the observation that some of economies that crossed the middle-income threshold have not achieved high-income status yet; while some others have done it. The former economies have been referred to as being stuck in the 'middle-income trap.' Economies like Malaysia, Thailand, Brazil, or the Philippines have been said to be in the trap. And many others, including the People's Republic of China (PRC), have been warned that they might fall into it soon. One way to see graphically what those who refer to this phenomenon could possibly mean is shown in Figure 1, which plots in the horizontal axis the number of years elapsed since economies reached $3000 (measured in 2005 purchasing power parity [PPP] $), against income per capita in the vertical axis. While the Republic of Korea has progressed significantly, the other economies in Figure 1 seem to be 'stuck.'

References to this term can be classified into three groups. First are the references to the fact that the transition from low into middle income is a major leap in the quest to become high income, but without explicitly mentioning the term middle-income trap (e.g., Spence 2011, chapter 16); or explicit references to the term but with strong qualifiers, e.g., '…if such trap indeed exists' (World Bank 2010). Second, are the believers in the idea of a middle-income trap (Gill and Kharas 2007; Ohno 2009; Kharas and Kohli 2011). They define it as a situation where economies are unable to compete with low-income, low-wage economies in manufactures and unable to compete with advanced economies in high-skilled innovation. Third, is the recent literature on growth slowdowns, which studies how rapidly growing economies can stagnate in the middle-income segment and

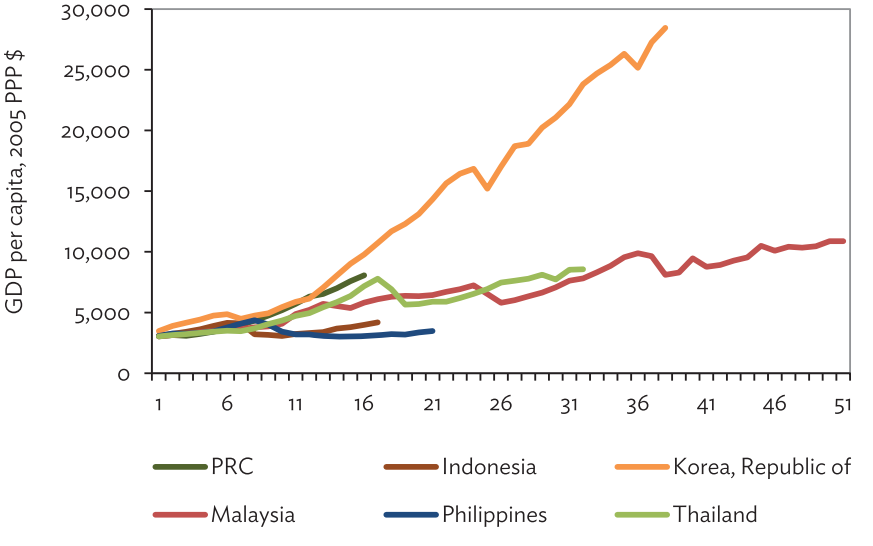

Figure 1. Number of years elapsed since the economy reached $3000 GDP per capita income.
GDP = gross domestic product, PPP = purchasing power parity, PRC = People's Republic of China. Notes: GDP per capita is calculated as the ratio of GDP to population. GDP in PPP is from the Penn World Tables database, version 8.0. The series used is the output-side real GDP at chained PPP, in 2005 $. Population is from the World Bank's World Development Indicators online database. We take the ratio. The PRC reached $3000 in 1996, Indonesia in 1991, the Republic of Korea in 1974, Malaysia in 1961, the Philippines in 1989, and Thailand in 1980. Horizontal axis shows the time elapsed since attaining $3000 (in 2005 PPP $).

fail to graduate to high income (Eichengreen, Park and Shin 2011, 2013; Aiyar et al. 2013). Eichengreen, Park and Shin (2013) argue that growth in middle-income decelerates in steps – once around $10,000–$11,000 (in 2005 PPP $) and then again around $15,000–$16,000.[1] Aiyar et al. (2013) show that middle-income economies are more likely to experience growth slowdowns than either low-income economies or high-income economies. Hence, they argue, the former economies are 'trapped.'

In this paper, we argue, first, that none of the papers referred to above has provided a definition of the middle-income trap, much less a theoretical treatment of the phenomenon.[2] The idea of being unable to compete (the second strand of literature referred to above) is almost a tautology since, under such a view, all middle-income economies are, by definition, trapped. We believe that some authors have tried to draw a parallel with a well-established concept in the development literature, namely Nelson's (1956) notion of 'low-level equilibrium trap.' The parallel, however, is rather unfortunate because of the lack of a theory that explains what the middle-income trap is. The third view does not provide a definition either. This group is concerned with growth slowdowns, which is not the same as being 'trapped.' A growth slowdown at best means a bump in the path to high-income status, but does not mean that an economy experiencing a growth slowdown will be unable to reach high income. It only implies that it might take it slightly longer. At best, this strand of the literature provides a characterization of the economies that have not reached high-income status, and identified some factors that may be behind the growth slowdown in the quest to high income.

Second, we propose to study transitions across income groups to see if there is evidence that economies do not advance, i.e., that they are stuck. This is fundamental for any sound discussion of the likelihood of the alleged phenomenon of the middle-income trap, as well as for policy debates. The criterion we propose (note that we avoid using the term middle-income trap) is based on a thorough analysis of the historical transitions of a large number of economies across income categories. Based on this historical experience, we determine the number of years that economies have typically spent in the middle-income segment. Together with the income thresholds for each income category, this allows us to calculate the growth rate (of per capita gross domestic product [GDP]) that economies would need to achieve to cross the middle-income segment in this typical (more precisely, the median) number of years. The logical consequence of our argument is that some economies traverse the middle-income segment faster than others simply because they (the former) grow faster. This helps bring the discussion back to the familiar turf of growth theory and its central question, namely, why some economies grow faster than others, a question that we do not tackle in this paper.

The rest of the paper is structured as follows. In Section 2, we explain how we construct the data set that we use and show how we obtain the income per capita cut-offs in order to identify the lower-middle income and upper-middle-income segments in dollar PPPs of 1990. The income classification for 1–2013 AD provides valuable information about transitions across income groups. Using this income classification, Section 3 identifies the economies that have made the middle-income transitions before and after 1950 and proposes criteria to differentiate slow from fast transitions. Using these criteria, Section 4 identifies the economies that as of 2013 are experiencing slow transitions. The historical evidence that we have gathered and analyzed indicates that economies do move up across income groups; and that many economies that today are high income spent many decades

traversing the middle-income segment. As a consequence, we reject the existence of a middle-income trap as a generalized phenomenon. What is true, obviously, is that some countries grow faster than others and hence make the transitions across income groups faster. This does not mean that the other economies are 'trapped.' Section 5 summarizes our arguments and main findings.

2. Data and middle-income thresholds

To understand how long an economy has to be in the middle-income category before its transition can be considered slow, one has to analyze the long-term experience of the economies that progressed all the way into the high-income category.

The commonly used income classifications of the World Bank report income categories from 1987 onward.[3,4] This is too short a time series for this type of analysis, as many economies were already high income in 1987. Moreover, some other economies were upper-middle income in 1987 and made it into the high-income group afterwards. Hence, we do not know the number of years they spent in the middle-income group. Therefore, determining how long an economy has to be in the middle-income group before it can be considered that its transition is slow requires time-series data longer than those provided by the World Bank.

The rest of this section discusses the data and methodology we use to come up with sufficiently long time series to classify economies into various income categories.

2.1. Data

As argued above, to be able to determine whether an economy's transition is slow or not, we need long time series data. Maddison's (2010) database,[5] which goes back to 1 AD (for selected economies), allows us to undertake this analysis. Maddison (2010) provides comparable GDP per capita data (in PPP terms) for 159 economies. However, we discarded 35 economies: (i) 7 economies that had populations below 1 million in 2012; (ii) the 22 economies that came out of the partitions of the Soviet Union, Yugoslavia, and Czechoslovakia; and (iii) 5 economies whose GDP per capita is not reported by the International Monetary Fund (IMF) database.[6] We thus have complete time-series data for 124 economies from 1950 to 2008. Of these 124 economies, Maddison's data set also provides data for 72 economies before 1950, although for different years, in some cases going as far back as 1 AD For some economies, this database reports complete time series starting in 1820. Finally, we extended Maddison's data up to 2013 using growth rates of GDP per capita from the Total Economy Database (TED) of The Conference Board using Geary-Khamis 1990 PPP $ (the same as the one used by Maddison [2010]).[7] We updated the data of those economies without information from the TED using GDP per capita growth in local currency at constant prices from the IMF World Economic Outlook database.[8,9]

2.2. Methodology: identifying income cut-offs

The first step in our procedure is to classify economies according to their income per capita. The World Bank's income classification is the most widely used for this purpose. The World Bank classifies economies into low income, lower-middle income, upper-middle

income, and high income, based on the economies' gross national income (GNI) per capita in current prices. The World Bank sets the original per capita income thresholds for the different income groups by looking at the relationship between measures of well-being, including poverty incidence and infant mortality, and GNI per capita.[10] By taking into consideration non-income aspects of welfare, each category of the World Bank's income classifications reflects a level of well-being (not just income) characteristic of a set of economies when the original thresholds were established.[11] The World Bank updates the original thresholds every year by adjusting them for international inflation, the average inflation of the eurozone, Japan, the United Kingdom (UK), and the United States (US). By adjusting for inflation, the thresholds remain constant over time in real terms.[12] There is no restriction on the number of economies that can be in each category – i.e., economies can all be high income, middle income, or low income.

However, the World Bank's thresholds, measured in current $ GNI per capita, cannot be applied directly to Maddison's data, as the latter uses GDP per capita measured in constant 1990 PPP $. Therefore, we need to define our own income thresholds. This means that we need to establish thresholds in 1990 PPP $, but would like to devise an income classification that matches as much as possible that of the World Bank; that is, if economies A, B, C, and D are classified as high income according to the World Bank, we would like most (if not all) of them to be also high income in our classification using 1990 PPP $ values. By doing this, we maintain the underlying information (both income and non-income measures of well-being) that is encapsulated in each of the income categories. We then proceed as follows:

First, define sets of GDP per capita (in 1990 PPP $) thresholds. Each set *i* is composed of three thresholds $t_{0,i}$, $t_{1,i}$, and $t_{2,i}$, where $t_{0,i} < t_{1,i} < t_{2,i}$. t_0 is the threshold that separates low from lower-middle income; t_1 is the threshold that separates lower-middle income from upper-middle income; and t_2 is the threshold that separates upper-middle income from high income. Each set of thresholds *i* is a combination of t_0 from \$1500 to \$4750; t_1 from \$5000 to \$8750; and t_2 from \$9000 to \$20,000; at \$250 intervals.[13] This gives a total of 14 (intervals of \$250 from \$1500 to \$4750) × 16 (intervals of \$250 from \$5000 to \$8750) × 45 (intervals of \$250 from \$9000 to \$20,000) = 10,080 sets of thresholds. For example, set 1 is ($t_{0,1}$ = \$1500; $t_{1,1}$ = \$5000; and $t_{2,1}$ = \$9000); set 2 is ($t_{0,2}$ = \$1750; $t_{1,2}$ = \$5000; and $t_{2,2}$ = \$9000); and set 10,080 is ($t_{0,10080}$ = \$4750; $t_{1,10080}$ = \$8750; and $t_{2,10080}$ = \$20,000).

Second, using GDP per capita (in 1990 PPP $) for each set *i*, categorize an economy as low income if its GDP per capita in a particular year is less than $t_{0,i}$; lower-middle income if its GDP per capita is at least $t_{0,i}$, but less than $t_{1,i}$; upper-middle income if its GDP per capita is at least $t_{1,i}$, but less than $t_{2,i}$; and high income if its GDP per capita is at least $t_{2,i}$. For each year, code low-income economies as 0; lower-middle-income economies as 1; upper-middle-income economies as 2; and high-income economies as 3.

Third, calculate the pairwise polychoric correlations of each of the resulting 10,080 classifications with the World Bank's income classification – also coded as ordinal values 0 (low income), 1 (lower-middle income), 2 (upper-middle income, and 3 (high income) – for 1990. The polychoric correlation is the maximum likelihood estimate of the correlation between the continuous and normally distributed variables underlying the ordinal categories (Olsson 1979; Kolenikov and Angeles 2009).[14] We estimate correlations for 1990 because Maddison's GDP per capita data, which is in 1990 PPP $, for 1990 would be in

current prices and the World Bank's income classification which is also based on current price data with the mentioned difference being that the World Bank uses GNI per capita. There were two combinations for which the polychoric correlations for 990 were ties: $t_0 =$ \$2000; $t_1 =$ \$7250; and $t_2 =$ \$11,250; and $t_0 =$ \$2000; $t_1 =$ \$7250; and $t_2 =$ \$11,750. To break this tie, we pooled all data from 1987 to 2013 to determine which of the two tied thresholds had the highest correlations. The set of thresholds that yielded the highest correlation was $t_0 =$ \$2000; $t_1 =$ \$7250; and $t_2 =$ \$11,750. Therefore, the income classification that we use is as follows: an economy is low income if its GDP per capita in 1990 PPP \$ is less than \$2000; lower-middle income if its GDP per capita is at least \$2000 but less than \$7250; upper-middle income if its GDP per capita is at least \$7250 but less than \$11,750; and high income if its GDP per capita is \$11,750 or higher. These thresholds are constant over time.[15] As we use a different measure of income from the World Bank and define our own income thresholds to classify economies, there is likely to be a difference in income classifications of economies that we obtain and that of the World Bank.[16]

As indicated above, this paper examines transitions from one income category into the next one. However, these graduations are not necessarily 'smooth,' i.e., some economies go back and forth between income categories before stabilizing into one or another. To be able to identify how long economies have been in an income category these 'jumps' need to be smoothened out. Based on the above thresholds, the following typologies of patterns in income categories are considered as smooth, i.e., they do not show any jumps:

i. Straight line pattern:
   - Permanently low-income (L) economies
   - Permanently lower-middle-income (LM) economies
   - Permanently high-income (H) economies

ii. Ladder type pattern:
   - 1 step from L to LM
   - 2 steps from L to LM to upper-middle income (UM)
   - 3 steps from L to LM to UM to H

Economies whose income group classification does not follow either a straight line or a ladder pattern, as described above, have 'jumps.' There are 42 economies with jumps in their income classification at different points in time. To facilitate the analysis, we make some adjustments to the income categories to ensure that we get one of the two types of smooth patterns described above. These adjustments are described in Appendix A.[17] A remark is in order here. As future data become available, economies may be reclassified from one income category into another one. In this paper, we decided not to adjust an economy's income category if it changed only recently. For example, Colombia, based on our data, became upper-middle income only in 2013 and is treated as such rather than considering 2013 as a jump even though future data may indicate that it is the latter.

2.3. Distribution of economies by income classes

Using these thresholds and adjustments, the distribution of the 124 economies by income class over time is shown in Figure 2. In 1950, 80 economies were classified as low income; 35 economies were lower-middle income; 6 economies were upper-middle income; and

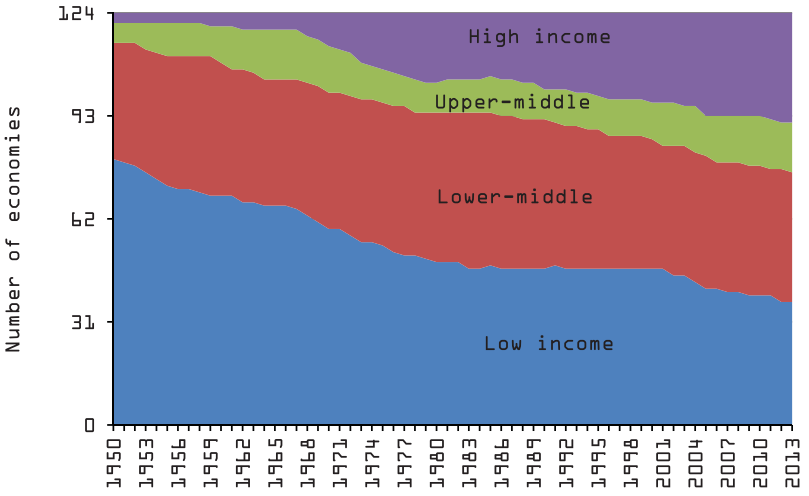

Figure 2. Distribution of economies by income categories, 1950–2013.
Source: Authors.

only 3 economies – Kuwait, Qatar, and the United Arab Emirates – had income per capita above the high-income threshold. Maddison's (2010) per capita income estimates for these 3 economies in 1950 (in 1990 PPPs) were $28,878; $30,387; and $15,798, respectively.[18] The US reached the high-income threshold in 1944, but its income per capita slipped to upper-middle income after the war in 1945 (as noted in Appendix A, the US is reported as an upper-middle-income economy in 1944 instead of a high-income economy) and it regained (i.e., after the adjustment) high-income status only in 1962. Together with the US, the other five upper-middle-income economies in 1950 were Australia, Canada, New Zealand, Switzerland, and Venezuela.

Figure 2 indicates that the number of economies in the low-income group has decreased over time, from 80 in 1950 to 39 in 2010 and to 37 in 2013.[19] By decade, the 1950s witnessed the largest decline in the number of low-income economies, when 11 made it into the lower-middle-income group (Table 1). This was followed by another 10 economies during the 1960s, and 10 more economies during the 1970s. From 1980 to the early 2000s, however, very few low-income economies graduated. The number of low-income economies was still 47 (38% of the total) in 2000, almost the same as in 1980 (49 economies, or 39% of the total). This number gradually fell during 2000–2013, when 10 economies (Cambodia, Ghana, Honduras, India, the Lao People's Democratic Republic, Lesotho, Mozambique, Myanmar, Pakistan, and Viet Nam) attained lower-middle-income status. In total, 43 out of the 80 low-income economies in 1950 had graduated from the low-income category by 2013. By region, 14 out of these 43 economies were in Asia, 9 in Latin America and Caribbean, 9 in the Middle East and North Africa, 5 in Europe, and 6 in Sub-Saharan Africa.

There are 35 economies that have been always low income since 1950, 30 of them in Sub- Saharan Africa, 4 in Asia, and 1 in Latin America and Caribbean (Iraq and Nicaragua moved out of low income sometime during 1950–2013 but fell back into this category and were low income again in 2013.). These are shown in Table 2. The 2013 income per capita in PPP terms of most of these economies is comparable (or even lower)

Table 1. Change in the distribution of economies by income categories, 1950–2013.

Year	L	LM	UM	H
1950	80	35	6	3
1960	69	40	11	4
1970	59	41	14	10
1980	49	45	9	21
1990	47	45	9	23
2000	47	39	11	27
2008	40	39	14	31
2010	39	39	15	31
2013	37	39	15	33

L = low income, LM = lower-middle income, UM = upper-middle income, H = high income.
Source: Authors.

Table 2. Economies that have always been low income during 1950–2013.

Asia and the Pacific	Sub-Saharan Africa	
Afghanistan	Angola	Madagascar
Bangladesh	Benin	Malawi
Mongolia	Burkina Faso	Mali
Nepal	Burundi	Mauritania
	Cameroon	Niger
Latin America and Caribbean	Central African Republic	Nigeria
	Chad	Rwanda
Haiti	Congo, Democratic Republic of the	Senegal
	Cote d'Ivoire	Sierra Leone
	Eritrea	Sudan
	Gambia	Tanzania
	Guinea	Togo
	Guinea Bissau	Uganda
	Kenya	Zambia
	Liberia	Zimbabwe

Source: Authors.

to that of Western Europe (and other economies for which data are available) in the eighteenth century or earlier.

In 1950, there were 41 economies classified as middle income – 35 lower-middle income and 6 upper-middle income (Table 1). This number increased to 54 (45 lower-middle income and 9 upper-middle income) in 1980.[20] The net number of middle-income economies (i.e., those retaining their income category plus those entering the middle-class category minus those leaving the middle-class category) has remained around 50–55 since 1960. Namibia, Peru, and South Africa, for example, have been lower-middle-income economies since 1950.

Figure 2 also shows that there was a sharp increase in the number of high-income economies between the late 1960s and 1980, and between the late 1980s and 2013. The former period overlaps with what Maddison (1982) referred to as the 'Golden Age' (1950–1973), when productivity accelerated considerably. The number of economies that reached the high-income threshold increased to 10 in 1970, 21 in 1980, and 33 in 2013 (Table 1). During this period, several non-European economies, particularly East Asian (the Republic of Korea; Singapore; and Taipei, China) and Latin American (Argentina and Chile), reached high-income status.

In the next section, we use the income thresholds derived here to examine historical transitions from one income category into the next one. In doing so, we separate 'slow' from 'fast' transitions. We argue that what distinguishes economies in their quest to reach high-income status is the speed of these transitions. But a slow transition does not mean that the country is 'trapped.' As the discussion above indicates, historically, economies do

advance. It is this distinction that matters most and helps bring the debate back to the familiar territory of growth theory, i.e., why do some economies grow faster than others? Based on the benchmarks that we develop in the next section to distinguish slow from fast transitions, we identify the economies that as of 2013 can be considered to have slow transitions from LM to UM, and those with slow transitions from UM to H. We also identify the economies that as of 2013 cannot be considered to have slow transitions.

3. Defining middle-income transitions

Our analysis of middle-income transitions is based on the historical experience of economies that reached high income and the time it took them to do so. Given the lack of a theory about how long it takes an economy to traverse from LM to UM, and from UM to H, we adopt a simple procedure. This consists in determining the threshold number of years that an economy has to be in one of the middle-income groups so that, beyond it, one can say that it is relatively slow to graduate. This number of years is determined by examining the historical experience of the economies that graduated from lower-middle income to upper-middle income, and from upper-middle income to high income. We take the median number of years that it took these economies to transition as our benchmark to separate fast from slow transitions. Consequently, we will say that an economy is slow in graduating from the lower-/upper-middle-income group today if it has been in that group longer than the benchmark, based on historical transitions. This method entails an unavoidable element of subjectivity, and therefore, one has to be careful in taking the threshold number of years literally. It is only a guide. We examine both the lower-middle-income and upper-middle-income transitions separately.

3.1. The transition from lower-middle income into upper-middle income

We first determine the number of years that economies remained in the lower-middle-income group before they graduated to upper-middle income. To do so, we separate data before and after 1950 because we have a complete time series for 124 economies starting in 1950.[21] From the list of 124 economies, a total of 45 economies have graduated from lower-middle income into upper-middle income. We divide them into two groups: (i) the 36 economies that became lower-middle income before or in 1950 and then graduated to upper-middle income (Table 3); and (ii) the 9 economies that became lower-middle income after 1950 and then graduated to upper-middle income (Table 4). This allows us to compare recent transitions with those that took place earlier. The tables give the year these economies attained lower-middle-income status; the year they attained upper-middle-income status; the number of years they were lower-middle income; and their average income per capita growth rate during their transition from lower-middle income to upper-middle income.

The time spent as lower-middle income for economies in Table 3 (economies that became lower-middle income before or in 1950) ranges from 19 years for Israel to 128 for the Netherlands.[22] The latter was the first economy to become lower-middle income (in 1827, over 100 years earlier than Japan) but spent 128 years, until 1955, in this category. Maddison (1982, p.4) pointed out that the acceleration of productivity growth happened during what he referred to as the 'capitalist era' that began in 1820. The Netherlands,

Table 3. Economies that became lower-middle income in 1950 or before and graduated to upper-middle income.

Economy	Region	Year the economy turned LM	Year the economy turned UM	Years as LM	Average Growth rate, LM to UM (%)
Australia	AP	1851	1950	99	1.2
Hong Kong, China*	AP	1950	1976	26	5
Japan	AP	1933	1968	35	3.9
New Zealand**	AP	1860	1949	80	1.4
Singapore*	AP	1950	1978	28	4.6
Austria	Europe	1876	1964	88	1.5
Belgium	Europe	1854	1961	107	1.2
Denmark	Europe	1872	1953	81	1.6
Finland	Europe	1922	1964	42	3.1
France	Europe	1874	1960	86	1.4
Germany	Europe	1874	1960	86	1.5
Greece***	Europe	1924	1972	38	2.7
Hungary****	Europe	1925	2001	73	1.6
Ireland*****	Europe	1913	1975	55	1.6
Italy	Europe	1906	1963	57	2.3
Netherlands	Europe	1827	1955	128	1
Norway	Europe	1907	1961	54	2.5
Poland	Europe	1950	2000	50	2.2
Portugal	Europe	1947	1978	31	4.2
Spain	Europe	1913	1973	60	2.2
Sweden	Europe	1896	1954	58	2.2
Switzerland	Europe	1868	1945	77	1.8
United Kingdom	Europe	1845	1953	108	1.2
Argentina******	LAC	1890	1970	71	1.5
Chile	LAC	1891	1992	101	1.3
Colombia	LAC	1946	2013	67	1.9
Mexico	LAC	1942	2004	62	2.1
Panama	LAC	1945	2011	66	2
Uruguay	LAC	1870	1994	124	1
Venezuela	LAC	1925	1948	23	5.7
Israel*	MENA	1950	1969	19	5.5
Saudi Arabia*	MENA	1950	1970	20	6.3
Syrian Arab Republic*	MENA	1950	1996	46	2.5
Canada	North America	1881	1950	69	1.9
United States*******	North America	1860	1941	72	1.7
Mauritius*	SSA	1950	1991	41	2.8

AP = Asia and the Pacific, GDP = gross domestic product, LAC = Latin America and Caribbean, LM = lower-middle income, MENA = Middle East and North Africa, SSA = Sub-Saharan Africa, UM = upper-middle income.

* For Israel, Mauritius, and Saudi Arabia, 1950 is the first year for which data are available in the Maddison database. For Hong Kong, China; Singapore; and Syrian Arab Republic, data for 1914–1949 is not available. All three economies were low income in 1913, the earliest year before 1950 for which data are available. For the latter three economies, we treat 1950 as the year they turned low-income. It is possible they turned low-income before 1950 but due to lack of data we are unable to determine the exact year.

** New Zealand turned LM in 1860. However, there are no data on GDP per capita for 1861–1870. These 10 years are not counted as part of the time New Zealand was LM from 1860 to 1948.

*** For 10 years from 1941 to 1950, Greece was a low-income economy. We do not consider this period a jump for purposes of adjustment. Therefore, in calculating the time Greece was LM from 1924 to 1971, these 10 years are excluded.

**** Hungary turned LM in 1925. However, there are no data on GDP per capita for 1943–1945. These 3 years are not counted as part of the time Hungary was LM from 1925 to 2000.

***** Ireland turned LM in 1913. However, there are no data on GDP per capita for 1914–1920. These 7 years are not counted as part of the time Ireland was LM from 1913 to 1974.

****** Argentina turned LM in 1890. However, there are no data on GDP per capita for 1891–1899. These 9 years are not counted as part of the time Argentina was LM from 1890 to 1969.

******* The United States turned LM in 1860. However, there are no data on GDP per capita for 1861–1869. These 9 years are not counted as part of the time the US was LM from 1860 to 1940.

Source: Authors.

Table 4. Economies that became lower-middle income after 1950 and graduated to upper-middle income.

Economy	Region	Year the economy turned LM	Year the economy turned UM	Years as LM	Average Growth rate, LM to UM (%)
PRC	AP	1992	2009	17	7.5
Malaysia	AP	1969	1996	27	5.1
Korea, Republic of	AP	1969	1988	19	7.2
Taipei, China	AP	1967	1986	19	7.0
Thailand	AP	1976	2004	28	4.7
Bulgaria	Europe	1953	2006	53	2.5
Turkey	Europe	1955	2005	50	2.6
Costa Rica	LAC	1952	2006	54	2.4
Oman	MENA	1968	2004	36	2.4

AP = Asia and the Pacific, LAC = Latin America and Caribbean, LM = lower-middle income, MENA = Middle East and North Africa, PRC = People's Republic of China, UM = upper-middle income.
Source: Authors.

being the economic leader during the 1700s, was the richest economy during that time until the UK overtook it in the second half of the nineteenth century. Japan (a latecomer with respect to the advanced Western economies) spent 35 years as a lower-middle-income economy.

On the other hand, the time spent as lower-middle income for the nine economies that became lower-middle income after 1950 (Table 4) ranges from 17 years for the PRC to 50 years and above for Bulgaria, Costa Rica, and Turkey. This is significantly lower than the time spent as lower-middle income by most economies that had crossed the lower-middle-income threshold in 1950 or before (Table 3).

Figure 3 uses the information in Tables 3 and 4 for the 45 economies that made the transition from lower-middle income into upper-middle income (see Table A1 for the

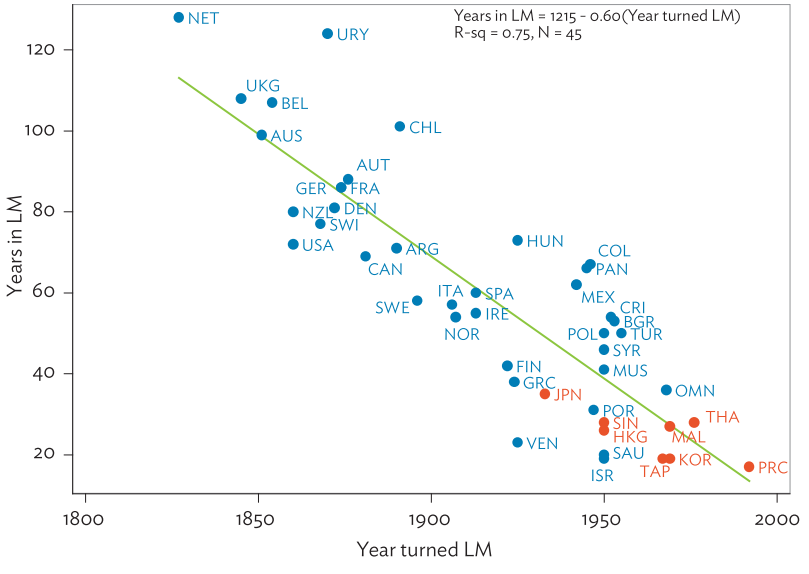

Figure 3. Year an economy turned lower-middle income and number of years it spent as lower-middle income.
LM = lower-middle income, N = sample size, R-sq = R-squared. Notes: The line shown is obtained from the regression of the number of years in LM on year the economy turned LM. The regression result is shown in the figure. Both the constant and the coefficient on "year turned LM" are statistically significant at the 1% level of significance. See Table A1 for the codes of each economy. Source: Authors.

codes of each economy). It shows the regression line between the year an economy entered the lower-middle-income group and the number of years it spent in that group, before graduating into upper-middle income. Clearly, recent transitions have been significantly faster than those in the past. Figure 3 shows a statistically significant and negative relationship between the two variables with a slope of −0.6. Uruguay, Chile, or Hungary are well above the regression line. Hungary, for example, became a lower-middle-income economy in 1925, the same year as Venezuela. However, while it took the former 73 years to cross the lower-middle-income range, Venezuela did it in just 23.

The idea of a middle-income trap was conceived relatively recently by analyzing recent development experiences, not those of the nineteenth century or earlier ones. The median number of years that the economies in Table 3 spent as lower-middle income is 64 years, while the median of the economies in Table 4 is 28 years (Table 5). The latter is clearly driven by the fast transition of the five East and Southeast Asian economies, significantly faster than those of the other economies in Table 3. Only a few economies that made the transition before 1950 (Table 3) match the experience of these Asian economies (e.g., Israel, Portugal, and Venezuela). Table 5 shows that the median and mean of the time taken to traverse from LM to UM post-1950 is influenced by the experience of East and Southeast Asian economies; without the latter, the median increases to 52 years. Since the fast transitions seen post-1950 do not seem to be the norm, we combine all 45 economies that made the transition from lower-middle income into upper-middle income. The median number of years spent in the lower-middle-income group has been 55 years (Table 5). We use this as a guide to separate slow from fast transitions. We will say that an economy is undergoing a slow transition in 2013 if it has spent over 55 years as a lower-middle-income economy, from the year it became an LM economy. With the guide of 55 years at hand, we can estimate the growth rate of per capita GDP that is necessary to transit from $2000 to $7250 in 55 years or less. This is 2.37% (or higher) per annum. Under this criterion, many of today's advanced economies went through slow transitions, although this did not prevent them from becoming high income.

3.2. The transition from upper-middle income into high income

In the second stage, we determine the number of years that economies remained in the upper-middle-income range before moving into high income. There are 30 economies that transitioned from upper-middle income into high income (recall that Kuwait, Qatar, the United Arab Emirates were high income in 1950). These are again split into two groups: (i) the 5 economies that made the transition from upper-middle income into high

Table 5. Lower middle-income: threshold number of years to separate fast from slow transitions.

	Economies that became LM after 1950 and then became UM		Economies that became LM in or before 1950 and then became UM		All economies	
Set of economies	Median	Mean	Median	Mean	Median	Mean
With East and Southeast Asia	28	34	64	65	55	58
Without East and Southeast Asia	52	48	67	68	62	66

LM = lower-middle income, UM = upper-middle income.
Note: Entry in each cell is the number of years.
Source: Authors.

Table 6. Economies that became upper-middle income in 1950 or before and graduated to high income.

Economy	Region	Year the economy turned UM	Year the economy turned H	Years as UM	Average growth Rate (%)
Australia	AP	1950	1970	20	2.4
New Zealand	AP	1949	1972	23	2.0
Switzerland	Europe	1945	1959	14	3.1
Canada	North America	1950	1969	19	2.6
United States	North America	1941	1962	21	1.8

AP = Asia and the Pacific, H = high income, UM = upper-middle income.
Source: Authors.

income in 1950 or before (Table 6); and (ii) the 25 economies that made the transition from upper-middle income into high income after 1950 (Table 7).

Looking at the list of economies in Table 6, the number of years spent as upper-middle income ranges from 14 years for Switzerland to 23 years for New Zealand. On the other hand, the time spent as upper-middle income for the economies in Table 7 ranges from a decade or less for the Asian economies to 41 years for Argentina. The difference between the maximum number of years spent as upper-middle-income economy before graduating to high income between these two groups is smaller than in the case of transition from lower-middle income to upper-middle income (compare with Table 3 and Table 4). Note that more than half of the economies in Table 7 are European, and five are Asian.

As above, we use the information on the 30 economies in Tables 6 and 7, and regress the year an economy entered the upper-middle income and the number of years it spent

Table 7. Economies that became upper-middle income after 1950 and graduated to high income.

Economy	Region	Year the economy turned UM	Year the economy turned H	Years as UM	Average Growth rate (%)
Hong Kong, China	AP	1976	1983	7	5.9
Japan	AP	1968	1977	9	4.7
Korea, Republic of	AP	1988	1995	7	6.5
Singapore	AP	1978	1988	10	5.1
Taipei, China	AP	1986	1993	7	6.9
Austria	Europe	1964	1976	12	4.1
Belgium	Europe	1961	1973	12	4.4
Denmark	Europe	1953	1968	15	3.3
Finland	Europe	1964	1979	15	3.6
France	Europe	1960	1971	11	4.4
Germany	Europe	1960	1973	13	3.4
Greece	Europe	1972	2000	28	1.8
Ireland	Europe	1975	1990	15	3.2
Italy	Europe	1963	1978	15	3.4
Netherlands	Europe	1955	1970	15	3.3
Norway	Europe	1961	1975	14	3.5
Portugal	Europe	1978	1996	18	2.8
Spain	Europe	1973	1990	17	2.7
Sweden	Europe	1954	1968	14	3.6
United Kingdom	Europe	1953	1973	20	2.5
Argentina	LAC	1970	2011	41	1.2
Chile	LAC	1992	2005	13	3.7
Uruguay	LAC	1994	2012	18	2.6
Israel	MENA	1969	1986	17	2.6
Mauritius	SSA	1991	2003	12	4.0

AP = Asia and the Pacific, H = high income, LAC = Latin America and Caribbean, MENA = Middle East and North Africa, SSA = Sub-Saharan Africa, UM = upper-middle income.
Source: Authors.

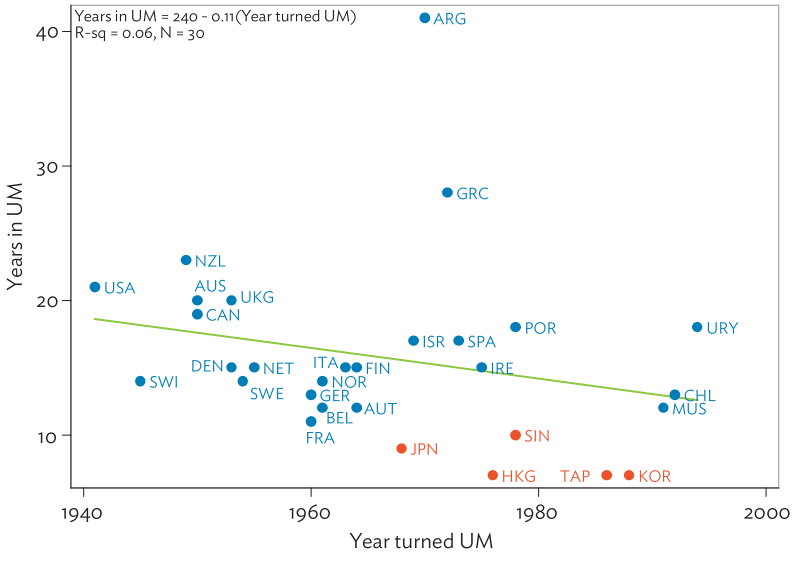

Figure 4. Year an economy turned upper-middle income and number of years it spent as upper-middle income.
N = sample size, R-sq = R-squared, UM = upper-middle income. Note: The line shown is obtained from the regression of the number of years in UM on the year the economy turned UM. The regression result is shown in the figure. The constant and the coefficient on "year turned UM" are statistically significant at the 5% and 10% level of significance, respectively. See Table A1 for the codes of each economy. Source: Authors.

in that group, before graduating into high income. Recent transitions have also been faster than those in the past. Figure 4 shows a statistically significant and negative relationship between the two variables with a slope of −0.11. Argentina and Greece appear to be well above the regression line, indicating that they spent many more years in the upper-middle income segment than other countries that also became high income; and also many more years than expected given when they turned upper-middle income (the predicted line indicates that they should have spent less than 20 years, about the same as Israel, Spain, Portugal or Ireland).

Table 8 provides the summary information to separate fast transitions from UM to H from the slow ones. The median of all 30 economies is 15 years. Therefore, we will say that an economy is undergoing a slow transition as of 2013 if it has spent over 15 years as an upper-middle-income economy, from the time it became a UM economy. With this at hand, we can estimate the growth rate of per capita GDP that is necessary to avoid a slow transition from UM to H, that is, to transit from $7250 to $11,750 in 15 years or less. This

Table 8. Upper middle-income: threshold number of years to separate fast from slow transitions.

	Economies that became UM after 1950 and then became H		Economies that became UM in or before 1950 and then became H		All economies	
Set of economies	Median	Mean	Median	Mean	Median	Mean
With East and Southeast Asia	14	15			15	16
Without East and Southeast Asia	15	17	20	19	15	17

H = high income, UM = upper-middle income.
Note: Entry in each cell is the number of years.
Source: Authors.

is, at least, 3.27% per annum. In this case, and as noted above, only Greece and especially Argentina spent a very long time as upper-middle-income economies.

4. Middle-income transitions today

The definitions in Section 3 of slow/fast transitions from LM to UM and from UM to H allow us to identify the economies that in 2013 were in what we refer to as slow or fast transitions. Based on our income classification, there were 54 middle-income economies in 2013, 39 lower-middle income and 15 upper-middle income.[23]

Table 9 shows the 10 economies that as of 2013 were making the transition from LM to UM relatively slowly, compared to the historical benchmark of 55 years identified above. This means that they have been in this income segment for over 55 years; or, stated in terms of GDP per capita growth rate, they grew below 2.37% per annum since the year they became lower-middle income. All 10 economies belong to Latin America, Middle East and North Africa, and Sub-Saharan Africa. Guatemala has been a lower-middle-income economy the longest, 78 years. The table also provides, just for reference, an estimate of the time it will take them to become upper-middle-income economies by assuming they continue growing at the same rate as during 2003–2013.

Table 10 shows the four economies that as of 2013 were experiencing slow transitions from UM to H based on the historical benchmark identified above. Venezuela has been the longest, 66 years (however, its transition of the lower-middle-income segment was very fast, 23 years). The table also provides the estimated growth rate to become high income under the assumption that GDP per capita growth is the same as during 2003–2013.[24]

Table 9. Economies undergoing slow lower-middle income transitions as of 2013.

Economy	Region	2013 GDP per capita (1990 PPP $)	Year the economy turned LM	Years as LM until 2013	Average growth Rate (%) since turning LM*	Number of years to reach $7250**
Brazil	LAC	6917	1958	56	2.14	2
Ecuador	LAC	4498	1954	60	1.27	17
Guatemala	LAC	4627	1936	78	0.90	30
Jamaica	LAC	3406	1955	59	0.89	-***
Peru	LAC	6385	1946	68	1.72	3
Jordan	MENA	6339	1956	58	1.89	4
Lebanon****	MENA	5091	1950	64	1.16	11
Gabon****	SSA	4428	1950	64	0.55	29
Namibia****	SSA	5286	1950	64	1.41	9
South Africa****	SSA	5328	1950	64	1.17	12

GDP = gross domestic product, LAC = Latin America and Caribbean, LM = lower-middle income, MENA = Middle East and North Africa, PPP = purchasing power parity, SSA = Sub-Saharan Africa, UM = upper-middle income.

*This column shows the average GDP per capita growth rate from the time an economy turned lower-middle income until 2013. Therefore, growth rates are calculated over different durations for each economy. These durations are shown in the previous column. These growth rates are, naturally, less than 2.37%.

**Number of years to reach $7250 is calculated as $[\ln(7250/gdppc_{2013}) / \ln(1 + grGDPpc_{2003\text{-}2013})]$ where $gdppc_{2013}$ is the GDP per capita in 1990 PPP $ in 2013 and $grGDPpc_{2003\text{-}2013}$ is the average growth rate of GDP per capita during 2003–2013.

***Jamaica's GDP per capita growth during 2003–2013 was negative. As a result, the expected time taken to reach $7250 cannot be calculated based on the ten-year growth rate.

****Data for these economies are only available since 1950. It is possible that they may have been in LM longer, in which case growth since turning LM would be lower.

Source: Authors.

Table 10. Economies undergoing slow upper-middle income transitions as of 2013.

Economy	Region	2013 GDP per capita (1990 PPP $)	Year economy turned LM	Years as LM	Year economy turned UM	Years as UM until 2013	Average growth rate (%) since turning UM*	Number of years to reach $11,750**
Malaysia	AP	11,654	1969	27	1996	18	2.29	<1
Venezuela	LAC	10,414	1925	23	1948	66	0.52	3
Saudi Arabia***	MENA	10,090	1950	20	1970	35****	0.64	5
Syrian Arab Republic***	MENA	8947	1950	46	1996	18	1.00	17

AP = Asia and the Pacific, GDP = gross domestic product, H = high income, LAC = Latin America and Caribbean, LM = lower-middle income, MENA = Middle East and North Africa, PPP = purchasing power parity, UM = upper-middle income.

* This column shows the average GDP per capita growth rate from the time an economy turned upper-middle income until 2013. Thus, growth rates are calculated over different durations for each economy. These durations are shown in the previous column. These growth rates are, naturally, less than 3.27%.

** Number of years to reach $11,750 is calculated as $[\ln(11750/gdppc_{2013}) / \ln(1 + grGDPpc_{2003\text{-}2013})]$ where $gdppc_{2013}$ is the GDP per capita in 1990 PPP $ in 2013 and $grGDPpc_{2003\text{-}2013}$ is the average growth rate of GDP per capita during 2003–2013.

*** Data for these economies are only available since 1950. It is possible that they may have been in LM for a longer time.

**** Saudi Arabia was a high-income economy during 1974-1982. These 9 years are not considered as a jump and therefore not adjusted. In calculating the time Saudi Arabia was UM since 1970 these 9 years have been excluded. The growth rate of GDP per capita since turning UM is over 35 years. The growth rate of GDP per capita during 1970-2013 is 0.64% per annum.

Source: Authors.

Tables 11 and 12 show the 29 lower-middle-income and the 11 upper-middle-income economies that, as of 2013, were not having slow transitions and may be able to make it to the next income category in fewer years than the historical benchmark identified for transition from LM to UM (55 years) and from UM to H (15 years). Given the number of years they have been lower-middle-income economies and their recent growth performance, we can speculate about the economies that are at risk of making a slow transition from LM to UM. Table 11 shows that there are economies whose growth rates during 2003–2013 (shown in previous to last column) were below those required to reach $7250 (shown in last column) within the number of years remaining before falling into a slow transition (shown in third column from last), e.g., Libya, Romania, Algeria, El Salvador, or Swaziland. If these economies want to transition into upper-middle income within the historical median of 55 years, they should implement policies to accelerate growth.

Table 12 shows the average growth rate needed to avoid a slow transition from UM to H, assuming the average growth seen during 2003–2013 prevails. It indicates that economies, such as Costa Rica, Hungary, Mexico, Oman, and Turkey, may experience a slow transition. Thailand and Bulgaria may avoid the slow transition and the rest are likely to make it from UM to H in accordance to historical experience.

Finally, Table 13 shows the number of years corresponding to the complete transition time for the 30 economies that made it from lower-middle income into upper-middle income, and from the latter into high income, since 1950. The table indicates that it takes 8 decades.[25] We stress that the transitions of the East and Southeast Asian economies, about 3 decades, much shorter than the average, cannot be taken to be the norm. Out of the 30 economies, only nine made the full transition within the historical benchmarks from LM to UM (55 years) and from UM to H (15 years): Japan, the four Asian newly industrialized economies (NIEs), Finland, Ireland, Mauritius, and Norway. The Republic of Korea and Taipei, China hold the record – shortest time: they did it in 26 years. At the

Table 11. Economies not undergoing slow lower-middle income transitions as of 2013.

Economy	Region	2013 GDP per capita (1990 PPP $)	Year economy turned LM	Years in LM until 2013	Years before falling into a slow transition*	Average growth rate (%) 2003–2013	Average GDP per capita growth to reach $7250**
Cambodia	AP	2969	2006	8	47	6.1	2.0
India	AP	3834	2002	12	43	6	1.5
Indonesia	AP	5548	1986	28	27	4.5	1.0
Lao PDR	AP	2220	2012	2	53	5.3	2.3
Myanmar	AP	4323	2004	10	45	8.5	1.2
Pakistan	AP	2386	2005	9	46	2.5	2.4
Philippines	AP	3429	1975	39	16	3.3	4.8
Sri Lanka	AP	6431	1983	31	24	5.5	0.5
Viet Nam	AP	3711	2002	12	43	5.6	1.6
Albania	Europe	4695	1970	44	11	4.0	4.0
Romania	Europe	4810	1962	52	3	3.2	14.7
Bolivia	LAC	3408	1968	46	9	2.8	8.7
Dominican Republic	LAC	5153	1973	41	14	3.2	2.5
El Salvador	LAC	2972	1964	50	5	0.8	19.5
Honduras	LAC	2357	2004	10	45	1.9	2.5
Paraguay	LAC	3789	1973	41	14	2.5	4.7
Algeria	MENA	3682	1972	42	13	1.6	5.4
Egypt	MENA	3935	1980	34	21	2.6	3.0
Iran	MENA	7153	1959	55	0	6.0	<1.0
Libya	MENA	2162	1962	52	3	-1.2	49.7
Morocco	MENA	4041	1977	37	18	3.3	3.3
Tunisia	MENA	6451	1972	42	13	2.7	0.9
Yemen, Republic	MENA	2501	1976	38	17	-0.6	6.5
Botswana	SSA	5155	1983	31	24	1.5	1.4
Congo, Republic	SSA	2502	1979	35	20	2.2	5.5
Ghana	SSA	2222	2012	2	53	5.1	2.3
Lesotho	SSA	2470	2009	5	50	4.5	2.2
Mozambique	SSA	2699	2007	7	48	5.1	2.1
Swaziland	SSA	3027	1970	44	11	1.0	8.3

AP = Asia and the Pacific, GDP = gross domestic product, LAC = Latin America and Caribbean, Lao PDR = Lao People's Democratic Republic, LM = lower-middle income, MENA = Middle East and North Africa, PPP = purchasing power parity, SSA = Sub-Saharan Africa, UM = upper-middle income.

* Calculated as 55 *minus* the number of years in LM until 2013 as shown in the fifth column.

** Calculated as ((7250/$gdppc_{2013}$)^(1/(55 *minus* the number of years in LM until 2013))-1)*100 where $gdppc_{2013}$ is the GDP per capita in 1990 PPP $ in 2013 and years in LM until 2013 is as shown in the fifth column.

Source: Authors' calculations.

Table 12. Economies not undergoing slow upper-middle income transitions as of 2013.

Economy	Region	2013 GDP per capita (1990 PPP $)	Year economy turned LM	Years in LM	Year economy turned UM	Years in UM until 2013	Years before falling into a slow transition*	Average growth rate (%) 2003–2013	Average GDP per capita growth to reach $11,750**
PRC	AP	10,018	1992	17	2009	5	10	7.6	1.6
Thailand	AP	9962	1976	28	2004	10	5	3.3	3.4
Bulgaria	Europe	9046	1953	53	2006	8	7	3.7	3.8
Hungary***	Europe	9033	1925	73	2001	13	2	1.1	14.1
Poland	Europe	11,590	1950	50	2000	14	1	4.0	1.4
Turkey	Europe	8980	1955	50	2005	9	6	3.3	4.6
Colombia	LAC	7257	1946	67	2013	1	14	3.3	3.5
Costa Rica	LAC	8571	1952	54	2006	8	7	2.8	4.6
Mexico	LAC	8181	1942	62	2004	10	5	1.3	7.5
Panama	LAC	8986	1945	66	2011	3	12	4.6	2.3
Oman	MENA	9475	1968	36	2004	10	5	2.8	4.4

AP = Asia and the Pacific, GDP = gross domestic product, H = high income, LAC = Latin America and Caribbean, LM = lower-middle income, MENA = Middle East and North Africa, PPP = purchasing power parity, PRC = People's Republic of China, UM = upper-middle income.

* Calculated as 15 *minus* the number of years in UM until 2013 as shown in the seventh column.

** Calculated as ((11,750/$gdppc_{2013}$)^(1/(15 *minus* the number of years in UM until 2013))-1)*100 where $gdppc_{2013}$ is the GDP per capita in 1990 PPP $ in 2013 and years in UM until 2013 is as shown in the seventh column.

*** Hungary turned LM in 1925. However, there are no data on GDP per capita for 1943–1945. These 3 years are not counted as part of the time Hungary was LM from 1925 to 2000.

Source: Authors' calculations.

Table 13. Total number of years spent to go from lower-middle-income to high income since 1950.

	All economies	Only East and Southeast Asia	Without East and Southeast Asia
Median	83	33	93
Mean	81	33	91

Note: Entries in each cell show the number of years it took to become high income from the time an economy turned lower-middle income. Median and mean for all economies are based on the 30 economies that in our data set made the entire transition from LM to H. Mean and median of only East and Southeast Asia are based on five economies: Hong Kong, China; Japan; the Republic of Korea; Singapore; and Taipei, China. The mean and median in the last column is based on all 30 economies, excluding the five East and Southeast Asian economies.
Source: Authors' calculations.

other extreme, there are eight economies that made the full transition but it took them over 55 years to go from LM to UM, and over 15 years to go from UM to H: Spain, the UK, Argentina, Uruguay, Australia, New Zealand, Canada, and the US. Some of them spent over 100 years in the middle-income segment. Uruguay holds the record – longest time: 142 years in total.

5. Conclusions: What are we to make of the term middle-income trap?

The widely discussed phenomenon of the middle-income trap is problematic because it has not been defined and because it has not been studied theoretically. It is also problematic because the idea of a trap implies that economies are stuck, which is not what we find. All this makes discussions of this concept challenging, to say the least, and somewhat unsubstantiated for policy analysis.

The idea of a middle-income trap has become popular as a way to compare the performance of a small group of East Asian economies with the Latin American economies. The evidence shows that during the last decades, the former grew faster and, consequently, transitioned across income groups also faster. The historical evidence presented in this paper, however, indicates that economies move up across income groups. While it is true that the East Asian economies moved up very fast in recent decades, their unique experience cannot be taken as a benchmark to separate slow from fast transitions, and to argue that economies that do not grow as fast are stuck in the middle-income trap. Indeed, analyzing a large sample of economies over many decades shows that experiences are wide, including that of many economies that today are high income but that spent many decades traversing the middle-income segment.

For these reasons, in this paper we have chosen to focus on slow versus relatively fast middle-income transitions. To do so, we first constructed income thresholds to classify 124 economies into various income categories. Then we examined the actual time taken by these economies to traverse from LM ($2000 in 1990 PPP $) to UM ($7250 in 1990 PPP $) and from UM to H ($11,750 in 1990 PPP $), since 1950. We find that, historically, the median number of years to traverse the lower-middle-income segment has been 55, and the median number of years to traverse the upper-middle-income segment has been 15.[26] These thresholds indicate that as of 2013, only a handful of economies could be said to be undergoing slow transitions. As a consequence, we reject the existence of a middle-income trap as a generalized phenomenon. These two thresholds also allow us to calculate the minimum GDP per capita growth rate that economies need to achieve in order to traverse each income segment within the benchmark time: 2.37% per annum for lower-middle income, and 3.27% per annum for upper-middle income. This latter point makes it

clear that the problem of fast versus slow transitions is *simply* a question of growth. Surely different countries make the income transitions at different speeds and there are reasons that explain this, e.g., that some countries achieve a certain threshold industrialization in employment (Felipe, Mehta and Rhee 2014).[27] Stated in these terms, these question(s) can be framed in the familiar terms of standard growth discussions, i.e., why do some economies grow faster than others?; and use standard growth theory to discuss why some economies have slow transitions, without the need to appeal to a poorly-defined concept.

Notes

1. In an earlier version of the paper, Eichengreen, Park, and Shin (2013) report the existence of only a single node around $15,000–$16,000 at which slowdowns occur.
2. In this paper, we update and extend the results presented in a previous working paper by Felipe, Abdon and Kumar (2012). Specifically, we (i) extend the data coverage until 2013, (ii) revise the income classification of economies to smooth out the fluctuations in the income categories, and (iii) revise the criteria used in the earlier paper to determine whether an economy is 'trapped' or not.
3. http://econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20487070~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html
4. http://siteresources.worldbank.org/DATASTATISTICS/Resources/OGHIST.xls
5. http://www.ggdc.net/maddison/oriindex.htm
6. These economies are as follows: (i) populations below 1 million people in 2012: Bahrain, Comoros, Cape Verde, Djibouti, Equatorial Guinea, Sao Tome and Principe, and Seychelles. Bahrain's population is more than 1 million today but was excluded as its population has exceeded 1 million since 2007 only. Pacific islands are not included in the Maddison data. Also, all these islands, except Papua New Guinea, have very small populations; (ii) economies of the former Soviet Union (15), the former Yugoslavia (5), and the former Czechoslovakia (2), for which data is not complete for 1950–2008; and (iii) Cuba, Democratic Republic of Korea, Puerto Rico, Somalia, and West Bank and Gaza whose GDP per capita estimates are not reported by the IMF database. In addition, we continue to leave out Trinidad and Tobago which was dropped from the data used for the previous version of this paper.
7. ttps://www.conference-board.org/retrievefile.cfm?filename=flatall21.txt&type=subsite
8. http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx
9. For the 124 economies with consistent data since 1950, we calculated annual growth rates. This resulted in 7,812 (124*63) annual growth rates. Of these 7,812 growth rates, 75 were higher than 20% (positive or negative). Most of these 75 observations are either resource-rich economies or economies in Sub-Saharan Africa. The other cases are Afghanistan, Albania, and Bulgaria. Three observations that stand out are the Republic of Korea's growth rate in 1953, and Cambodia's growth rates in 1973 and 2004. We take the Maddison data as it is for all these observations, except for Cambodia in 2004. The growth rate for Cambodia, based on the original Maddison date, in 2004 is estimated at 41.1%, which seemed implausible. For Cambodia, from 1990 to 2010, we use data from the revision of Maddison's data set under the "New Maddison Project Database" available at http://www.ggdc.net/maddison/maddison-project/data.htm. We do not update any other historical data, i.e., use the original Maddison data set.
10. 'The process of setting per capita income thresholds started with finding a stable relationship between a summary measure of wellbeing such as poverty incidence and infant mortality on the one hand and economic variables including per capita GNI estimated based on the Bank's Atlas method on the other. Based on such a relationship and the annual availability of Bank's resources, the original per capita income thresholds were established.' Source: World Bank (http://econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:

20487070~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html).

11. The year the original threshold was established is not explicitly identified in the World Bank website (see previous footnote).
12. http://econ.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20487070~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html.
13. To decide the range of t_0, t_1, and t_2, income categories of the economies in the Maddison data for 1990 were identified according to the World Bank's income classification in 1990. The mean and standard deviation of GDP per capita (as reported in the Maddison data) for each of the four income groups was then obtained. To obtain the bounds within which to vary t_0, t_1, and t_2, the mean plus one standard deviation (rounded off) of GDP per capita of each group was used as the lower bound for each group. The mean plus one standard deviation for the low income, lower-middle income, upper-middle income, and high income are $1,542; $5,011; $9,104; and $19,642, respectively. This gives $1,500 as the lower bound for t_0, $5,000 as the lower bound for t_1, and $9,000 as the lower bound for t_2. The upper bounds of each group are $250 below the lower bound of the next threshold with the exception of the upper bound for t_2 which is assumed to be $20,000 based on the mean plus one standard deviation of GDP per capita of upper-middle-income group in 1990 of $19,642.
14. The polychoric correlation provides a measure of the degree of agreement between two raters (here, the World Bank and the present study) over a continuous variable (income) that has been transformed into ordered levels (several income levels). Ekstrom (2010) argues that the polychoric correlation is a better measure of the association of the underlying continuous variables if the ordinal variables arise from groupings of values into categories.
15. The use of these constant thresholds is, in principle, equivalent to what the World Bank does. As discussed above, the World Bank's thresholds are inflation-adjusted and, therefore, remain constant in real terms.
16. For example, Angola was classified as lower-middle income and Egypt as low income in 1990 under the World Bank classification. The GDP per capita of Angola in the same year, according to Maddison's estimates in 1990 PPP $, was $868, and that of Egypt was $2,523. This makes Angola a low-income economy and Egypt a lower-middle-income economy in 1990 based on the thresholds defined in this paper.
17. Scatter plots showing the income categories before and after the adjustments are available upon request from the authors.
18. Only the United Arab Emirates (UAE) has remained high income for the entire period 1950–2013. After taking into account adjustments to the income groups (Appendix A), Kuwait fell back into the upper-middle-income category in 1981 and regained high-income status in 2005. Qatar fell upper-middle income in 1985 and regained high-income status in 2005. Though Kuwait, Qatar, and UAE had higher per capita incomes than all Western economies in 1950, today (as measured in 1990 PPP $) most Western economies have higher per capita incomes.
19. Note that many of these economies were in fact colonies during the 1950s and 1960s.
20. Some economies transitioned from low income to middle income during 1950–1980, and others transitioned from middle income to high income, over the same period. The net increase in the number of economies in the middle-income group is 13 (54–41).
21. We do so because data is complete for all economies after 1950, but not before 1950.
22. In the case of economies for which data begins in 1950, the number of years spent in any income group might be an underestimate. Israel, for example, may have turned lower-middle income before 1950, and therefore 19 years as lower-middle income may be an underestimate.
23. As noted above, the paper does not use for the analysis the 22 economies of the former Soviet Union, former Yugoslavia, and former Czechoslovakia. However, the income classifications based on the income thresholds identified are provided in Table A2.
24. These results imply that Malaysia should graduate and become a high-income economy in 2014–2015.

25. The reported median in Table 13 is not the sum of the median of the transitions from LM into UM, and then from UM into H, shown earlier in Tables 5 and 8. Rather, this is the median number of years that it took the 30 economies in our data set that transitioned from LM into H.
26. It is important to note that our criteria will have to be revised as more countries transit the middle-income segment.
27. Felipe et al. (2014) find that all of today's rich nonoil economies enjoyed at least 18% manufacturing employment shares in the past, and often did so before becoming rich. High manufacturing output shares are not as important.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix A:. Adjustments to income classifications

1. Albania's income classification for 1991–1994 was adjusted from L to LM.
2. Algeria's income classification for 1960, 1969, and 1970 was adjusted from LM to L.
3. Argentina's income classification for 1982, 1985–1986, 1988–1991, and 2002 was adjusted from LM to UM.
4. Australia's income classification for 1848 and 1849 was adjusted from LM to L and for 1942–1944 its income classification was adjusted from UM to LM.
5. Austria's income classification for 1945 and 1946 was adjusted from L to LM.
6. Bolivia's income classification for 1951 and 1952 was adjusted from LM to L.
7. Canada's income classification for 1943 and 1944 was adjusted from UM to LM.
8. Chile's income classification for 1932 was adjusted from L to LM.
9. The Republic of Congo's income classification for 1974–1976 was adjusted from LM to L and its income classification for 1999 and 2001 was adjusted from L to LM.
10. Costa Rica's income classification for 1947–1949 was adjusted from LM to L.
11. Cote D'Ivoire's income classification for 1978, 1980, and 1981 was adjusted from LM to L.
12. Denmark's income classification for 1870 was adjusted from LM to L.
13. Ecuador's income classification for 1952 was adjusted from LM to L.
14. Finland's income classification for 1912–1914 was adjusted from LM to L.

15. France's income classification for 1869 and 1872 was adjusted from LM to L, and for 1879 its income classification was adjusted from L to LM.
16. Gabon's income classification for 1973–1975 and 1977 was adjusted from UM to LM, and its income classification for 1976 was adjusted from H to LM.
17. Germany's income classification for 1880 was adjusted from L to LM.
18. Guatemala's income classification for 1943–1945, 1947–1948, and 1955 was adjusted from L to LM.
19. Honduras' income classification for 1978–1981 was adjusted from LM to L.
20. Hungary's income classification for 1910 and 1913 was adjusted from LM to L and for years 1946 and 1947 its income classification was adjusted from L to LM.
21. Iran's income classification for 2010–2012 was adjusted from UM to LM.
22. Italy's income classification for 1945 was adjusted from L to LM.
23. Japan's income classification for 1929 was adjusted from LM to L, and its income classification for 1945–1950 was adjusted from L to LM.
24. Kuwait's income classification for 1990 was adjusted from LM to UM. Its income classification for 1993–1995 was adjusted from H to UM. Finally, its income classification for 2009–2011 was adjusted from UM to H.
25. Lebanon's income classification for 1988–1990 was adjusted from L to LM.
26. Libya's income classification for 1968–1971 and 1979–1980 was adjusted from UM to LM. Its income classification for 2011 was also adjusted from L to LM.
27. Mexico's income classification for 2000 was adjusted from UM to LM.
28. New Zealand's income classification for 1947 was adjusted from UM to LM.
29. The Netherlands' income classification for 1700 was adjusted from LM to L and from L to LM for 1831.
30. Nicaragua's income classification for 1960 was adjusted from L to LM.
31. Oman's income classification for 1997, 2001, and 2002 was adjusted from UM to LM.
32. Panama's income classification for 1950–1954 was adjusted from L to LM.
33. Poland's income classification for 1929 and 1938 was adjusted from LM to L.
34. The Philippines' income classification for 1985–1986 was adjusted from L to LM.
35. Qatar's income classification for 1991 and 1993–1995 was adjusted from LM to UM.
36. Spain's income classification for 1911 was adjusted from LM to L. Its income classification for 1936–1939 was also adjusted from L to LM.
37. Switzerland's income classification for 1858, 1859, and 1865 was adjusted from LM to L.
38. Turkey's income classification for 1953 was adjusted from LM to L.
39. The United Kingdom's income classification for 1839 was adjusted from LM to L and for 1941–1944 was adjusted from UM to LM.
40. The United States' income classification for 1944 was adjusted from H to UM.
41. Uruguay's income classification for 1875, 1879, and 1881 was adjusted from L to LM, and its income classification for 2002 and 2003 was adjusted from LM to UM.
42. Venezuela's income classification for 2003 was adjusted from LM to UM.

H = high income, L = low income, LM = lower-middle income, UM = upper-middle income. Source: Authors.

Table A1. List of codes for each economy.

Code	Economy	Region	Code	Economy	Region
AFG	Afghanistan	AP	GRC	Greece	Europe
AGO	Angola	SSA	GTM	Guatemala	LAC
ALB	Albania	Europe	HKG	Hong Kong, China	AP
ARE	United Arab Emirates	MENA	HND	Honduras	LAC
ARG	Argentina	LAC	HTI	Haiti	LAC
AUS	Australia	AP	HUN	Hungary	Europe
AUT	Austria	Europe	IND	India	AP
BAN	Bangladesh	AP	INO	Indonesia	AP
BDI	Burundi	SSA	IRE	Ireland	Europe
BEL	Belgium	Europe	IRN	Iran	MENA
BEN	Benin	SSA	IRQ	Iraq	MENA
BFA	Burkina Faso	SSA	ISR	Israel	MENA
BGR	Bulgaria	Europe	ITA	Italy	Europe
BOL	Bolivia	LAC	JAM	Jamaica	LAC
BRA	Brazil	LAC	JOR	Jordan	MENA
BWA	Botswana	SSA	JPN	Japan	AP
CAF	Central African Republic	SSA	KEN	Kenya	SSA
CAM	Cambodia	AP	KOR	Korea, Republic of	AP
CAN	Canada	North America	KWT	Kuwait	MENA
CHL	Chile	LAC	LAO	Lao PDR	AP
CIV	Cote d'Ivoire	SSA	LBN	Lebanon	MENA
CMR	Cameroon	SSA	LBR	Liberia	SSA
COG	Congo, Republic	SSA	LBY	Libya	MENA
COL	Colombia	LAC	LSO	Lesotho	SSA
CRI	Costa Rica	LAC	MAL	Malaysia	AP
DEN	Denmark	Europe	MAR	Morocco	MENA
DOM	Dominican Republic	LAC	MDG	Madagascar	SSA
DZA	Algeria	MENA	MEX	Mexico	LAC
ECU	Ecuador	LAC	MLI	Mali	SSA
EGY	Egypt	MENA	MON	Mongolia	AP
ERI	Eritrea	SSA	MOZ	Mozambique	SSA
FIN	Finland	Europe	MRT	Mauritania	SSA
FRA	France	Europe	MUS	Mauritius	SSA
GAB	Gabon	SSA	MWI	Malawi	SSA
GER	Germany	Europe	MYA	Myanmar	AP
GHA	Ghana	SSA	NAM	Namibia	SSA
GIN	Guinea	SSA	NEP	Nepal	AP
GMB	Gambia	SSA	NER	Niger	SSA
GNB	Guinea Bissau	SSA	NET	Netherlands	Europe
Code	Economy	Region	Code	Economy	Region
NGA	Nigeria	SSA	SRI	Sri Lanka	AP
NIC	Nicaragua	LAC	SWE	Sweden	Europe
NOR	Norway	Europe	SWI	Switzerland	Europe
NZL	New Zealand	AP	SWZ	Swaziland	SSA
OMN	Oman	MENA	SYR	Syrian Arab Republic	MENA
PAK	Pakistan	AP	TAP	Taipei,China	AP
PAN	Panama	LAC	TCD	Chad	SSA
PER	Peru	LAC	TGO	Togo	SSA
PHI	Philippines	AP	THA	Thailand	AP
POL	Poland	Europe	TUN	Tunisia	MENA
POR	Portugal	Europe	TUR	Turkey	Europe
PRC	China, People's Republic of	AP	TZA	Tanzania	SSA
PRY	Paraguay	LAC	UGA	Uganda	SSA
QAT	Qatar	MENA	UKG	United Kingdom	Europe
ROU	Romania	Europe	URY	Uruguay	LAC
RWA	Rwanda	SSA	USA	United States	North America
SAU	Saudi Arabia	MENA	VEN	Venezuela	LAC
SDN	Sudan	SSA	VIE	Viet Nam	AP
SEN	Senegal	SSA	YEM	Yemen, Republic	MENA
SIN	Singapore	AP	ZAF	South Africa	SSA
SLE	Sierra Leone	SSA	ZAR	Congo, Democratic Republic	SSA
SLV	El Salvador	LAC	ZMB	Zambia	SSA
SPA	Spain	Europe	ZWE	Zimbabwe	SSA

AP = Asia and the Pacific, LAC = Latin America and Caribbean, MENA = Middle East and North Africa, SSA = Sub-Saharan Africa. Sources: ADB and the World Bank.

Table A2 . Income classification of economies of the former Soviet Union, former Yugoslavia, and former Czechoslovakia.

Economy	Income classification in 2013	Number of years in			
		L	LM	UM	H
Former Soviet Union					
Armenia	H	–	14	9	1
Azerbaijan	UM	–	17	7	–
Belarus	H	–	13	5	6
Estonia	H	–	-	11	13
Georgia	LM	–	24	–	–
Kazakhstan	H	–	13	7	4
Kyrgyz Republic	LM	–	24	–	–
Latvia	H	–	10	5	9
Lithuania	UM	–	12	12	–
Moldova	LM	–	24	–	–
Russian Federation	UM	–	15	9	–
Tajikistan	L	24	–	–	–
Turkmenistan	LM	–	24	–	–
Ukraine	LM	–	24	–	–
Uzbekistan	UM	–	23	1	–
Former Yugoslavia					
Bosnia and Herzegovina	LM	–	24	–	–
Croatia	UM	–	14	10	–
Macedonia, Former Yugoslav Republic of	LM	–	24	–	–
Serbia and Montenegro	LM	–	24	–	–
Slovenia	H	–	–	9	15
Former Czechoslovakia					
Czech Republic	H	–	–	16	8
Slovak Republic	H	–	6	11	7

L = low income, LM = lower-middle income, UM = upper-middle income, H = high income.

Notes: The following adjustments to income classifications were made in the case of the above listed 22 economies: (i) Azerbaijan's income classification for the years 1995–1997 was adjusted from L to LM; (ii) Bosnia and Herzegovina's income classification for the years 1993 and 1994 was adjusted from L to LM, and for the year 2008 was adjusted from UM to LM; (iii) Croatia's income classification for the year 1990 was adjusted from UM to LM; (iv) Georgia's income classification for the year 1990 was adjusted from UM to LM; (v) Kazakhstan's income classification for the year 1990 was adjusted from UM to LM; (vi) the Kyrgyz Republic's income classification for the years 1994–1996 was adjusted from L to LM; (vii) Latvia's income classification for the years 1990 and 1991 was adjusted from UM to LM; (viii) Lithuania's income classification for the years 1990 and 1991 was adjusted from UM to LM; (ix) the Russian Federation's income classification for the years 1990 and 1991 was adjusted from UM to LM; (x) Slovak Republic's income classification for the year 1990 was adjusted from UM to LM; (xi) Tajikistan's income classification for the years 1990 and 1991 was adjusted from LM to L; and (xii) Turkmenistan's income classification for the years 1997 and 1998 was adjusted from L to LM.

Source: Authors.