1. Introduction

There has been considerable interest in recent years in the impressive emergence and growth of the Asian middle class, particularly in the wake of the "Great Recession" of 2008–09 in the United States (US) and Europe. Policymakers are wondering how great a role the Asian middle class can play in the coming years and decades in the necessary rebalancing of the world economy. US and European households are engaged in a long and painful process of deleveraging—increasing savings to reduce high debt levels and rebuild lost wealth—which will limit the extent to which they can drive global consumption.

Consumer spending in developing Asia, meanwhile, has shown surprising resilience, even during the recession. It reached an estimated $4.3 trillion in annual expenditures in 2008—nearly a third of private consumption in the Organisation for Economic Co-operation and Development (OECD) countries. Assuming consumption expenditures continue to grow at roughly the same rate as in the past 20 years they are likely to reach $32 trillion and comprise about 43% of worldwide consumption by 2030, placing the region at the forefront of worldwide consumption (Chun 2010a). On this count, as developing Asia's people secure their middle-class status, its emerging consumers are very much expected to become the next global consumers and assume the traditional role of the US and European middle classes. Moreover, given the call for "rebalancing" Asian economies from export-led to domestic-led consumption growth—to reduce exposure to negative shocks from regional economies outside of Asia (ADO 2009)—it is expected that this process will depend highly on the emergence and expansion of the Asian middle class. This can create more stable and efficient poverty reduction and economic development.

However, as the special chapter argues, this is not a given. While 56% of developing Asia's population,[1] or nearly 1.9 billion people, were already considered part of the middle class based on an absolute definition of per capita consumption of $2–$20 per day in 2008, nearly 1.5 billion Asians were still living on less than $2.0 per day. Moreover, the majority of the Asian middle class still falls in the $2–$4 range, leaving them highly vulnerable to slipping back into poverty due to economic shocks. Thus, for the middle class to become a prominent force it will likely depend on its size and spending levels and characteristics. It will require governments to introduce policies that bolster the incomes of those already in the middle class. It will also require social policies to expand the middle class—such as through greater spending in education and health. Through these, it is possible to build a strong and stable middle class that continues to grow.

The focus on the middle class and policies for promoting it is rooted in the belief that the middle class is an important prerequisite for stronger, more sustainable economic growth and development. Economic historians such as Adelman and Morris (1967) and Landes (1998), among others, have argued that the middle class was a driving force in the faster pace of economic development in the United Kingdom and continental Europe in the 19th century. According to the "political economy" argument, societies with a small middle class are generally extremely polarized, and find it difficult to reach consensus on economic issues; they are overly focused on the redistribution of resources between the elite and the impoverished masses, each of which alternates in controlling political power. Societies with a larger middle class are much less polarized and can more easily reach consensus on a broad range of issues and decisions relevant to economic development (Alesina 1994).

Easterly (2001) has developed the latter argument further. According to him, a "middle-class consensus"—defined as a situation of relative equality and ethnic homogeneity in a society—facilitates economic growth by allowing society to agree on the provision of public goods critical to economic development. These include goods such as public education, public health services, and physical infrastructure (e.g. roads and electricity). The elites in control of government in societies without a middle-class consensus tend to underinvest in such goods for fear they will empower opposing factions. In testing this hypothesis, Easterly estimated regressions of economic growth, per-capita income, human capital accumulation, and infrastructure on ethnic diversity (measured by a linguistic fractionalization index) and the size of the middle class (measured as the income share of the middle three income quintiles), using cross-country data on about 175 countries circa 1990.[2]

1 Developing Asia in the special chapter generally refers to 22 countries; Armenia, Azerbaijan, Bangladesh, Cambodia, People's Republic of China, Georgia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Viet Nam. These countries were selected on the basis of data availability, and comprise 96% of the population of the Asian's Development Bank's developing member countries. When the analysis does not refer to all countries in this list, that is indicated. For a complete list of the countries within this region and the other regions presented in the chapter, please see Appendix Table 1.

2 To account for the possible endogeneity of the middle-class income share variable (i.e., the possibility that the causality goes from economic growth to the size of the middle class instead of the other way around), Easterly employs an instrumental variable estimation procedure, using the tropical location of a country and whether it is a non-oil commodity exporter or an oil exporter as identifying instruments.

Easterly finds that, after controlling for ethnic diversity and other control variables, the size of the middle class strongly influences (in the 'correct' direction) several variables. These include per capita income, growth of per capita income (over 1950–92), a host of health and educational outcomes (such as secondary and tertiary enrollment rates, life expectancy, infant mortality, and child immunization rates), physical infrastructure, several policy variables (e.g., financial depth, intensity of international trade, inflation, and exchange rate overvaluation), and indicators of democracy and political stability (e.g., civil liberties, political rights, and the incidence of revolutions and coups). His empirical results support the idea that elite-dominated societies typically accumulate less human and infrastructure capital, are less democratic, and formulate worse macroeconomic and trade policies than societies with a large middle class.

Sridharan (2004) makes a similar argument for India. The emergence of a 100–250 million-sized middle class during the 1980s and 1990s, he says, has dramatically changed India's class structure—from one of a small elite and a large impoverished class—to one dominated by a large intermediate class. According to him, "… the elite-mass class cleavage tended to support a broadly socialistic ideology, while the elite-middle-mass differentiation has created a broader base for capitalism – hence the increased support for economic liberalization." That successive Indian governments since 1991, from across the political spectrum, have continued to support economic reforms and liberalization, supports his thesis.

Besides helping to reach consensus, Banerjee and Duflo (2008) have discussed three mechanisms through which a large middle class could promote development. First, the middle class may provide the entrepreneurs who create employment and productivity growth in a society.[3] Second, "middle-class values"—that is, the values of accumulation of human capital and savings—are critical to economic growth.[4] And third, with its willingness and ability to pay extra for higher-quality products, the middle class drives demand for high-quality consumer goods, the production of which typically presents increasing returns to scale. This encourages firms to invest in production and marketing, raising income levels for everyone.[5]

Another reason often cited for the importance of a large middle class is that the poor are too liquidity-constrained to accumulate human capital, a key ingredient in sustained economic development (Galor and Zeira 1993, Alesina and Rodrik 1994). As the middle class grows it raises investment in human capital and, in turn, drives national economic growth. But the causality can also go the other way, with human capital accumulation (typically education) pulling more of the poor into the middle class.

The middle class is not easily defined as it is not necessarily a distinct or unique group in society that has very different attributes or values than other social classes. It may simply represent a range along the income continuum (a group that lies between the poor and the rich) and social class (a group lying between the working class and the 'upper' class). To the extent that variables such as consumer spending and education vary monotonically with income, the middle class will possess higher values of these attributes than the poor (but less than the rich).

Is an emphasis on the middle class inimical to the interests of the poor? Most researchers say no. Indeed, Birdsall (2010) argues that "… in the advanced economies the poor have probably benefited from the rule of law, legal protections, and in general the greater accountability of government that a large and politically independent middle class demands, and from the universal and adequately funded education, health and social insurance programs a middle class wants and finances through the tax system… A focus on the middle class does not exclude a focus on the poor but extends it, including on the grounds that growth that is good for the large majority of people in developing countries is more likely to be economically and politically sustainable, both for economic and political reasons."

Asia's large population and the rapid expansion of its middle class during a period of global economic rebalancing is fundamentally important as a driver not only of the Asian economy but also the global economy. However greater middle class wealth and consumption is only one factor in the region's increasing importance. The rise of its middle class is likely to aid not only the growth process, but also result in substantial social, political, and environmental changes. Thus, the contention is that, building on strong growth and continued progress in reducing poverty in Asia, developing a stable middle class requires governments to formulate and implement middle class-friendly policies. In turn, this requires understanding and analyzing the characteristics of the middle class, the factors contributing to its growth, and the various implications—positive and negative—of its rise. These are some of the issues this special chapter addresses.

3 Acemoglu and Zilibotti (1997) develop the analytical argument for this mechanism. However, based on analysis of household survey data from several developing countries, Banerjee and Duflo (2008) do not find that entrepreneurs are over-represented among the middle class (relative to the poor).

4 Doepke and Zilibotti (2005, 2008) develop this argument.

5 The analytical model for this argument is developed in Murphy, Shleifer and Vishny (1989).

2. Asia's Emerging Middle Class: Past, Present, And Future

A. Defining the Middle Class

Unlike poverty, which can be defined in absolute terms based on caloric requirements, there is no standard definition of the middle class. Different researchers use different criteria—some absolute, others relative. This report uses an absolute approach defining the middle class as those with consumption expenditures of $2–$20 per person per day in 2005 PPP $.[6]

Easterly (2001) and others have defined the middle class as those in the second, third, and fourth quintile of the distribution of per capita consumption expenditure, while Birdsall, Graham and Pettinato (2000) have defined it to include individuals earning between 75% and 125% of a society's median per capita income.

Other researchers have also defined the middle class in absolute terms. Banerjee and Duflo (2008) have used two alternative absolute measures—individuals with daily per capita expenditures of $2–$4 and with daily per capita expenditures of $6–$10. By excluding individuals who would be considered rich in the poorest advanced countries (Portugal) and poor in the richest advanced societies (Luxembourg), Kharas (2010) comes up with daily expenditures of $10–$100 per person, after adjusting household distribution data with national accounts means, as the criterion for a "global middle class".

Ravallion (2009) has distinguished the "developing world's middle class" from the "Western world middle class." To define the former, he uses the median value of poverty lines for 70 national poverty lines as the lower bound ($2 per person per day) and the US poverty line ($13) as the upper bound. Bussolo, De Hoyos, Medvedev, and van der Mensbrugghe (2007) and Bussolo, De Hoyos and Medvedev (2009) have defined the middle class as those with average daily incomes between the poverty lines of Brazil ($10) and Italy ($20).

Finally, Birdsall (2007) has used a hybrid definition that combines the absolute and the relative approaches. According to her, the middle class includes individuals who consume the equivalent of $10 or more per day, but who fall below the 90th percentile in the income distribution.[7] Her rationale for using the absolute global threshold for the lower bound is that people with consumption below this level are just too poor to be middle class in any society, while her rationale for using the relative and local threshold is to exclude people who are rich in their own society.

The above definitions are all based on consumption expenditure or income. However, the middle class can also be defined in other ways. Historically, in feudal Europe, the middle class represented the group falling between the peasantry and the nobility. Sociologists have typically defined the Western middle class on the basis of education and occupation in a white-collar job.

Since the objective of this chapter is to estimate the size of the middle class across the developing Asian countries considered, over time, it generally uses an absolute approach. In particular, its $2–$20 range of defining the middle class is divided into three groups. The lower-middle class—consuming $2–$4 per person per day—is very vulnerable to slipping back into poverty at this level, which is only slightly above the developing-world poverty line of $1.25 per person per day used by Ravallion, Chen, and Sangraula (2008). The "middle-middle" class—at $4–$10—is living above subsistence and able to save and consume nonessential goods. The upper-middle class consumes $10–$20 per day (roughly the poverty lines of Brazil and Italy, respectively).

The analysis uses a variety of data sources to create the income/consumption distributions and determine the size of the middle class in the different countries. For developing countries, the World Bank's PovcalNet database is the primary source of the distribution data. For OECD and high-income countries in Asia, it uses decile and quantile distributions compiled by the UNU-WIDER World Income Inequality Database (WIID). It applies mean income or consumption expenditure levels from either household surveys or national accounts to these distributional data to estimate the share and size of the middle class. (See Appendix 1 for details of the data and estimation procedures.)

6 Throughout the chapter, the income ranges refer to 2005 PPP $ per person per day, except where otherwise noted.

7 Birdsall (2010) changes the definition of the middle class to exclude only the top 5% (as opposed to 10%) of the income distribution.

B. The Size and Growth of Developing Asia's Middle Class

Developing Asia's middle class ($2–$20) has grown dramatically relative to other world regions in the last couple decades (Tables 2.1 and 2.2).[8, 9] While it made up only 21% of the population of the developing Asian countries in 1990 (using survey data), it more than doubled to 56% by 2008; up more than three-fold from 565 million in 1990 to 1.9 billion in 2008 in absolute terms. During the same period, developing Asia's aggregate annual expenditure/income increased more than four-fold, from $721 billion to $3.3 trillion, about three-quarters of the region's total. Figure 2.1 presents the global trends more vividly, showing the growth in the relative and absolute size of the middle class, as well as the growth in middle-class spending, over 1990–2008 for different world regions. (See Appendix Table 1 for a list of countries included in the regional aggregations.)

Which countries are driving this clear and burgeoning middle-class growth? The five countries with the largest middle class by population shares are Azerbaijan, Malaysia, Thailand, Kazakhstan, and Georgia; the five smallest are Bangladesh, Nepal, Lao People's Democratic Republic (Lao PDR), Uzbekistan, and India (Table 2.3). Yet, in absolute size, India's middle class is very large compared to other countries given its massive population. Only in the People's Republic of China (PRC) is the middle class larger, as seen in the panels on population and consumption expenditures.[10]

Table 2.1 **Summary Statistics of Population, Class Size, and Total Expenditures by Region** (1990 and 2008 Based on Household Survey Means)

Region	Total Population (million)	Population (%)			Aggregate annual income/expenditures (2005 PPP $ billion)			
		Poor (<$2 per person per day)	Middle ($2–$20 per person per day)	High (>$20 per person per day)	Poor (<$2 per person per day)	Middle ($2–$20 per person per day)	High (>$20 per person per day)	Total
	1990							
Developing Asia	2,692.2	79	21	0	843	721	42	1,605
Developing Europe	352.3	12	84	4	23	638	141	802
Latin America and Caribbean	352.5	20	71	9	31	641	480	1,153
Middle East and North Africa	162.3	18	80	2	16	247	39	303
OECD	639.0	0	24	76	0	735	9,636	10,371
Sub-Saharan Africa	274.8	75	24	1	70	109	44	224
	2008							
Developing Asia	3,383.7	43	56	1	696	3,285	350	4,331
Developing Europe	356.6	2	87	11	4	974	425	1,403
Latin America and Caribbean	454.2	10	77	13	22	1,008	924	1,953
Middle East and North Africa	212.8	12	86	3	14	365	66	445
OECD	685.4	0	16	84	0	542	12,617	13,159
Sub-Saharan Africa	393.5	66	33	1	100	206	69	376

Notes: **Developing Asia** = Armenia, Azerbaijan, Bangladesh, Cambodia, People's Republic of China, Georgia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, Viet Nam; **Developing Europe** = Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Turkey, Ukraine; **Latin America/Caribbean** = Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Peru, Uruguay, Venezuela; **Middle East and North Africa** = Algeria, Djibouti, Egypt, Iran Jordan, Morocco, Tunisia, Yemen; **OECD** = Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Korea, Luxembourg, Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, United Kingdom, United States; **Sub-Saharan Africa** = Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda.
Source: PovcalNet Database.

As can be seen in Table 2.3 the lower-middle class constitutes the predominant share of the middle class in most of the 21 countries considered here, with the exception of relatively affluent countries such as Azerbaijan, Malaysia, and Thailand. In the PRC, the daily consumption expenditure of more than half of the middle class is in the lower $2–$4 bracket, while in South Asia's Bangladesh, Nepal, India and Pakistan, the vast majority of the middle class (75% or more) falls into this group. With the exception of Malaysia and Thailand, the population share of the upper-middle class is miniscule in most of the countries considered.

8 Table 2.1 reports the total population, the size of the middle class, and the aggregate monthly income/expenditure of the middle class for major world regions in 1990 and 2008 using household survey means, while Table 2.2 shows the same information using national accounts means. This comparison shows how the size and share of the middle class may change if we are concerned that the survey means understate consumption and the true consumption values are better reflected by national accounts per capita private consumption means which are higher, especially in Asia.

9 While most of our numbers focus on survey means in the remainder of this section, general conclusions do not change, although sometimes rankings between countries do change depending on the amount of the departure between survey means and the national accounts means.

10 Note that using the PRC CHIPS data versus PovcalNet database on the rural PRC results in a substantially larger middle-class population and smaller proportion in poverty. This may in part be due to the poor reliability of the PovcalNet data for the rural household distribution. In addition, Indonesian urban population using SUSENAS data versus the PovcalNet database shows a substantially smaller number in poverty.

Table 2.4 also indicates that Armenia, the PRC, and Viet Nam have made the greatest progress in increasing the population share of the middle class in recent years, with the share of the middle class in the total population increasing 60–80 percentage points. However, in absolute numbers, the PRC stands significantly above every other country. It added more than 800 million people to the middle class during 1990–2008 and increased aggregate annual middle-class spending by more than $1.8 trillion. India comes a second, with 205 million joining the middle class and $256 billion in additional middle-class annual expenditures.

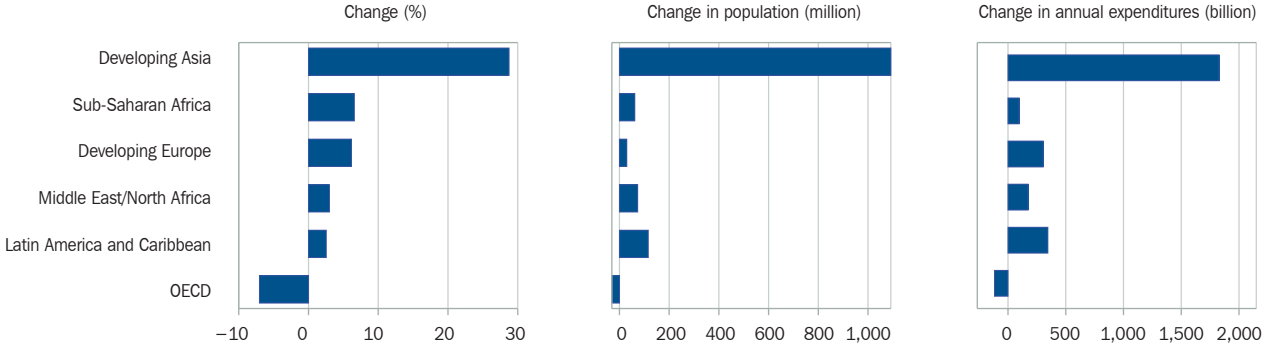
How do the above size estimates compare with others in the literature? Kharas (2010), who defines a global middle class as those households with daily expenditures from $10 to $100 per person in purchasing power parity, estimates about 1.8 billion people in the global middle class, mostly in North America (338 million), Europe (664 million) and Asia (525 million). However, because

Table 2.2 **Summary Statistics of Population, Class Size, and Total Expenditures by Region** (1990 and 2008 National Account Means)

Region	Total Population (million)	Population (%)			Aggregate annual income/expenditures (2005 PPP $ billion)			
		Poor (<$2 per person per day)	Middle ($2–$20 per person per day)	High (>$20 per person per day)	Poor (<$2 per person per day)	Middle ($2–$20 per person per day)	High (>$20 per person per day)	Total
	1990							
Developing Asia	2,692.2	69	31	0	765	1,102	86	1,952
Developing Europe	352.3	3	92	5	7	867	175	1,049
Latin America and Caribbean	352.5	18	66	16	27	640	1,568	2,235
Middle East and North Africa	162.3	14	83	2	13	263	38	314
OECD	639.0	0	19	81	0	603	10,451	11,053
Sub-Saharan Africa	274.8	74	24	2	66	118	74	257
	2008							
Developing Asia	3,383.7	17	82	1	315	4,924	551	5,790
Developing Europe	356.6	0	68	32	0	965	1,454	2,419
Latin America and Caribbean	454.2	6	70	24	14	1,041	1,749	2,803
Middle East and North Africa	212.8	8	85	7	8	489	191	688
OECD	685.4	0	10	90	0	386	15,264	15,650
Sub-Saharan Africa	393.5	67	31	3	95	210	166	472

Notes: Please see note at bottom of Table 2.1 for a list of countries in each region.
Source: World Development Indicators, household tabulated distribution data from PovcalNet Database, UNU-WIDER World Income Inequality Database.

Figure 2.1 **Change in Size of Middle Class By Region**
(1990–2008, based on household survey means)



Note: Developing Asia = Armenia, Azerbaijan, Bangladesh, Cambodia, People's Republic of China, Georgia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao PDR, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Viet Nam.
Developing Europe = Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Turkey, Ukraine.
Latin America and Carribean = Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Jamaica, Mexico, Nicaragua, Peru, Uruguay, Venezuela.
Middle East and North Africa = Djibouti, Egypt, Iran Jordan, Morocco, Tunisia, Yemen.
OECD = Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Korea, Luxembourg, Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, United Kingdom, United States.
Sub-Saharan Africa = Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Ethiopia, Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, South Africa, Swaziland, Tanzania, Uganda.
Source: Chun (2010).

Table 2.3 **Size of Middle Class by Country, Most Recent Survey Year** (based on household survey means)

Country	Survey Year	% of Population					Total Population (million)					Annual Expenditures (billion)				
		$2–$4 (2005 PPP $)	$4–$10 (2005 PPP $)	$10–$20 (2005 PPP $)	Total	$20+ (2005 PPP $)	$2–$4 (2005 PPP $)	$4–$10 (2005 PPP $)	$10–$20 (2005 PPP $)	Total	$20+ (2005 PPP $)	$2–$4 (2005 PPP $)	$4–$10 (2005 PPP $)	$10–$20 (2005 PPP $)	Total	$20+ (2005 PPP $)
Azerbaijan	2005	43.00	55.66	1.34	100.00	0.00	3.61	4.67	0.11	8.39	0.00	4.38	8.74	0.48	13.60	0.00
Malaysia	2004	27.05	48.10	14.13	89.28	3.44	6.81	12.12	3.56	22.49	0.87	7.36	27.74	17.11	52.21	8.43
Thailand	2004	33.50	41.69	10.63	85.82	3.46	21.87	27.21	6.94	56.02	2.26	23.25	60.66	33.47	117.38	27.65
Kazakhstan	2003	39.40	38.30	5.44	83.14	0.28	5.87	5.71	0.81	12.39	0.04	6.28	12.10	3.84	22.22	0.32
Georgia	2005	37.19	28.35	4.00	69.54	0.88	1.66	1.27	0.18	3.11	0.04	1.75	2.66	0.85	5.26	0.38
PRC	2005	33.97	25.17	3.54	62.68	0.68	442.82	328.18	46.16	817.16	8.86	233.72	311.96	95.57	641.25	37.27
Sri Lanka	2002	37.75	18.70	2.68	59.13	0.80	7.18	3.55	0.51	11.24	0.15	7.28	7.38	2.44	17.10	1.90
Armenia	2003	44.16	12.07	1.10	57.33	0.35	1.35	0.37	0.03	1.75	0.01	1.33	0.73	0.16	2.22	0.19
Philippines	2006	31.49	19.65	3.80	54.94	0.70	27.43	17.11	3.31	47.85	0.61	27.97	36.54	15.98	80.49	5.21
Viet Nam	2006	35.53	14.81	1.93	52.27	0.15	29.89	12.46	1.62	43.97	0.13	30.01	25.61	7.74	63.36	0.97
Mongolia	2005	39.22	12.40	0.27	51.89	0.00	1.00	0.32	0.01	1.33	0.00	1.00	0.63	0.03	1.66	0.00
Bhutan	2003	30.61	16.69	2.90	50.20	0.97	0.19	0.10	0.02	0.31	0.01	0.19	0.22	0.09	0.50	0.08
Kyrgyz Republic	2004	36.36	12.05	0.60	49.01	0.00	1.85	0.61	0.03	2.49	0.00	1.84	1.24	0.12	3.20	0.00
Indonesia	2005	34.96	10.46	1.16	46.58	0.26	77.10	23.07	2.55	102.72	0.58	37.71	22.98	5.87	66.56	3.86
Pakistan	2005	32.94	6.56	0.62	40.12	0.15	51.31	10.22	0.97	62.50	0.23	49.13	20.25	4.59	73.97	2.49
Cambodia	2004	24.72	7.41	0.91	33.04	0.33	3.39	1.02	0.12	4.53	0.05	3.32	2.06	0.60	5.98	0.86
India	2005	20.45	4.15	0.45	25.05	0.10	223.82	45.41	4.90	274.13	1.14	117.11	44.39	10.96	172.46	9.95
Uzbekistan	2003	19.34	4.11	0.45	23.90	0.13	4.94	1.05	0.12	6.11	0.03	4.71	2.11	0.55	7.37	0.48
Lao PDR	2002	19.60	3.88	0.41	23.89	0.02	1.10	0.22	0.02	1.34	0.00	1.04	0.43	0.11	1.58	0.01
Nepal	2004	16.74	5.30	0.85	22.89	0.38	4.45	1.41	0.23	6.09	0.10	4.32	2.91	1.09	8.32	2.40
Bangladesh	2005	16.38	3.48	0.39	20.25	0.05	25.08	5.33	0.60	31.01	0.08	23.82	10.74	2.87	37.43	0.64

Notes: PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic
Source: Chun (2010).

Table 2.4 **Changes in the Relative and Absolute Size of the Middle Class, and Change in Aggregate Monthly Expenditure of the Middle Class, by Country,** (1990–2008, based on household survey means)

Country	Percentage point change in population share	Change in population (million)	Change in yearly expenditures (million $)
Armenia	76.5	2.3	3.6
Azerbaijan	35.1	3.1	4.5
Bangladesh	8.3	18.5	24.3
Cambodia	24.0	4.0	5.8
PRC	61.4	844.6	1,825.0
Georgia	4.0	0.0	1.3
India	12.8	205.0	256.0
Indonesia	46.3	113.7	168.1
Kazakhstan	-6.7	-2.2	-19.8
Kyrgyz Republic	-14.9	-0.1	0.0
Lao PDR	28.9	1.9	2.4
Malaysia	5.6	6.5	22.3
Mongolia	24.4	1.0	1.9
Nepal	-5.8	-0.6	-0.5
Pakistan	36.5	65.9	80.5
Philippines	12.0	23.6	48.3
Sri Lanka	-10.1	-0.9	-0.4
Tajikistan	-3.9	0.3	-0.5
Thailand	17.6	17.2	55.3
Turkmenistan	15.2	0.9	9.0
Viet Nam	57.4	49.3	77.2

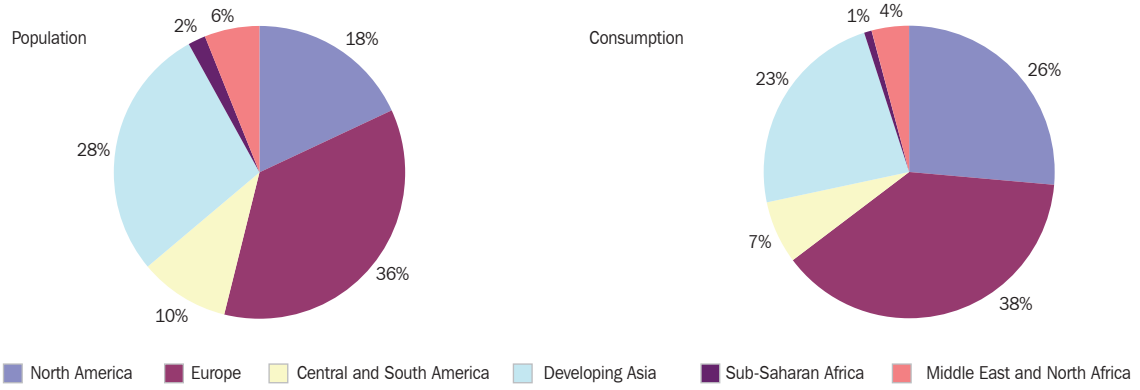
Notes: PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic
Source: Chun (2010).

per capita middle-class spending varies greatly across countries, the spending shares of the global middle class differ significantly from their population shares (Figure 2.2). For instance, according to Kharas' estimates, North America accounts for 18% of the world's middle class, but 26% of global middle-class spending. Conversely, the global population share of Asia's middle class (28%) is larger than its share of global consumption expenditure (23%).

Using $2–$13 per person per day, Ravallion (2009) estimates the global middle class at 2.6 billion in 2005, 806 million of whom are from the PRC and 264 million from India. More importantly, he finds that 1.2 billion people were added to this middle class from 1990 to 2005; the PRC and India together accounted for 62% of this increase. At 62% of the population in 2005, the share of the middle class in the PRC is much greater than in India (24%), under Ravaillon's definition.

Finally, Birdsall's (2007) hybrid definition of the middle class—individuals consuming the equivalent of $10 or more per day but who fall below the 90th percentile in the income distribution—produces some unusual results. According to her estimates, neither rural nor urban India has a middle class. The rural PRC, too, ends up with no middle class, but she estimates 38% of the urban population in the PRC belongs to the middle class. These results appear inconsistent with reality in these countries.

Figure 2.2 **Share of Different World Regions in Global Middle Class and Global Middle Class Consumption** (2009, %)



Note: For a list of the countries please see Figure 2.1 or Appendix Table 1.
Source: Kharas (2010).

C. Results from Household Surveys in Selected Countries

The data used in the previous section are based on household survey means applied to income/expenditure distributions available from the PovcalNet database of the World Bank. In this section, we use household survey data from selected Asian developing countries (including the three largest) to discuss the size and growth of the middle class. This allows us to examine more specific details on item-wise consumption and how household characteristics differ with changes in consumption. The examination is further used to extrapolate how potential changes in the data may change our estimates of the size of the middle class.

People's Republic of China: As can be seen in Table 2.5[11, 12]—which shows the population distribution by per capita income in 1995, 2002 and 2007, using data from the Chinese Household Income Project (CHIP)[13]—poverty decreased and the middle class increased dramatically from 1995 to 2007. The share of the population with daily incomes of $6–$10 surged from just 4.8% to 25.5%, and with incomes of $10–$20 from a mere 0.7% to 18.7%. The data show that the rightward shift of the income distribution was not limited to the urban areas. Indeed, rural areas also saw a very sharp increase in the proportion of the population earning $6–$10 and $10–$20 per person per day. (See Box 1 on the PRC's rural middle class.)

Table 2.5 **Population Distribution** (%) **by Income Per Person Per Day** (2005 $ PPP, %) **PRC**

Per capita income class	National			Urban			Rural		
	1995	2002	2007	1995	2002	2007	1995	2002	2007
<$1.25	23.9	11.9	1.7	3.0	1.9	0.1	44.6	21.7	2.8
$1.25–$2	20.5	16.5	5.1	13.4	5.4	1.0	27.8	26.3	8.3
$2–$4	37.7	34.0	23.4	54.9	30.8	9.4	22.5	36.9	34.1
$4–$6	12.4	18.7	21.5	20.5	28.8	16.1	3.5	9.9	25.7
$6–$10	4.8	13.9	25.5	7.1	24.7	33.0	1.4	4.0	19.8
$10–$20	0.7	4.7	18.7	0.9	8.0	32.8	0.3	1.0	7.9
>$20	0.0	0.4	4.1	0.1	0.5	7.5	0.0	0.2	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$2–$20	55.6	71.3	89.1	83.5	92.3	91.3	27.7	51.8	87.4

Note: PRC = People's Republic of China
Source: Staff estimates, CHIPS 1995, 2002, 2007.

The CHIPS data suggest that the middle class increased from about 56% of the population in 1995 to 89% in 2007. Still, the most dramatic increase in the relative size of the middle class occurred in the rural areas, where the middle class went from 28% of the population in 1995 to 87.5% in 2007. Indeed, by 2007, the relative size of the middle class was not all that different in the rural areas (87.5%) from the urban areas (91.3%). At 89%, the estimated size of the middle class from the CHIPS data is significantly larger than the size estimated from the PovcalNet database (and discussed in the previous section). The discrepancy may be related in part to the sensitivity of the sample population to the chosen purchasing

11 Chinese Household Income Project Survey from 1995 (CHIP2) and 2002 (CHIP3) are publicly available through the Inter-university Consortium for Political and Social Research (ICPSR). See Riskin, Zhao, and Li (1995) and Li (2002). Unpublished data for CHIP4 is kindly provided by the Chinese Academy of Social Sciences.

12 The urban sample consists of 6,931 households in 1995, 6,835 in 2002, and 10,000 households in 2007. The rural samples consists of 7,998, 9,200 and 10,000 households respectively across the years.

13 CHIP surveys, conducted by the Chinese Academy of Social Sciences, cover rural and urban households. In the initial round of CHIPS in 1988, both rural and urban samples covered all provinces. For 1995 and 2002, rural households are sampled in all the provinces in the first two rounds, while urban households are sampled in about half of the provinces. But the provinces in the urban sample account for more than 50% of the population. As such, while it is not exactly nationally representative, amid publicly available household surveys, it thus far has the widest coverage and is indicative of broad patterns and trends. For the latest round in 2007, both rural and urban households are sampled from 16 administrative regions covering more than 60% of the population.

Box 1 **Driving Rural Middle Class Growth: Township and Village Enterprises in the PRC**

Township and Village Enterprises (TVEs) in the People's Republic of China (PRC)—a term in use since 1984 referring to enterprises owned by rural entities, individually or collectively—have grown to become an important factor in the development of the rural middle class (Box Table 1.1).

Box Table 1.1
Employment and the Rise of TVEs in the Rural Areas, 1980–2008 (million)

	Employment	Urban	Rural	TVE	TVE as % of rural
1980	423.6	105.3	318.4	30.0	9.42%
1985	498.7	128.1	370.7	69.8	18.83%
1990	647.5	170.4	477.1	92.7	19.42%
1995	680.7	190.4	490.3	128.6	26.24%
2000	720.9	231.5	489.3	128.2	26.20%
2005	758.3	273.3	484.9	142.7	29.43%
2008	774.8	302.1	472.7	154.5	32.69%

Source: National Bureau of Statistics of China. 2009. China Statistical Yearbook 2009 (http://www.stats.gov.cn).

Indeed, TVEs play an important role in the Chinese economy overall, their aggregate industrial output reaching 5.88 trillion yuan (CNY) in 2008, or 45.5% of national industrial output. TVE exports were worth about 3.51 trillion, 40% of the PRC's foreign exchange earnings in 2007, and contributed CNY877 billion in tax revenue in 2008.

Without TVEs, the rural middle class would be small even today, despite the rapid economic growth of the past three decades. This is primarily because of the dual price system, which required enterprises to sell a portion of their production quotas at state-set prices while the remainder was sold at market prices, and urban-biased policies that have prevailed over the last sixty years. Traditional farming cannot generate sustainable income growth or asset accumulation. But commercial farming has not been possible given the very small land/population ratio and the rigid household registration system. In 2008, for example, there were 122 million hectares of arable land but still a large rural population of 715.8 million, despite significant urbanization in recent years.

TVEs have allowed farmers to make better use of productive inputs, including labor and capital, thereby improving returns. TVEs have also helped rural residents move into non-farming activities and reap the benefits of industrialization and globalization. Their importance to middle class development is evident in the fact that better-developed localities usually have more TVEs. Among the PRC's richest provinces, the rural areas of Jiangsu, Zhejiang, and Guangdong, for example, are well known for the dominance of TVEs. Indeed, the southern areas of Jiangsu, where TVEs are more prominent, are richer.

TVEs promote middle class growth in several ways. First, as stated, they generate a significant share of GDP, particularly rural GDP. In 2008, the value-added of TVEs amounted to CNY8.41 trillion, 71% of the rural economy or 28% of national GDP. Many TVEs are also engaged in processing and marketing of agricultural products, facilitating farmers' access to market, and permitting them to specialize in certain products, thus helping raise incomes.

Second, TVEs provide jobs, employing 155 million, or 29% of the rural labor force by 2008, up from 28 million farmers and 9.2% in 1978. Productive jobs are crucial for poverty reduction and formation of the middle class. TVE job creation has helped expand the arable land/farming population ratio, allowing farmers to achieve economies of scale and increase income.

Third, TVEs represent a major source of local government revenue, helping to fund local infrastructure and social development, both of which are crucial for expansion of the middle class. Over the last three decades, TVE investment in rural infrastructure, building construction, and research and development has amounted to CNY432 billion. Many TVEs also donate funds for establishing rural schools and heath facilities.

Fourth, TVEs offer a platform for the formation and development of entrepreneurs, themselves a core component of the middle class. Finally, TVE growth has brought about a boom in small towns and cities, which in turn has promoted service industry growth.

power parity (PPP), and the use of income rather than expenditures. Given that the bulk of rural households are in the $2–$4 groups, if we raise the rural PPP from 2.98, which is used by PovcalNet, to the national PPP of 4.07, then the rural middle class becomes significantly smaller and closer to the PovcalNet numbers. It is obvious from Figure 2.3 that most of the addition to the middle class in the PRC occurred at the lower end ($2–$4) in the rural areas and in the middle range ($4–$10) in the urban areas. The CHIP data suggest that in 2002 the Chinese middle class ($2–$20) comprised 868 million people and would exceed 1 billion by 2007.

India: The population share of the middle class increased from about 29% in 1993–94 to 38% in 2004–05, as seen in the National Sample Survey (NSS), a periodic and nationally representative household survey (Table 2.6). The increase was roughly similar in rural and urban areas (about 8–9 percentage points). Most of the increase was in the group with daily consumption of $2–$4.

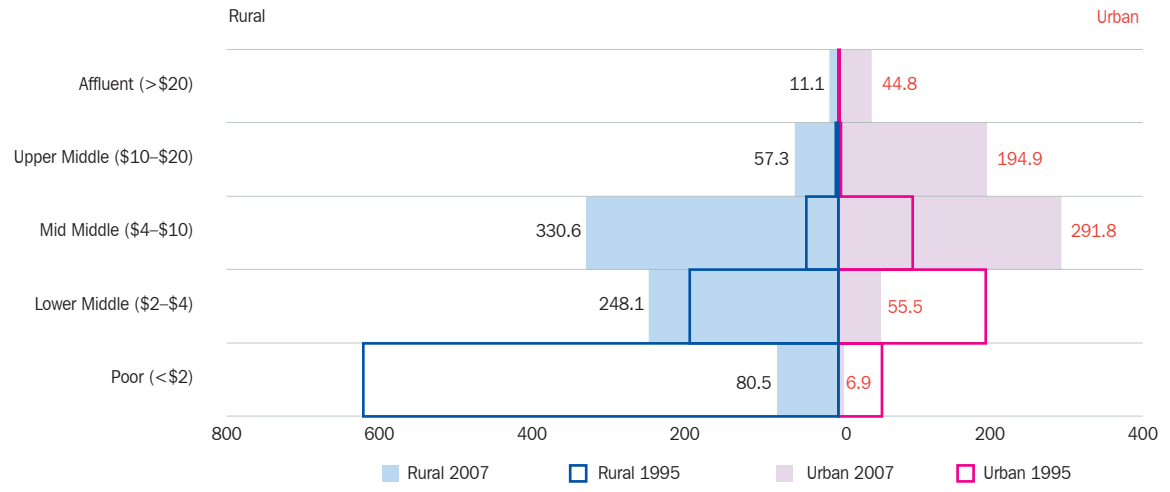
Table 2.6 **Population Distribution** (%) **by Expenditure Per Person Per Day** (2005 $ PPP) **India**

Per capita expenditure class	National		Urban		Rural	
	1993–94	2004–05	1993–94	2004–05	1993–94	2004–05
<$1.25	46.5	36.3	34.0	26.0	51.0	40.5
$1.25–$2	23.6	23.2	20.8	17.7	24.5	25.4
$2–$4	18.0	22.3	22.1	23.6	16.5	21.8
$4–$10	8.7	12.3	15.2	19.6	6.4	9.4
$10–$20	2.1	3.5	5.0	7.4	1.1	1.9
>$20	1.1	2.4	2.9	5.8	0.5	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
$2–$20	28.8	38.1	42.2	50.6	24.0	33.1

Source: Bhandari (2010).

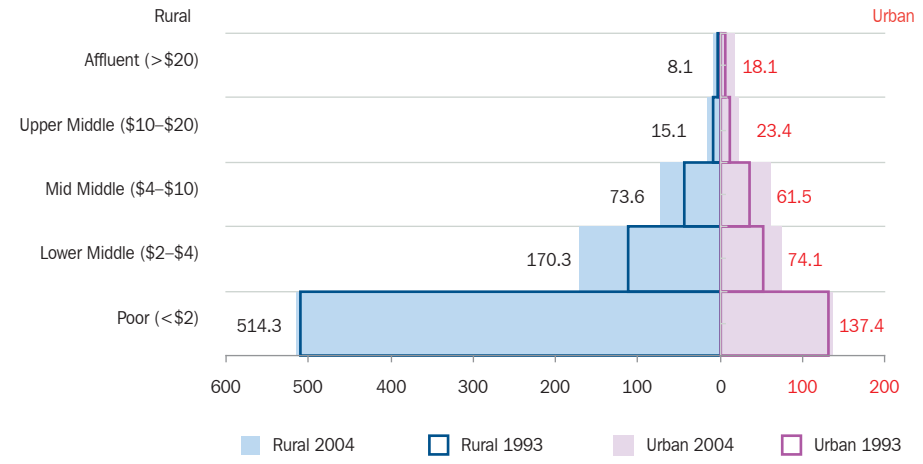
As seen in Figure 2.4, showing the absolute size of the different consumption groups, most of the addition to the middle class, occurred in groups with consumption levels of $2–$4 (rural areas) and $4–$10 (urban areas). The NSS data suggest that in 2004–05 the Indian middle class comprised 418 million people out of a total population of 1.1 billion.

Figure 2.3 **Size of the Chinese Middle Class** (1995–2007, million)



Source: Staff estimates based on CHIP Surveys 1995 and 2007 data.

Figure 2.4 **Size of the Indian Middle Class** (1993–2004, million)



Note: Uses NSS/NAS adjustment as described in Bhandari (2010).
Source: Bhandari (2010).

Indonesia: The population share of the middle class increased from about 25% in 1999 to 43% in 2009, as seen in data from SUSENAS, a nationally representative and annual household survey, with a consumption module every three years (Table 2.7). The increase was roughly similar in rural and urban areas (about 15–18 percentage points).

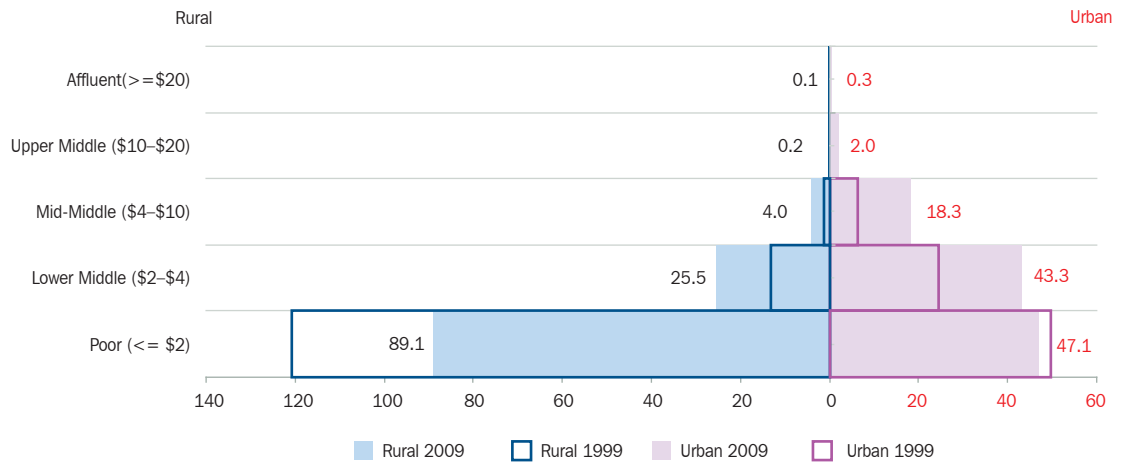
In absolute size, the Indonesian middle class roughly doubled over the ten years – from 45 million to 93 million (Figure 2.5).

Table 2.7 **Population Distribution** (%) **by Expenditure Per Person Per Day** (2005 $ PPP) **Indonesia**

Per capita expenditure	National		Urban		Rural	
	1999	2009	1999	2009	1999	2009
<$1.25	42.2	24.6	23.4	12.2	53.5	33.7
$1.25–$2	32.8	32.4	32.4	25.5	32.9	37.5
$2–$4	20.1	30.9	33.0	40.0	12.4	24.3
$4–$6	3.5	7.5	7.6	13.2	0.9	3.3
$6–$10	1.2	3.3	2.8	6.5	0.2	0.9
$10–$20	0.3	1.1	0.6	2.2	0.0	0.3
>$20	0.0	0.2	0.1	0.3	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
$2–$20	25.0	42.7	44.0	62.0	13.6	28.7

Source: Staff estimates, SUSENAS 1999 and 2009 data.

Figure 2.5 **Size of the Indonesian Middle Class** (1999 and 2009, million)



Source: Staff estimates based on SUSENAS 1999 and 2009 data.

Philippines: The middle-class population ($2–$20) increased from 44% of the population in 1988 to 54% in 2006 (about 45 million people), according to household survey data, a moderate and unsurprising increase given laggard growth in the economy (Table 2.8). The increase meant that about 21 million people were added to the middle class during the 18-year period, the vast majority of whom were added to the $2–$4 and $4–$10 consumption groups (Figure 2.6).

Table 2.8 **Population Distribution** (%) **by Expenditure Per Person Per Day** (2005 $ PPP)**, Philippines**

Per capita expenditure class	National		Urban		Rural	
	1988	2006	1988	2006	1988	2006
<$1.25	28.8	21.8	11.5	8.1	39.5	35.2
$1.25–$2	27.4	23.7	20.6	16.9	31.5	30.2
$2–$4	29.2	30.7	39.5	36.6	22.9	25.0
$4–$6	8.5	11.8	15.6	17.9	4.2	5.8
$6–$10	4.4	8.1	8.7	13.5	1.7	2.8
$10–$20	1.5	3.4	3.5	5.9	0.2	0.8
>$20	0.0	0.6	0.7	1.1	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
$2–$20	43.8	53.9	67.9	73.8	30.0	34.5

Source: Staff estimates, FIES 1988 and 2006.

As can be seen, the results are markedly different depending on the country and on whether one uses income or expenditure-based data. In general, the data show that the middle-class populations in these countries are generally skewed toward the lower end of the distribution and are potentially very vulnerable to slipping back into poverty.

D. The Role of Perception

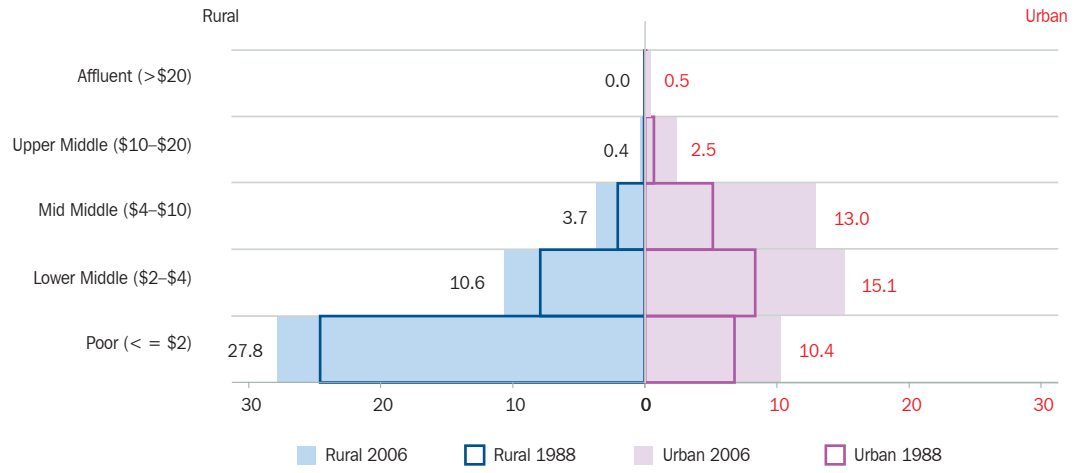
Whether one belongs to the middle class is often a question of perception. The World Values Surveys (WVS), conducted for several Asian countries over the last decade,[14] have collected information on whether respondents consider themselves as belonging to one of five social classes: lower, working, lower-middle, upper-middle, or upper. The surveys also ask individuals to place themselves in their country's relative income distribution. Figure 2.7 presents a plot of these two variables against each other for seven countries to examine where the (self-identified) middle class in a country perceives itself to be within that country's distribution. We define the middle class to include the self-identified lower-middle class and upper-middle class.

Figure 2.7 shows wide variation across countries in individual notions of what constitutes the middle class. At one extreme is India, where 20% of the (self-identified) middle class places itself in the third income decile of the country's income distribution and only 4% places itself in the eighth decile.[15] At the other extreme is Viet Nam, where 2% of the middle class places itself in the third income decile and as much as 17% in the eighth decile. Assuming people's perceptions of where they lie on the income continuum are broadly correct (which certainly may not be the case), the WVS data suggest that, compared to middle-class Indians, more middle class

14 See www.worldvaluessurvey.org.

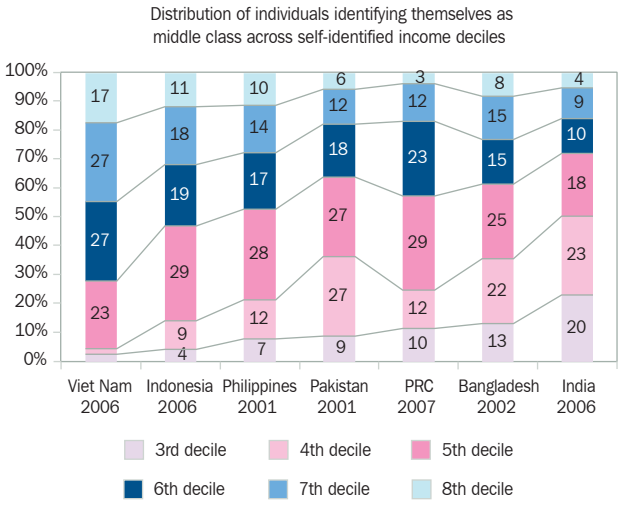
15 Since very few of the middle class identified themselves as falling into the bottom or the top two income deciles, we only show the distribution of the middle class across the middle six deciles in Figure 2.7.

Figure 2.6 **Size of the Philippine Middle Class** (1988–2006, million)



Source: Staff estimates based on 1988 and 2006 FIES.

Figure 2.7 **Self Identification as Middle Class** (2001–07)



Note: PRC = People's Republic of China
Source: Staff estimates from unit record data of various World Values Surveys.

Vietnamese consider themselves to be prosperous relative to their fellow citizens. This may reflect the fact that, due to rising prosperity, widening inequality, and increasing consumerism, middle-class Indians feel poorer than they really are or they have a more liberal definition of what constitutes the middle class than other countries, which is less associated with measures of income. (See Box 2 on the historical foundations of the Indian middle class.)

The WVS data are available over two time-periods, separated by 16–17 years, for both the PRC and India. A plot of the income distribution of the (self-identified) middle class in each country for the two years reveals a marked distributional shift to the right over time (Figure 2.8). Significantly more of the middle class in both countries in 2006–07, but especially in the PRC, placed itself in a higher income decile than in 1990. This suggests that the middle class in both countries has become more prosperous over time—or at least feels more prosperous—due to rapid economic growth.

From the analysis we can conclude, first, that there is really no single, universally accepted definition of what constitutes a middle class. Nor is there a need for one. The definition should depend on the purpose at hand. If the objective is to determine whether the emerging Asian middle class can supplant the US and European middle classes as the next major driver of the global economy, it makes sense to use an absolute income approach. Alternatively, if the objective is to compare the characteristics of the middle class in a country to those of the poor or the rich, or to study the middle class in a particular country over time, a relative approach or an approach based on non-income characteristics might be appropriate.

Second, it is clear that no matter what definition one uses, there is a sizeable middle class in Asia—one that has grown rapidly in the last two decades. Even though this middle class has significantly lower income and spending relative to the Western middle class, the growth in expenditures by the Asian middle class has been remarkable. Naturally, there are large differences across countries. There has been a dramatic increase in the size and spending of the PRC's middle class, especially in the

urban areas, while, in India, the growth of the middle class has been considerably more tepid. Because of its large population, however, the absolute size of the Indian middle class is formidable. Even in the Philippines, with far slower economic growth than other countries, the middle class has grown significantly over the last two decades.

Box 2 **Elite Formation in Colonial India**

The foundations of India's middle class were laid in the mid 19th century under British colonial administration, primarily using the colonial educational system. This supplanted the traditional system with a wide network of institutions designed to train people to help run the state (Dharampal 1970).

However the Indian middle class is more than a colonial creation. More than 600 Indian kingdoms of varying sizes had set up large administrative systems that were not as colonial. In addition, in rural areas, there was a significant middle class that depended on the feudal system. A large trading and commercial class also existed across rural and urban areas that had a very different orientation from either those in administration or that were part of the feudal system. Finally, a small but highly respected section of society was involved in the business of knowledge and education. The resulting motley group united around a common ideal of respect for knowledge and western education in which, more significantly, the middle classes retained a pride in traditional identity and respect for heritage.

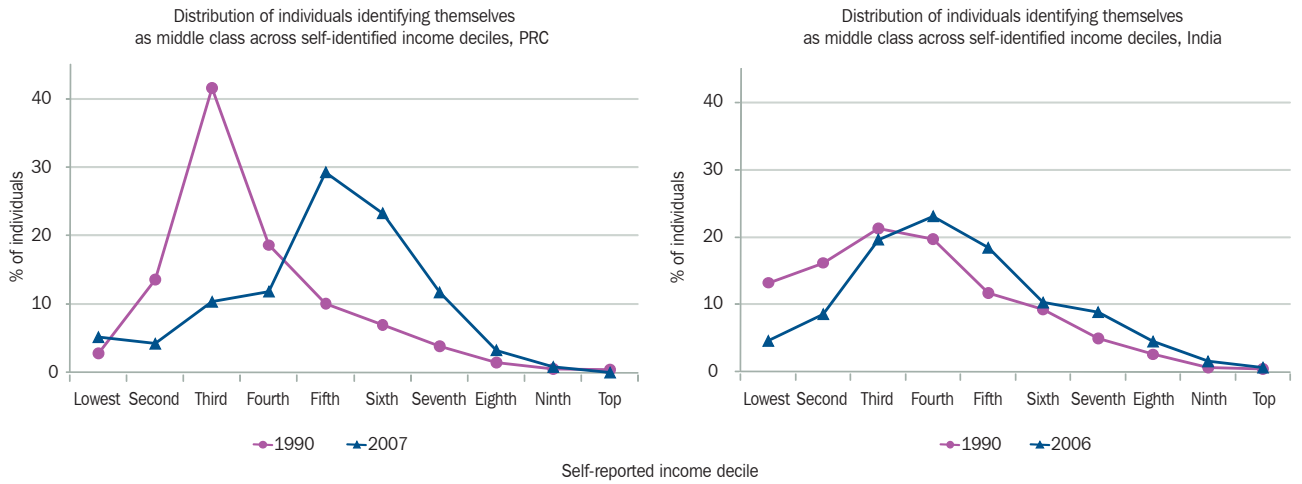
This combination of traditional and colonial in India's elite creation is well recognized. "The British made the initial impact, but the graft was so successful because the men they had shaped, fashioned their own culture and identity and even invented new values out of the old materials they had at their disposal…an intelligentsia in the true sense of the word…a middle class socialized in their parents' traditions but western educated and equipped" (Jaffrelot and van der Veer 2008).

The British intention is reflected in a quote from Thomas Babington Macaulay, an important political leader in his time: "It is impossible for us…to attempt to educate [all] the people. We must at present do our best to form a class who may be interpreters between us and the millions whom we govern; a class of persons, Indian in blood and color, but English in taste, in opinions, in morals, and in intellect."[1] In other words, four defining characteristics were embedded in the education system designed by the colonialists: (i) use of English, (ii) homogenous structure, (iii) exclusion of the masses, and (iv) desk-oriented.

These characteristics are largely retained in the current education system.[2] It is remarkable how, even to this day and despite India's federal structure and varying languages and culture,[3] the character of education is so uniform. Schools across the country have similar content taught in a similar manner, with the similar objective of creating a group of people who can help administer governments or companies. There is little focus on vocational education or imparting manual skills. Moreover, English remains an important mode of entry into centers of excellence and, largely, the language of higher and professional education.

1 From Thomas Babington Macaulay, "Minute of 2 February 1835 on Indian Education," Macaulay, Prose and Poetry, selected by G. M. Young (Cambridge MA: Harvard University Press, 1957), pp. 721-24,729.
2 Education was an important element of colonial rule in India, and just about all Indian leaders, spiritual or political, from Mohandas Gandhi to Jawaharlal Nehru, wrote extensively about the need to create a new education more in line with India's past and emerging requirements (Bhandari 2010). Though some lip service was paid to the thoughts of these leaders, independent India retained the colonial education system and its four defining characteristics.
3 Education is a state subject under the constitution of India and state governments are responsible for all key aspects of providing education.

Figure 2.8 **Self Identification as Middle Class, PRC and India**



Note: PRC = People's Republic of China
Source: Staff estimates from unit record data of World Values Surveys.

E. Projections of the Size of the Asian Middle Class[16]

Developing Asian economies are at very different stages of middle class emergence, as seen in Figures 2.9 and 2.10. These present the business-as-usual scenario for middle class growth in share and absolute size of the middle class, assuming no shocks and taking consensus forecasts for real gross domestic product (GDP) (G1).[17] In some countries, now approaching middle-income majorities, over 75% of the population will be in this category by 2030, even after accounting for inflation. In the intervening years, baseline GDP growth is expected to more than double the share of those with income of $2 or more per day in the largest countries (India and the PRC) and to increase it even more so in other countries. Some lower-income countries, such as Lao PDR and Cambodia, will see an even greater share in growth for this income group—evidence of the pro-poor nature of economic growth in the region and the benefits of integration. Other countries, like Timor Leste and Uzbekistan, will likely see only modest enlargement of the middle class, unless complementary policies are put in place to support more rapid and inclusive growth, such as more extensive infrastructure development and trade facilitation.

Countries with greater per capita endowments of energy resources (such as Kazakhstan) can expect to benefit substantially from sustained regional growth. Countries with majorities already at or above the $2 middle income level (Malaysia and Thailand) will manage a sustained enlargement of these groups, one that modestly outpaces population growth.

Figure 2.11 compiles the projected income distributions in 2010, 2020, and 2030 for the countries considered. Based on the World Bank consensus baseline growth rates (G1), we see steady but varied progress across the Asian region. The projected growth of the middle class is expected to bring significant changes to aggregate real household expenditures during 2010–2030 for different subregions, as seen in Table 2.9. This shows the considerable shift in global demand expected amid expectations that demand growth in Asia, more specifically developing Asia, will be greater relative to the western OECD countries. That is, Asia will increasingly become a bigger, more dominant entity in overall consumption demand.

Table 2.9 **Percentage Change in Aggregate Real Household Expenditures between 2010–2030 for Baseline Consensus Growth Scenario**

	Developing Asia	Other Asia	W. OECD	ROW
Crops	145	-17	8	86
Livestock	247	111	58	126
Energy	231	177	95	152
Other Minerals	225	121	49	112
Processed Food	152	82	42	90
Textile, Apparel	152	30	20	74
Light Manufactures	226	120	55	117
Heavy Manufactures	195	101	44	102
Utilities	215	122	45	95
Other Services	209	26	24	77
Total	195	43	30	88

Notes: Other Asia = Hong Kong, China; Japan; Republic of Korea; Singapore; Taipei,China), W. OECD = western OECD economies, ROW = rest of the world.
Source: Roland-Holst, Sugiyarto and Loh (2010).

To expand perspective beyond consensus growth trends, it is useful to see how the baseline trends could change depending upon external influences or policy actions on the level and composition of Asian economic growth over the next two decades. We consider two scenarios: (i) where Asia faces substantially higher energy prices as energy demand grows and (ii) a combined scenario that incorporates higher energy prices with optimistic expectations of improvements in technology that mitigate higher energy prices and increase agricultural and labor productivity. The factors are summarized as follows:

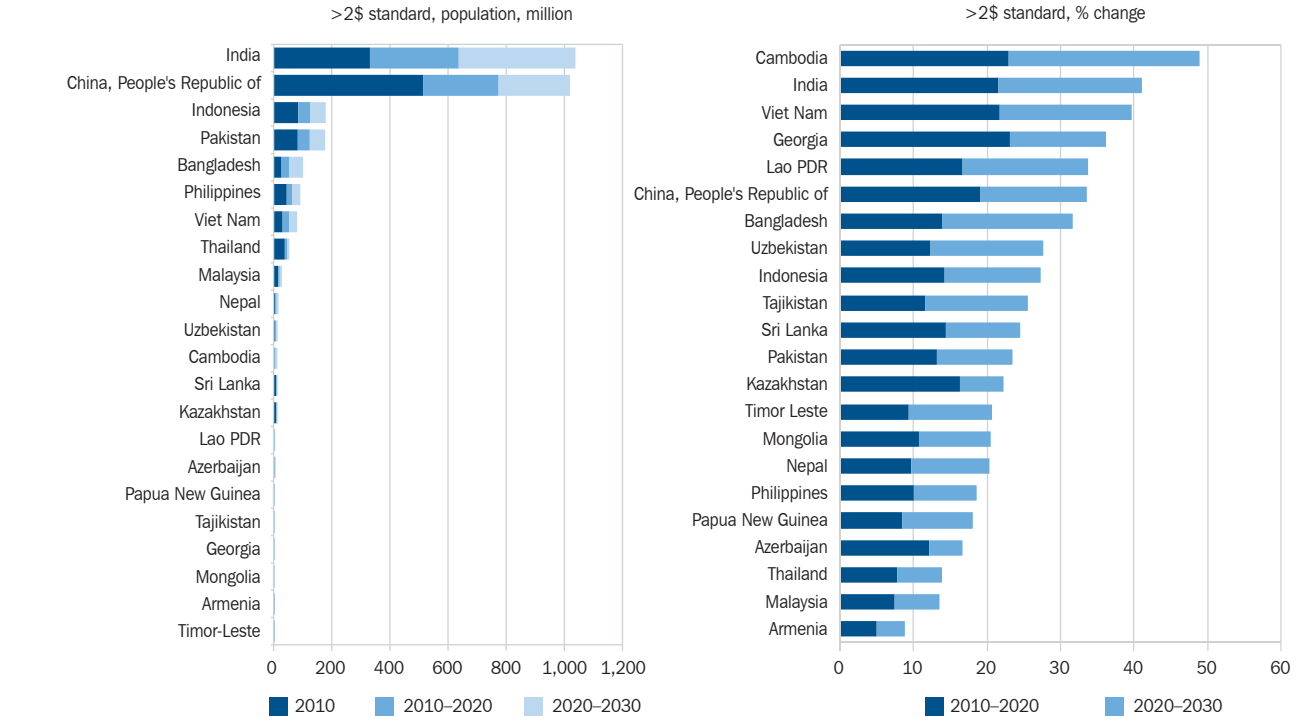
- Fuel price escalation (P)—Emerging Asian growth has been accompanied by very strong dynamics in global energy markets, and long-term conventional energy prices are subject to considerable uncertainty. To shed some light on the region's growth vulnerability to more pessimistic price trends, we include a counterfactual scenario in which global fossil fuel prices are 50% higher by 2030.

- Energy efficiency (E)—Improvements in energy efficiency have been shown to be a potent catalyst for

16 This section surveys historical income distribution data from 23 Asian and Pacific countries (all can be seen in Figure 2.1), fitted econometrically to lognormal distributions. This data is then calibrated to a dynamic global computable general equilibrium (CGE) model to project regional economic growth out to 2030 under different policy scenarios. (See Appendix 2 for a further discussion of data and methodology.) While the base for the middle-class shares relies on a different set of data that starts with substantially smaller percentages of middle-class populations than those based on the PovcalNet data, these projections provide the means to examine what is expected in terms of economic growth, the size of the middle class, and the role Asia will have in the global economy. Moreover, it provides the means to examine policies that are potentially meaningful in promoting middle class and fostering economic growth.

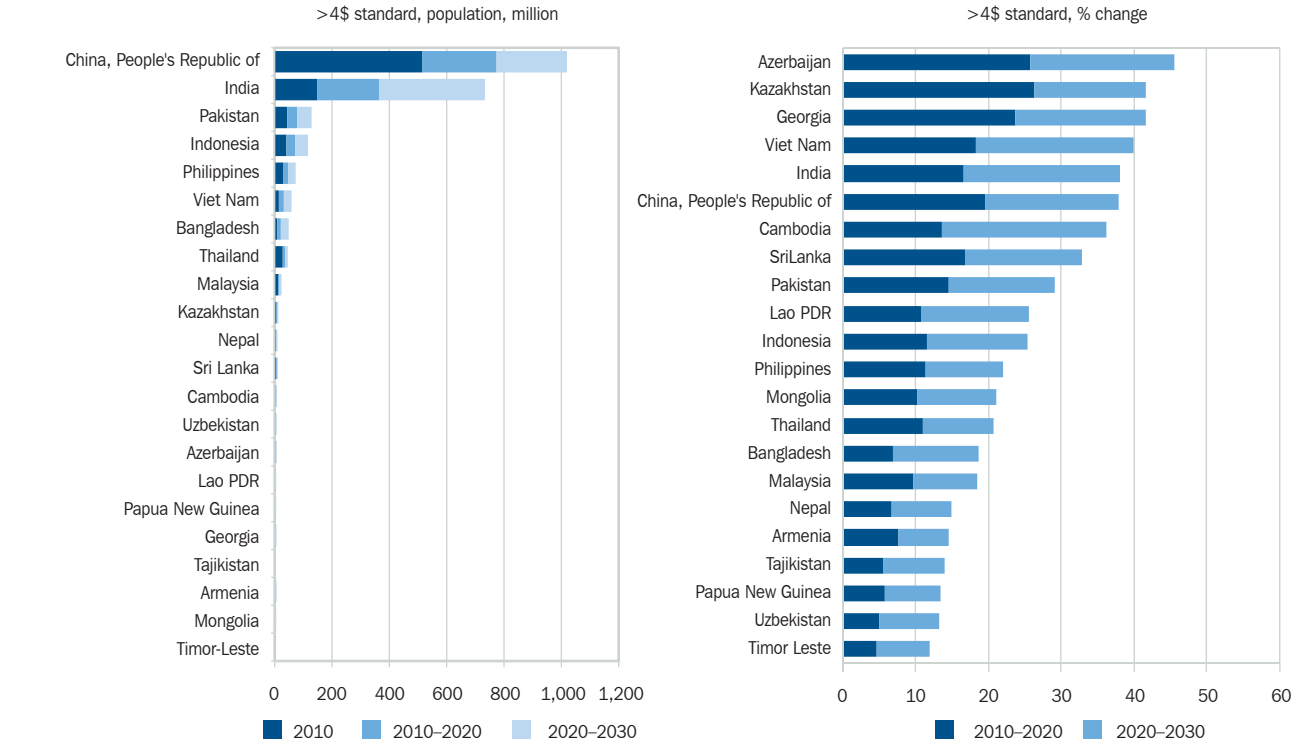
17 Baseline real GDP growth rates for each country over 2010–2030 are drawn from a database of consensus estimates assembled by the World Bank for its annual Global Economic Prospects reports (e.g. World Bank: 2009, Table 2.5, p.66). These are assembled from econometric estimates based on official national data, OECD Development Assistance Committee sources, and the IMF.

Figure 2.9 **Middle Class Emergence to 2030** (>$2.00 income per person per day)



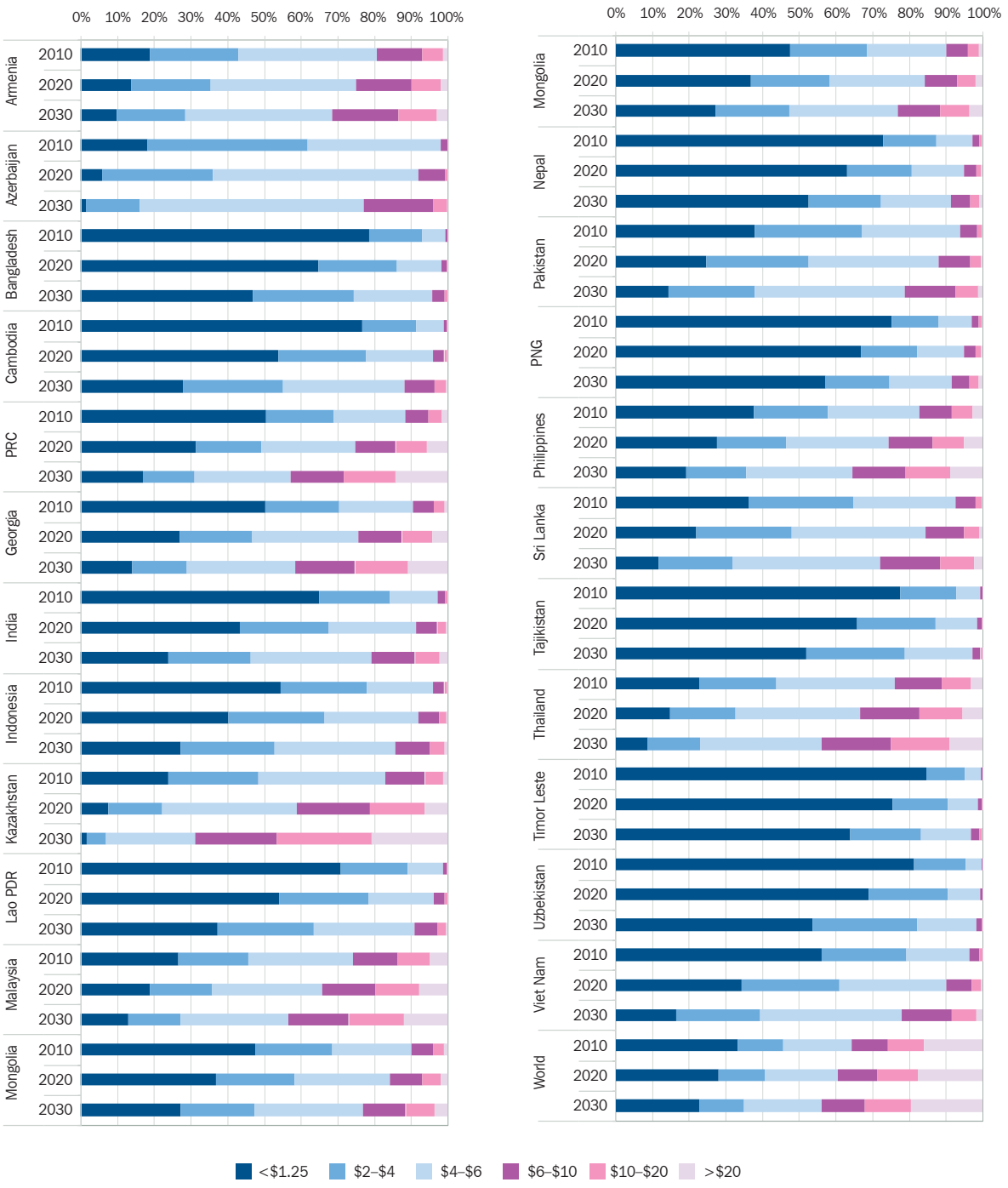
Note: Lao PDR = Lao People's Democratic Republic
Source: Roland-Holst, Sugiyarto and Loh (2010).

Figure 2.10 **Middle Class Emergence to 2030** (>$4.00 income per person per day)



Note: Lao PDR = Lao People's Democratic Republic
Source: Roland-Holst, Sugiyarto and Loh (2010).

Figure 2.11 **Baseline Income Distributions for Consensus Real GDP Growth Trends** (% of population in each income group)



Notes: PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic; PNG = Papua New Guinea
Source: Roland-Holst, Sugiyarto and Loh (2010).

economic growth, as well as an important mitigation strategy against higher energy costs and greenhouse gas emissions. To see these effects, we consider a scenario with 1% average annual efficiency improvements across each national economy.

- Agricultural productivity growth (A)—Agro-food products are critical to both basic livelihoods and economic growth potential because they are tied directly to the income of the world's poor rural majority and dominate the poor's expenditures. To

assess the importance of this sector, we include a counterfactual with total factor productivity growth in agriculture of 1% per year from 2010 to 2030.

- Skill intensive growth (S)—Increasing labor productivity is key not only to superior aggregate growth, but also to more extensive growth benefits across the population. To assess these benefits, in this counterfactual we assume 1% annual labor productivity growth of all individuals to 2030.

Table 2.10 shows the first macroeconomic results for the baseline consensus growth rates under fuel price escalation (G1P) and the combined scenario (G1PEAS) measured against the baseline G1. The three most salient features of these GDP estimates are: the varied nature of the results across countries, strong synergies with the combined policies, and decisive pro-poor impacts.[18]

Table 2.10 **GDP Results**
(% change from baseline G1 in 2030)

	G1P	G1PEAS
Bangladesh	-9.37	17.50
PRC	-6.73	17.69
Georgia	-1.61	3.06
Other Asia	-0.97	0.46
Indonesia	-7.51	22.75
India	-9.00	21.29
Kazakhstan	-14.37	14.62
Cambodia	-10.50	20.54
Lao PDR	-11.39	33.26
Sri Lanka	-5.84	24.65
Malaysia	-7.10	20.98
Pakistan	-9.35	17.08
Philippines	-6.04	21.05
Thailand	-6.48	19.00
Viet Nam	-9.45	15.57
Rest of Asia	-7.18	17.70
Total	-5.39	12.54

Notes: PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic; Other Asia = Hong Kong, China; Japan; Republic of Korea; Singapore; Taipei,China
Source: Roland-Holst, Sugiyarto and Loh (2010).

Sustained increases in fuel prices have a harmful effect on all the regional economies, even when two decades are allowed for adjustment. Energy efficiency mitigates these effects, but only partially. The extent of this benefit depends on the country's prior energy intensity and its domestic energy substitution capacity. For example, both the PRC and Thailand have high initial energy intensity, but the PRC has ample alternative fuel supplies. Thailand, by contrast, benefits more from energy efficiency because it has fewer or higher cost alternative supplies.

18 Overall, simulation results are robust with respect to differences in alternative values around the median parameters, and what variation they exhibit is consistent with economic intuition and the results interpretation that follows.

The mitigating effect of a 1% increase in agricultural productivity has limited benefits against higher energy prices. However, a large portion of the growth is driven by the assumption of skill-intensive growth where labor productivity growth is 1% per year. There are two primary reasons for this. First, labor is arguably still the most important factor of production in most of Asia (in terms of value added), and productivity growth in this factor can offset higher costs from just about any other source. Second, the Keynesian benefits of labor productivity growth, in terms of direct income increases for households with high expenditure propensities, have a strong growth dividend in what is still a region of low average incomes and commensurately high expenditure propensities.

There are strong synergies from projected increases in price efficiency, agricultural productivity, and skill productivity for every economy. These result from combining savings in two essential commodity categories, food and fuel, with higher real incomes from a wage stimulus. The effects, compounded over twenty years, more than compensate for higher energy prices and yield double-digit growth dividends in most of the region's economies over 2030 GDP values.

The pro-poor aspect of the combined policies is strong and consistent with intuition. Although every country benefits from rising labor productivity, those who benefit most are those with the lowest initial levels of productivity and real wages. These countries see the greatest relative benefit because their human capital is most in need of improvement and because their competitiveness improves most as a result of increased labor productivity that results from policies that promote human capital development. These countries represent the low hanging fruit for the realization of Asia's human potential. It has long been recognized that labor is the prime resource of the emerging Asian economies, and skill-intensive development is clearly the superior strategy to realize its long-term growth aspirations.

For the sake of comparison, Table 2.11 presents analogous scenario results for real aggregate household consumption. The most significant insight from this table has not to do with the qualitative results, which mirror GDP in sign across every country and scenario, but with the magnitudes. Both the negative and positive effects have wider extremes in terms of real consumption, which would make the events examined here much more sensitive politically. Negative energy price effects on GDP can be offset by structural adjustment that transfers resources to other activities, but they hit purchasing power more directly. At the other extreme, the benefits of higher wages may accelerate aggregate growth through

Table 2.11 **Real Aggregate Consumption Results**
(% change from baseline G1 in 2030)

	G1P	G1PEAS
Bangladesh	-13.20	19.01
PRC	-15.38	22.44
Georgia	-9.04	2.91
Other Asia	-3.29	0.33
Indonesia	-7.13	26.86
India	-14.20	25.36
Kazakhstan	-13.34	19.36
Cambodia	-18.73	23.63
Lao PDR	-9.93	44.09
Sri Lanka	-7.56	30.09
Malaysia	-11.95	27.47
Pakistan	-12.42	17.09
Philippines	-9.42	23.51
Thailand	-8.70	21.95
Viet Nam	-7.83	19.66
Rest of Asia	-8.07	23.63
Total	-10.03	15.08

Note: PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic; Other Asia = Hong Kong, China; Japan; Republic of Korea; Singapore; Taipei,China
Source: Roland-Holst, Sugiyarto and Loh (2010).

the compounding of multiplier effects, but the original impetus for this is higher disposable income and a very direct increase in expenditure. Because productivity growth also lowers domestic real prices, and more so when initial productivity is lower, poorer countries benefit more in terms of real purchasing power.

Our findings are generally optimistic; suggesting that Asia can continue and even accelerate established patterns of poverty reduction and livelihood advancement. For example, we find that using a >$2/day PPP standard, Asia can rise to a majority (55%) share of the global middle class by 2030, from 25% in 2010. Even by a higher standard of >$4/day, Asia will represent 39% of global middle class income. The results suggest that about one billion people will be added to an Asian $2 middle class of 2.7 billion over the next 20 years. This process will be uneven across the region, depending significantly upon initial conditions. The PRC and India will, of course, provide the largest number of new middle class, and this will reshape regional and global markets in their image.[19] At the same time, however, smaller countries will see faster or slower emergence depending on the eligibility of their resource base and labor forces for recruitment into higher value added supply chains.

The emergence of the Asian middle class is expected to be a dominating force globally, but external events and policy responses may inevitably have a substantial impact on just how large the gains will be. In particular, energy price vulnerability is an important risk to regional growth. Energy efficiency measures can provide insurance against this risk. Additionally, agricultural productivity growth can improve both the incomes of Asia's poor rural majority and the purchasing power of urban dwellers. Policies that promote energy efficiency and agricultural productivity (reducing food costs)—saving households and enterprises money—can be a potent source of new demand and job creation.

The projections show that skill development, especially in the lower-income regional economies, is possibly the most critical prerequisite for realizing the vast human and economic potential of the Asian region. Higher incomes, a larger middle class, and the self-sustaining prosperity they generate, can only be built on the foundation of a skilled and productive labor force that generates significant value added and higher income, channeling this into sustained long-term expenditure, savings, and investment.

19 Kharas (2010) has also projected the growth of the global middle class in 145 countries over 2009–30, using a model of global economic trends. The projections are based on several assumptions, including that inequality in each country (especially in the middle of the population) remains unchanged over time. There are four drivers of economic growth in his model: a technological advance of 1.3% per year for all countries (representing an advancement of knowledge worldwide); rapid technological catch-up in a group of fast-growing countries (with poorer countries growing faster than rich ones); capital accumulation; and country-specific demographic changes in the working-age population. Kharas' model suggests that the size of the global middle class will increase from 1.8 billion people in 2009 to 3.2 billion in 2020 and 4.9 billion by 2030, with Asia accounting for 85% of the growth. By 2030, Asia is projected to account for two-thirds of the global middle class—more than double its 2009 share (28%). Even more provocative are Kharas' projections of the shares of different countries in global middle-class consumption: by 2050, India is projected to account for 30% of the total and the PRC for 20%. The share of the US and Japanese middle classes in global consumption is projected to be miniscule, at only about 5% combined. While these projections, based as they are on highly aggregated and stylized models, cannot be taken as precise forecasts, especially over such long periods of time as 40 years, they indicate the tectonic shifts in global spending patterns likely to take place over the coming decades if countries in Asia—particularly the PRC and India—are able to sustain rapid economic growth rates.

3. The Middle Class and Their Values: A Profile

What are the characteristics of the middle class? Do its members look very different—in their occupations and education—from the poor or the affluent? What are their values? How are these different from those held by other classes? These are some of the questions this section addresses, allowing us to examine how middle-class characteristics may contribute to the growth process.

A. Profile of the Middle Class

In some ways, the middle class differs from the poor, simply because many household characteristics are strongly correlated with living standards, which, by construction, are higher among the middles class. These include rural/urban residence, geographical location, family size, and education. Likewise, the middle class will probably differ from the upper class because its lower standard of living lacks the attributes strongly correlated with affluence.

Using data from various living standards measurement surveys from around the world, Banerjee and Duflo (2008) paint a rich profile of the middle class in the developing world. They find that the middle class is less connected to agriculture than the poor in rural areas; the middle class also is less likely than the poor to own land and less likely to be wage laborers. Many middle-class individuals instead are local entrepreneurs in non-agricultural (but still rural) activities.

In the urban areas, the shares of entrepreneurs among the poor and the middle class are roughly the same. The businesses run by the middle class are very small, typically having only one employee (and other household members working in the business for only an hour or two each day) and a maximum of three. Thus, "… these businesses might be less an engine of growth than a means of sustenance, a way of 'buying a job'" according to Banerjee and Duflo.

Banerjee and Duflo find that middle-class individuals are much more likely to hold salaried jobs than the poor.[20] Indeed, having a regular, well-paid salaried job is the most important difference between the poor and the middle class. The middle class also has a greater propensity for migration to their current place of work and residence, a smaller family size (mainly due to lower fertility), a higher likelihood of sending children to school (especially private schools), and a higher propensity to seek more expensive medical care when ill. None of the latter findings is surprising, in that numerous studies from developing countries have shown that fertility declines and human capital investment rises as affluence increases. One would therefore expect the middle class to produce fewer children and invest more in health, nutrition, and schooling than the poor. Since migration is a form of human capital investment, one would expect successful migrants to be over-represented in the middle class. (See Box 3 for a look at migration and remittances.)

We use data from household surveys in 11 developing Asian countries to examine some of the characteristics of the middle class, among them, household size. It is almost a standard demographic fact that economic development generally brings about a preference among couples for fewer children. Figure 3.1 shows that average middle-class household size is smaller than among the poor (and larger than among the rich). However, average household size varies considerably across countries. For instance, in the $4–$10 per person per day middle class group, Bangladesh, Cambodia, Nepal, and Pakistan stand out for unusually large average family size, and the PRC, India, and Thailand for lower-than-average household size.

Geographical concentration is another middle class characteristic. As would be expected, the middle class is disproportionately urban in most countries. In the PRC, in 2002, urban areas accounted for 50% of the middle class ($2–$20) but only 35% of the country's population. The urban share of India's middle class was 38% in 2004–05—significantly larger than its 29% share of the total population. In the Philippines. in 2006, urban areas accounted for 68% of the middle class, but only 50% of its population.

The middle class is also regionally concentrated. In the PRC, for instance, the Western region accounted for 22% of the middle class in 2002, even though that region's share of the country's population was 28%. In the Philippines, in 2006, Metropolitan Manila accounted for 13% of population, but 22% of its middle class. In India, however, the middle class is distributed relatively evenly: of 35 states and union territories, the 10 states with the largest populations accounted for 68% of the country's population, 73% of the middle class, and 77% of the affluent class (>$20) in 2004–05. The top 15 states accounted for 88% of the population, 89% of the middle class, and 93% of the affluent.[21]

The middle class is also better educated. In the PRC in 2002, for instance, while less than 1% of the poor belonged to a household with a high school-educated

20 A significant portion of the poor also holds jobs, but these are casual-pay, not regular and salaried jobs.

21 The statistics are based on staff tabulations associated with the background papers on the middle class for the respective countries

Box 3 **Migration, the Middle Class, and the Role of Remittances in Poverty Reduction**

Migration to more developed countries has been increasing in the modern era amid widening socioeconomic inequalities across nations, globalization, and shifting demographics (Pernia 2009). Asia is no exception to this trend (ADO 2008).

But unlike in other eras, modern-day migrants do not face the same complete separation from their origins. They are sending money home to family members in record amounts, and these remittances have become an important source of income for developing countries.

Yet migrants often do not come from the poorest class, as many can neither afford the costs nor present the needed skills to land work in foreign countries. In countries such as the Philippines they come mainly from the middle class, those living just above poverty lines. Thus, international migration does not always directly reduce poverty. Rather, in such cases, it reduces the vulnerability to falling back into poverty.

Workers migrate to other countries for many reasons including "push factors" such as poor governance and a weak investment climate that limit job opportunities, and "pull factors" such as better job options, better education systems, health care, and so on that are largely related to economic outcomes and thus may play an important role in building the middle class.

Constraints such as geographical distance, language, a lack of skills, and others can still prevent migration. However once abroad, migrants are a powerful, if indirect, force in poverty reduction (Bourguignon 2003), with their numbers worldwide at around 100 million people in 2009 (ILO 2009). International remittances have become an important source of foreign exchange income for many developing countries and have helped countries strengthen balance of payments positions and maintain the stability of their economies. The flows of remittances have become a source of income more stable than development assistance, foreign direct investment, and other private inflows (World Bank 2006).

Available indicators suggest that migrants do indeed come from those living just above the poverty line. Adam and Page (2003) report an *inverted U-shaped* relationship between country per capita income and international migrants, implying that low- or high-income countries produce smaller shares than middle-income countries. In other words, developing countries with low income and high poverty produce less migrants, with most coming instead from non-poor households in middle-income developing countries.

The poor are left behind because they cannot come up with the funds needed to arrange migration. A recent ADB study showed that 41% of the Philippines' overseas foreign workers must borrow money to pay recruitment fees (ADB 2004). Poor people also often lack the education and skills required in the destination countries, including English.

The role of middle class in the migration process and in generating remittances is therefore an interesting one. A close examination from the Philippines (FIES 2006) reveals that more than 80% of migrant households are middle class ($2–$20 PPP per day), with the share coming from the poor (income of less than $2 2005 PPP a day) about 17%. The remaining 3% are upper class. Moreover, poverty incidence among households with international migrants is only around 3% while the same ratio for all household is more than 25%.

Results from FIES 2006 also show that middle class migrants are more educated and therefore have relatively better jobs and incomes than the poor. As a result, family members receiving remittances are able to spend more on basic expenditures such as various food and non-food items, including education, health care, and consumer durables. This increases current domestic demand and reduces poverty incidence. In the long run, it can promote growth in the domestic economy provided that human capital investments financed by remittance money are useful for the domestic economy.

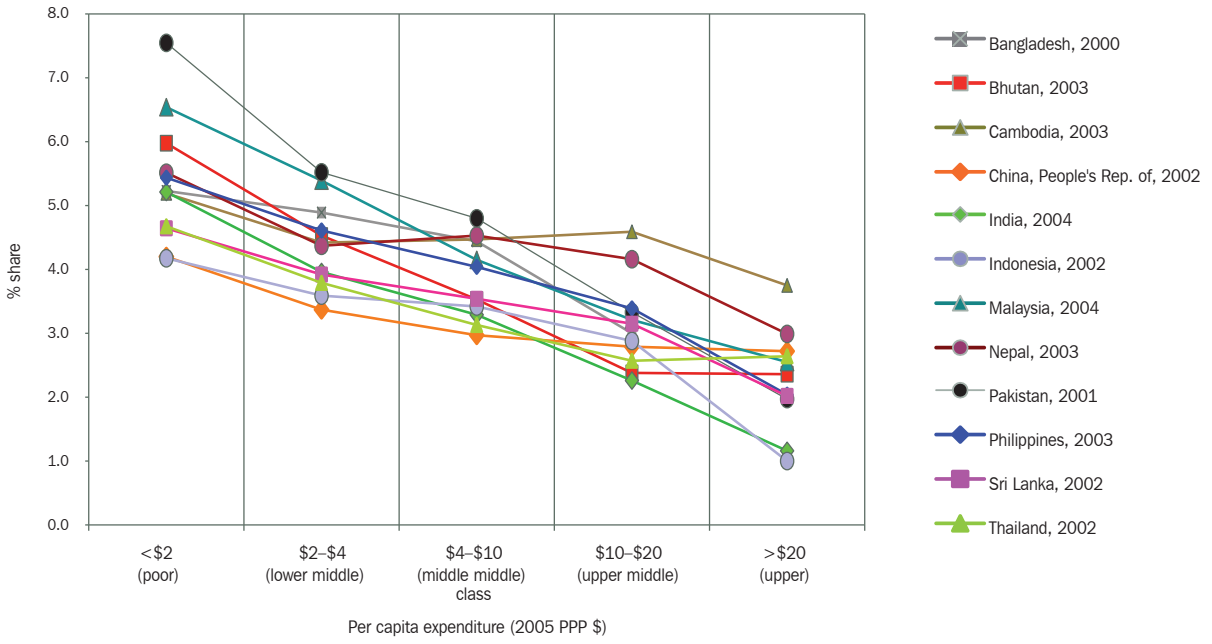
The higher percentage of migrants coming from the middle class is possibly related to the nature of international migration among Filipinos. Migration has long been part of the country's history, with Filipinos now working in more than 200 countries worldwide, with particularly strong institutional and political support for the process since the 1970s.

By contrast, Indonesian migrants are still predominantly from poor households, with just 30% from the middle class and 3% from the upper class. Most Indonesian migrants serve as domestic and low-skilled workers in Middle Eastern countries. It seems that the more advanced and well-developed the migration market the stronger the role of the middle class.

head, that number increased to 5.5% among the lower-middle class, 22% among the middle-middle class, and 40% among the upper-middle class. The same pattern is observed in India. While only 3%–4% of the poor in rural areas (and 5%–12% in urban areas) in 2004–05 had a chief wage earner with higher secondary or more education, as many as 25% of the upper-middle class in rural areas (and 54% in urban areas) did. The Philippines generally has higher levels of schooling than India or the PRC, but there is still a steep gradient between education and living standards. In 2006, 14%–25% of the poor had a head with at least a high school education, but this proportion was as high as 90% among the upper-middle class.

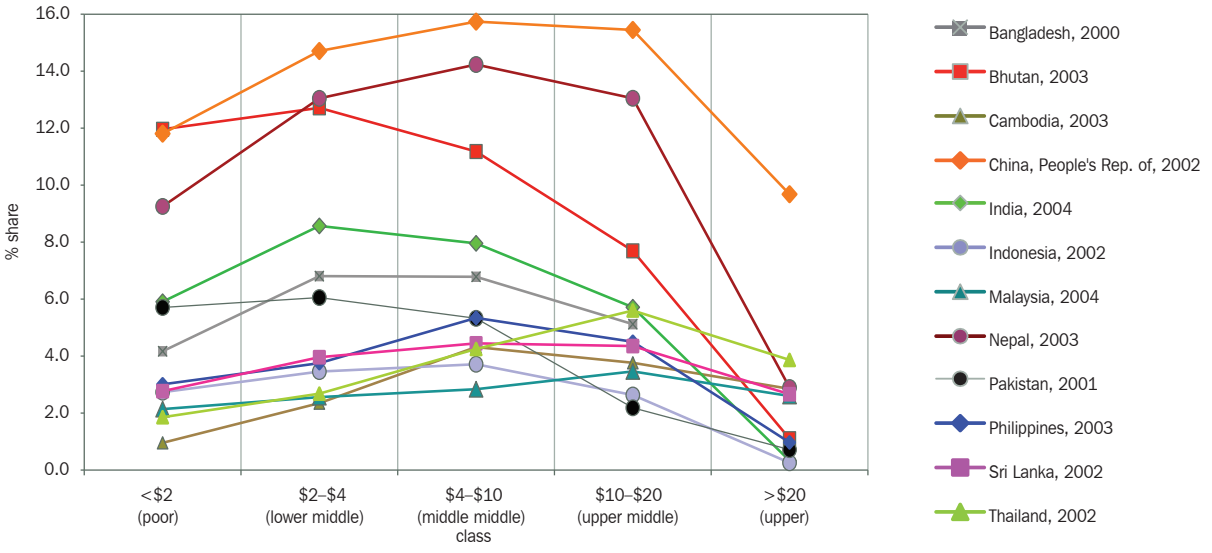
Not only is the middle class more educated on average than the poor, they also are more likely to invest in the schooling of their children. Figure 3.2 displays information on the share of household expenditure spent on education and health by different economic groups in the 11 countries covering 2000–2004. By and large, there is a pattern of middle-class households spending a larger share of their budget on health and education than poor households. For instance, in Nepal, middle-middle class households ($4–$10) spend 14.2% of their total expenditure on health and education services, but that share is 9.3% among the poor. Even in Thailand, the middle-middle class spends more than two times as much on health and

Figure 3.1 **Average Household Size by Per Capita Expenditure Class and Country**



Sources: ADB staff estimates.

Figure 3.2
Mean Percentage Share of Household Expenditure Spent on Education and Health by Per Capita Expenditure Class by Country, (2000–2004)



Source: ADB staff estimates.

education as the poor (4.2% versus 1.9%). However, there are three countries (PRC, Bhutan, and Pakistan) with no large differences between the poor and the middle class in budget shares spent on health and education. Overall, Chinese households spend the highest percentage of total expenditure on health and education.

Employment and occupation is another important attribute. Do middle class individuals engage in different professions and occupations than the poor and the rich? We base our analysis on data from the PRC, India, Indonesia, and the Philippines, as it is possible in these countries to merge information from household expenditure surveys (which enable identification of middle-class status) with information on the labor force status of household members.

Table 3.1 describes the distribution of the different types of employment activities, including unemployment, by expenditure categories. There are three observations to be made: first, own-account workers comprise the largest share of employment in the three classes of households: the $1.25 a day poor households, the near poor or vulnerable ($2 a day or less), and the lower-middle class ($2–$4). Second, individuals categorized as "employers" account for a very small share across all classes, but especially among the three lowest classes. Third, regular or permanent wage employment accounts for the largest type of employment in the top two classes. These patterns are consistent with those highlighted by Banerjee and Duflo, who argue that individuals in the middle class are not "capitalists in waiting." To the extent that they run businesses, these are small, undercapitalized, have low resource commitments, and are often unprofitable.

What about the occupational and industry distribution of the middle class? Data from India show that, in rural areas, middle-class individuals are less likely than the poor to be farmers and fishermen, and more likely to be professional and technical workers. In urban areas, they are less likely to be production workers and laborers, and more likely to be administrative, executive, management, professional and technical workers (Table 3.2) The same is broadly true of the Philippines, where middle-class individuals are much more likely to work in government and corporations (Table 3.3). In the rural areas of the PRC, middle-class households are less likely to be involved in agriculture and more likely to be involved in production enterprises, whether privately owned or government-run units (Table 3.4). Urban middle-class and upper-class households are more likely to have office, professional, or technical occupations compared to poor households, and to have a government-

Table 3.1 **Population Distribution by Economic Group and Employment Type**
(India, 2004–05; Philippines, 2006; and People's Republic of China, 2002)

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to total labor force by type of employment — India					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	46.7	0.2	42.1	8.5	2.5	100.0
$1.25–$2	Near poor or vulnerable	55.3	0.8	28.7	12.2	3.0	100.0
$2–$4	Lower middle class	53.8	2.8	14.5	24.8	4.0	100.0
$4–$10	Middle middle class	37.4	8.1	4.2	45.4	5.0	100.0
>$10	Upper middle class and rich	29.1	11.9	2.4	53.2	3.4	100.0
	All classes	51.1	1.3	29.4	15.1	3.1	100.0

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to each type of employment — India					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	32.7	6.0	51.3	20.1	28.4	35.8
$1.25–$2	Near poor or vulnerable	41.5	21.8	37.4	31.2	37.0	38.4
$2–$4	Lower middle class	22.7	45.1	10.7	35.5	27.8	21.5
$4–$10	Middle middle class	2.9	24.2	0.6	12.1	6.4	4.0
>$10	Upper middle class and rich	0.2	2.9	0.0	1.2	0.4	0.3
	All classes	100.0	100.0	100.0	100.0	100.0	100.0

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to total labor force by type of employment — Philippines					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	54.3	3.1	18.2	19.2	5.2	100.0
$1.25–$2	Near poor or vulnerable	47.1	3.7	18.4	23.7	7.0	100.0
$2–$4	Lower middle class	37.4	4.3	15.0	33.5	9.7	100.0
$4–$10	Middle middle class	27.3	5.1	10.7	48.2	8.7	100.0
>$10	Upper middle class and rich	15.4	7.3	7.0	65.2	5.1	100.0
	All classes	39.4	4.3	15.0	33.5	7.8	100.0

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to each type of employment — Philippines					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	25.2	13.3	22.1	10.5	12.2	18.3
$1.25–$2	Near poor or vulnerable	28.0	20.4	28.7	16.6	21.1	23.4
$2–$4	Lower middle class	29.7	31.5	31.3	31.3	38.9	31.3
$4–$10	Middle middle class	14.9	25.6	15.4	31.1	24.2	21.6
>$10	Upper middle class and rich	2.1	9.2	2.5	10.5	3.5	5.4
	All classes	100.0	100.0	100.0	100.0	100.0	100.0

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to total labor force by type of employment — People's Republic of China					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	58.4	3.0	20.5	16.6	1.5	100.0
$1.25–$2	Near poor or vulnerable	52.0	4.6	20.0	21.8	1.6	100.0
$2–$4	Lower middle class	37.0	5.0	18.5	37.7	1.7	100.0
$4–$10	Middle middle class	15.9	4.1	12.1	66.9	1.1	100.0
>$10	Upper middle class and rich	9.3	5.3	9.2	75.7	0.5	100.0
	All classes	34.8	4.4	16.7	42.7	1.4	100.0

Per capita expenditure /income class (2005 $ PPP)	Economic group	Share to each type of employment — People's Republic of China					
		Self-employed		Wage employment		Unemployed	Total (labor force)
		Own-account workers	Employers	Casual/ temporary	Regular/ permanent		
<$1.25	Poor	21.5	8.6	15.8	5.0	13.8	12.8
$1.25–$2	Near poor or vulnerable	26.3	18.5	21.1	9.0	19.7	17.6
$2–$4	Lower middle class	37.2	39.7	38.9	30.9	42.6	35.0
$4–$10	Middle middle class	13.7	27.6	21.7	47.0	22.3	30.0
>$10	Upper middle class and rich	1.2	5.5	2.5	8.1	1.6	4.6
	All classes	100.0	100.0	100.0	100.0	100.0	100.0

Source: Staff estimates based on India's Employment and Unemployment Survey; Philippines' 2006 FIES; CHIP Survey 2002.

Table 3.2 **Household Distribution** (%) **by Occupation of Chief Wage Earner and Per Capita Expenditure Class, India** (2004–05)

Urban	Per capita expenditure class (2005 $ PPP)					
	<$1.25	$1.25–$2	$2–$4	$4–$10	$10–$20	>$20
Professional, technical and related workers	1.0	3.0	6	8.0	11.0	19.0
Administrative, executive and managerial workers	4.0	6.0	9.0	13.0	17.0	33.0
Clerical and service related	3.0	7.0	10.0	16.0	16.0	14.0
Sales worker	18.0	18.0	18.0	19.0	18.0	15.0
Service workers	9.0	12.0	10.0	9.0	9.0	5.0
Farmers, fisherman, cattle rearing, hunters etc.	11.0	9.0	6.0	4.0	2.0	2.0
Production and related workers and Labourers – textiles, garments, food processing, miners, etc.	10.0	10.0	9.0	8.0	7.0	3.0
Production and related workers and labourers – metals, wood, stone, glass, plumbers and toolmakers, etc.	9.0	11.0	12.0	10.0	9.0	4.0
Production and related workers and labourers – rubber, paper, transport, construction, etc	35.0	26.0	21.0	13.0	10.0	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Rural	**Per capita expenditure class (2005 $ PPP)**					
	<$1.25	**$1.25–$2**	**$2–$4**	**$4–$10**	**$10–$20**	**>$20**
Professional, technical and related workers	1.0	1.0	3.0	6.0	9.0	14.0
Administrative, executive and managerial workers	1.0	2.0	2.0	4.0	6.0	14.0
Clerical and service related	0.0	1.0	2.0	4.0	7.0	6.0
Sales worker	4.0	5.0	7.0	8.0	8.0	8.0
Service workers	2.0	2.0	3.0	3.0	4.0	4.0
Farmers, fisherman, cattle rearing, hunters etc.	73.0	69.0	65.0	56.0	45.0	40.0
Production and related workers and labourers – textiles, garments, food processing, miners, etc.	3.0	4.0	3.0	3.0	3.0	4.0
Production and related workers and labourers – metals, wood, stone, glass, plumbers and toolmakers, etc.	2.0	3.0	4.0	5.0	6.0	3.0
Production and related workers and labourers – rubber, paper, transport, construction, etc	13.0	12.0	11.0	11.0	12.0	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Staff estimates based on 2004–05 NSS-CES.

Table 3.3 **Household Distribution** (%) **by Occupation of Household Head and Per Capita Expenditure Class, Philippines** (2006)

Urban	Per capita expenditure class (2005 $ PPP)					
	<$1.25	$1.25–$2	$2–$4	$4–$10	$10–$20	>$20
Special occupations (e.g., armed forces, etc.)	0.3	0.3	0.5	0.9	0.8	0.0
Officials of government & special interest organizations, corporate executives, managers, and managing proprietors	4.4	6.5	11.1	19.7	27.6	33.0
Professionals	0.1	0.2	0.8	4.5	11.1	17.8
Technicians and associate professionals	1.0	1.4	2.1	4.1	6.6	6.7
Clerks	0.9	1.4	2.4	4.3	6.5	3.5
Service workers and shop and market sales workers	3.4	5.2	7.5	8.1	6.1	2.6
Farmers, forestry workers and fishermen	27.3	17.0	8.5	4.5	2.0	0.4
Craft and related trades workers	12.1	16.2	15.1	8.9	3.5	1.3
Plant and machine operators and assemblers	8.4	11.3	15.2	10.9	4.0	0.9
Elementary occupation: laborers and unskilled workers	30.6	26.7	17.6	8.6	3.0	2.2
Household head has no job	11.3	13.8	19.3	25.5	28.8	31.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Rural	**Per capita expenditure class (2005 $ PPP)**					
	<$1.25	**$1.25–$2**	**$2–$4**	**$4–$10**	**$10–$20**	**>$20**
Special occupations (e.g., armed forces, etc.)	0.2	0.3	0.4	1.0	0.5	0.0
Officials of government & special interest organizations, corporate executives, managers, and managing proprietors	2.7	4.8	9.5	16.9	25.0	31.4
Professionals	0.0	0.2	0.8	5.7	14.7	19.7
Technicians and associate professionals	0.6	0.8	1.3	2.6	4.8	8.4
Clerks	0.5	0.7	1.1	3.5	1.3	0.0
Service workers and shop and market sales workers	1.9	2.5	3.7	5.1	6.0	6.6
Farmers, forestry workers and fishermen	56.0	46.8	36.3	24.4	14.6	7.9
Craft and related trades workers	5.5	7.5	8.0	4.5	0.6	0.0
Plant and machine operators and assemblers	3.3	6.1	8.7	8.0	2.7	3.6
Elementary occupation: laborers and unskilled workers	23.2	20.7	15.3	5.6	3.7	0.0
Household head has no job	6.0	9.5	14.8	22.7	26.2	22.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Staff estimates based on the 2006 FIES.

related occupation. Finally, survey data from Indonesia show that middle-class households are much less likely than the poor to work in agriculture and construction and much more likely to work in finance, services, trade, and manufacturing (Table 3.5).

It is possible to compare the household survey data with data from the WVS, which report information on occupation, education and sector of employment of respondents, in addition to respondents' self-perception about their social class, for a number of countries. We

Table 3.4 **Household Distribution** (%) **by Occupation of Household Head and Per Capita Income Class, People's Republic of China** (2002)

Urban	Per capita income class (2005 $ PPP)						
	<$1.25	$1.25–$2	$2–$4	$4–$6	$6–$10	$10–$20	>$20
Owner (manager) of private firm	2.7	0.9	0.3	0.4	0.2	0.9	2.9
Self-employed	6.8	9.7	6.6	2.4	2.1	3.5	5.7
Professional	8.2	6.6	13.8	20.9	27.4	34.1	37.1
Director of government agent, institution and enterprise	0.0	0.9	1.9	3.8	5.0	7.3	11.4
Department director of government agent, institution and enterprise	1.4	1.8	6.6	9.3	14.7	16.4	20.0
Clerical/office staff	4.1	10.2	17.7	21.1	23.7	20.1	14.3
Skilled worker	21.9	22.1	23.1	23.0	15.5	10.2	5.7
Unskilled worker	16.4	14.2	13.7	7.8	4.7	2.2	2.9
Sales clerk or service worker	17.8	18.6	10.8	8.3	4.8	3.5	0.0
Farmer	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	5.5	8.0	2.7	1.5	1.3	1.1	0.0
Unemployed	15.1	7.1	2.8	1.4	0.6	0.7	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural	**Per capita income class (2005 $ PPP)**						
	<$1.25	**$1.25–$2**	**$2–$4**	**$4–$6**	**$6–$10**	**$10–$20**	**>$20**
Farm labor	7.7	6.9	6.2	6.4	2.8	4.0	5.0
Ordinary worker	3.6	3.9	6.0	8.5	9.8	5.0	0.0
Skilled worker	1.1	1.9	2.4	2.3	3.5	4.0	0.0
Professional or technical worker	0.4	1.4	1.5	2.0	1.3	3.0	0.0
Owner or manager of enterprise	0.1	0.2	0.2	1.1	1.8	6.0	0.0
Village and production team/brigade cadre	3.5	5.7	7.9	11.6	13.5	20.0	30.0
Village and town cadre	0.1	0.4	0.4	0.7	1.0	0.0	5.0
Official of party or government office or institution (county or higher level)	0.2	0.0	0.4	0.2	1.0	0.0	0.0
Ordinary cadre in an enterprise	0.0	0.1	0.3	0.9	1.5	5.0	5.0
Temporary or short-term contract worker	12.0	12.3	12.5	9.3	8.0	6.0	0.0
Non-farm individual enterprise owner (such as retailer, driver, etc.)	2.9	4.8	6.9	9.8	11.8	16.0	35.0
Employee in non-farm individual enterprise	7.0	5.7	4.9	4.2	5.8	1.0	0.0
Agriculture/self-employed	48.8	44.0	38.6	34.2	27.0	22.0	15.0
Other	11.7	11.7	10.7	7.8	10.0	8.0	5.0
Unemployed	0.9	1.0	1.2	1.0	1.5	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Staff estimates based on CHIP survey 2002.

Table 3.5 **Household Distribution (%) by Industry of Household Head and Per Capita Expenditure Class, Indonesia** (2009)

Per capita expenditure class (2005 PPP $)	Industry of household head									
	Agriculture	Mining and quarrying	Manufactured	Electricity, Gas	Constructions	Trade	Transportation	Finance	Service	Total
<$1.25	59.5	1.3	6.0	0.1	5.0	6.5	4.1	0.3	17.2	100.0
$1.25–$2	45.2	1.2	7.3	0.2	6.3	12.2	5.4	0.6	21.5	100.0
$2–$4	25.6	1.2	9.6	0.6	5.2	17.7	6.9	1.7	31.4	100.0
$4–$6	10.7	1.7	10.9	0.8	3.8	19.9	5.7	3.7	42.8	100.0
$6–$10	7.3	1.9	9.2	0.9	3.5	19.7	5.3	5.4	46.9	100.0
$10–$20	4.6	3.0	8.2	1.1	2.4	21.2	4.5	6.6	48.3	100.0
>$20	6.0	5.7	6.5	1.9	2.2	17.0	7.3	10.5	43.0	100.0

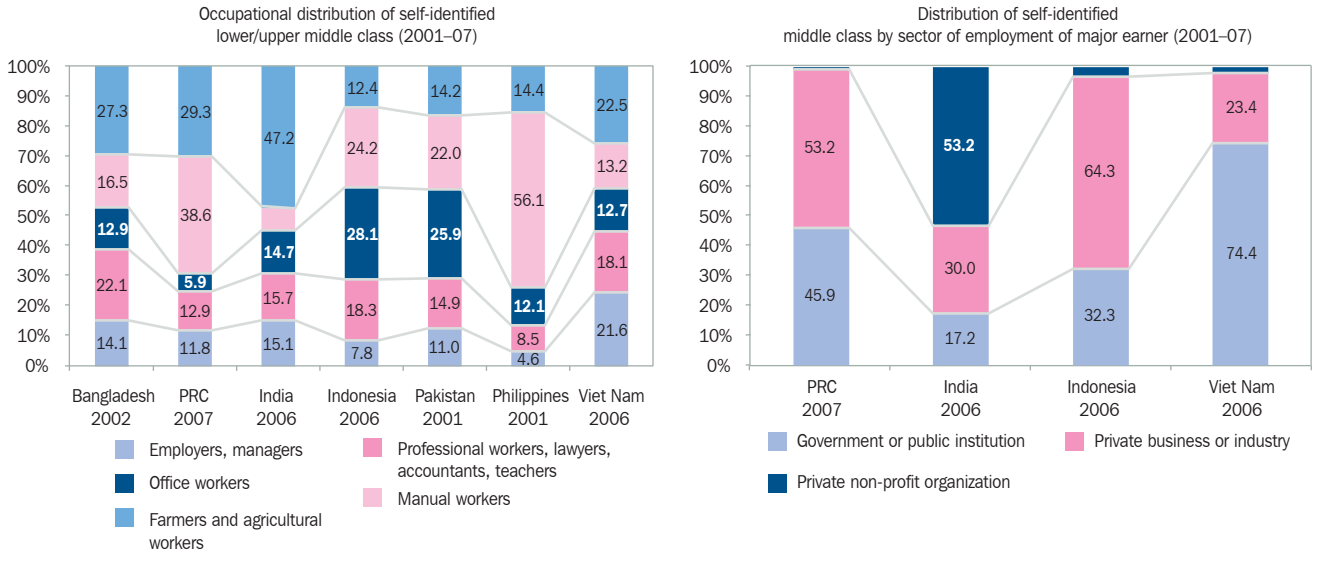
Source: Staff estimates based on the 2009 SUSENAS.

have used these data to study the characteristics of the self-identified middle class across countries. The data show very large variations in middle-class occupational characteristics across countries (Figure 3.3). For instance, while professionals (including lawyers, accountants and teachers) constitute only 8% of the self-identified middle class in the Philippines, their representation in the Bangladeshi middle class is as large as 22%. Farmers and agricultural workers account for nearly one-half of India's middle class, but only 12% of Indonesia's.

Figure 3.3 also shows large variations in the proportion of the middle class that works in the public sector—from 17% in India to 74% in Viet Nam. On the other hand, the private for-profit sector accounts for nearly two-thirds of the Indonesian middle class, but only 30% of India's middle class. One unusual finding is the extremely large proportion of the Indian middle class that reportedly works in the private nonprofit sector.

While university education is much more common in the middle class than in the poor population in all of the sample countries, there is considerable cross-country variation (Figure 3.4). At one extreme is Pakistan, where only 9% of middle-class respondents have university degrees, and at the other, Indonesia, where one-third of the (self-identified) middle class has a university degree.

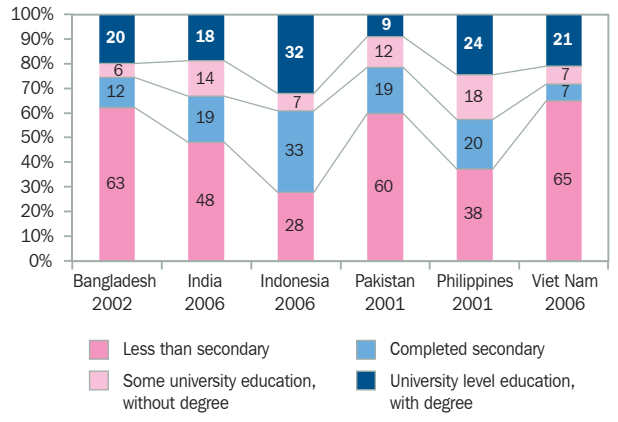
Figure 3.3 **Occupation and Sector of Employment of the Middle Class** (2001–07)



Note: PRC = People's Republic of China
Source: Staff estimates from unit record data of various rounds of the World Values Survey.

Figure 3.4 **Education of the Self-identified Middle Class** (2001–07)

Distribution of self-identified middle class by highest level of education in household



Source: Staff estimates from unit record data of various rounds of the World Values Survey.

B. Middle-Class Values

What personal values do middle class individuals espouse? Are the middle class more likely to value, market competition, notions of gender equality, providing rewards for hard work, trust in others, political activism, and the role of science and technology, than the poor or the rich? This section addresses these questions using the latest available wave of the WVS data for 80 countries worldwide.

We created six indices, documented in Appendix 3, to represent values comprised of responses to a series of questions along the different dimensions. Table 3.6 shows the estimates of progressivity of the lower class and upper class versus the middle class (omitted) based on self-reported class designations, after controlling for country differences, inequality levels represented by a country's Gini and log per capita GDP, and weighting by a country's population in 2008. That both the Gini and the log per capita GDP generally had significant coefficient estimates with all of the indices, reflects that a country's average income level and the shape of the distribution are highly important determinants of the average values of individuals. However, even after accounting for these different country level aspects, the middle class is found to hold significantly more progressive views in terms of openness to market competition, gender equality, upward mobility, trust, political activism, and technology than the lower class.

While the middle class remains less progressive than the upper class, in terms of market competition, gender equality, trust, and perceptions of upward mobility, achieving middle class status still appears to have highly beneficial effects correlated with values that contribute to economic growth and development. In particular, greater support for market competition and perceiving significant prospects for upward mobility create incentives for entrepreneurship and increased productivity through hard work. Moreover, less discrimination toward certain gender roles and biases allows females to make similar human

Table 3.6 **Class Progressivity in Values Regressions**

Variables	Market competition	Gender equality	Upward mobility	Trust in others	Political activism	Technology
Lower Class	-0.018***	-0.022***	-0.032***	-0.017***	-0.046***	-0.041***
	[0.005]	[0.004]	[0.003]	[0.004]	[0.004]	[0.003]
Upper Class	0.045**	0.064***	0.064***	0.025*	-0.038**	-0.011
	[0.022]	[0.018]	[0.014]	[0.015]	[0.017]	[0.013]
Gini	0	0.004***	-0.002***	-0.010***	-0.008***	-0.002***
	[0.001]	[0.001]	[0.000]	[0.001]	[0.000]	[0.001]
Log(Per Capita GDP)	0.027***	0.078***	-0.031***	0.107***	0.011***	-0.033***
	[0.002]	[0.003]	[0.003]	[0.005]	[0.004]	[0.003]
Constant	0.180***	-0.117***	0.986***	-0.147**	0.492***	1.077***
	[0.031]	[0.045]	[0.031]	[0.070]	[0.042]	[0.040]
Country fixed effects	Y	Y	Y	Y	Y	Y
Observations	60,040	60,262	60,878	60,415	60,957	60,881
R-squared	0.093	0.204	0.151	0.148	0.186	0.29

Notes: Robust standard errors in brackets.
*** p<0.01, ** p<0.05, * p<0.1
Data for 80 countries, individuals 25–55 years old.
Source: Staff estimates based on the World Values Survey (WVS), 3rd–5th waves.

Box 4 **The Middle Class and Sex Ratios at Birth**

While the middle class generally holds more progressive social and economic values than the lower class, there are exceptions. The phenomenon of sex ratios at birth (the ratio of male to female births) in some countries is one such example.

More boys than girls are born in most societies to compensate for the biological frailty of male infants. However in some countries, such as the People's Republic of China, India and, recently, Viet Nam, the sex ratio at birth is higher than the 1.05 rate normally expected. This rate has been rising, skewed by sex-selective abortion and infanticide, which reflect a strong cultural preference for sons over daughters in these societies. Some estimates put the number of "missing females" (i.e., unborn girls) in Asia as high as 100 million (Sen 1990).

What is disconcerting is that the sex selection seems to rise with living standards. In India, it is higher in urban than in rural areas and typically rises with household living standards, female literacy, and education of mothers—all factors associated with a middle class (Dasgupta and Bhat 1997, Jha et al. 2006, Borooah and Iyer 2005, Deolalikar et al. 2009).

Indeed, Basu (1999) has noted that the core level of son preference in India may actually be strengthened by modernization. The positive effect of female literacy and affluence on sex ratios at birth is likely mediated through fertility; as living standards and female literacy improve, there is a strong parental preference for fewer children, which, when combined with the traditional preference for sons (over daughters), leads to a skewed sex ratio at birth. If parents want to have only one or two children, they may ensure that one or both of them are boys. In addition, of course, middle-class households in urban areas have easier access to prenatal sex-determination technologies, such as ultrasound and amniocentesis.

Skewed sex ratios at birth are not unique to lower-income countries. They have also been observed in some highly-developed, middle-class dominated economies like Taipei,China and the Republic of Korea (Park 1983, Park and Cho 1995, Croll 2002). Indeed, recent research has found evidence of skewed sex ratios at birth among Asian immigrant communities in the United States and the United Kingdom (Almond and Edlund 2008, Dubuc 2007).

This is a matter of grave policy concern, not merely because it violates the human rights of unborn and infant girls, but also because it deprives countries of the potential economic and social contribution of these 'missing' women.

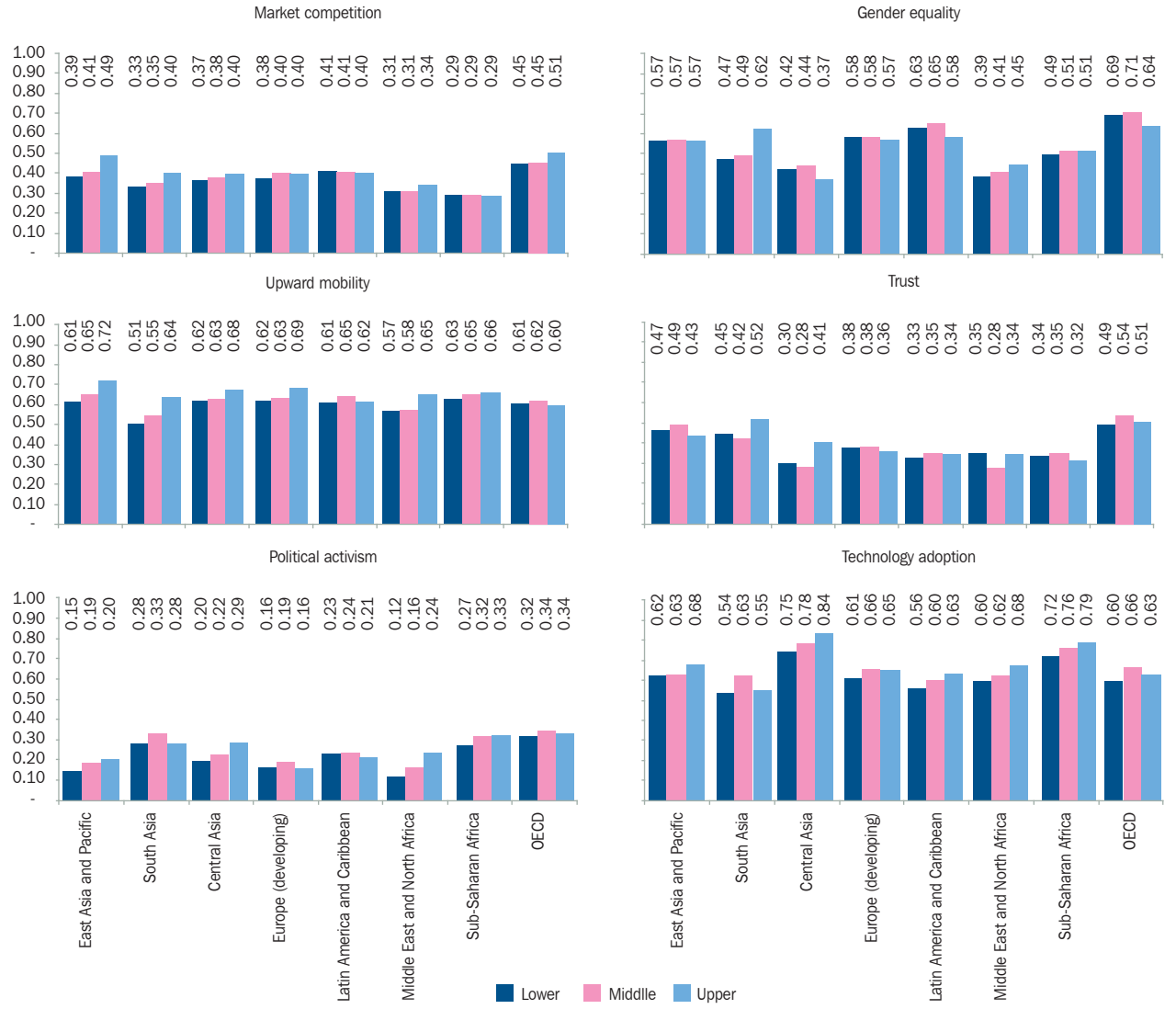
The recent experience of Korea in reversing high sex ratios at birth is instructive. Beginning in the mid-1990s, Korea launched a public awareness campaign against the practice and also began strict enforcement of laws forbidding the use of sex-selection technologies. This has resulted in a gradual reduction of the sex ratio at birth from 1.16 in 1998 to 1.1 in 2004 (Liu and Zhang 2009).

capital investments independent of their ascribed position in society.[22]

To examine how middle class values differ across different regions and in comparison to other classes within regions we regressed region dummies interacted with values of self-reported social class status, log GDP, and Gini coefficients. The predicted values for different indexes for each region are shown in Figure 3.5. It is observed that there are substantial differences in values across regions and classes In general, East Asia appears highly supportive of market competition and perceives greater prospects for upward mobility that is correlated with its higher income class status. South Asia is less supportive of market competition than East Asia, which may be related to lower perceptions of upward mobility. While those in East Asia participate in relatively little political activism, South Asia's middle class appears to have the greatest participation in political activities. In general, the figure shows that East Asia has generally more progressive views, which may explain some of the higher rates of growth in the region compared to South and Central Asia. (See Box 4 on sex ratios and middle class values.)

22 These results were robust to different definitions of middle class based on the self-reported middle 60% of the income distribution and a more objective measure based on the criteria of occupation, education, and self-reported income distribution quintile.

Figure 3.5 **Differences in Values by Class Across Regions**



Note: See appendix 3.
Source: Staff estimates from regression estimates of unit record data in 80 developing countries of World Values Survey.

4. Determinants of Middle Class Emergence

What forces shape the middle class and allow it to grow? By identifying these determinants it is possible to assess what policies help the middle class grow and contribute more to the development process.

A. Economic Growth and Income Distribution

Sustained economic growth tends to lift large numbers of people out of poverty and into the middle class. As such, economic growth is critical to both poverty reduction and the rise of the middle class. Birdsall (2007) argues that "inclusive growth"—which she characterizes as growth conducive to increasing the size and economic command of the middle class—is fostered by many of the same policies that reduce poverty, namely, fiscal discipline (e.g., good debt management and a fair tax and redistribution system), lack of trade volatility, sound monetary policy (resulting in low and stable inflation), and improved infrastructure.

In addition to growth, however, reducing income inequality plays a key role in the rise of a middle class. Kharas and Gertz (2010) cite the interesting and contrasting experiences of Brazil and the Republic of Korea. From 1965 to 1980, Brazil's economy grew an average of 5.6% per year, putting per capita GDP in 1980 at PPP $7,600. Given its high income inequality, the middle class constituted only 29% of the population by 1980. The small size of the middle class and its relatively low levels of consumption hindered the development of a knowledge-based economy, and to this day Brazil remains primarily a commodity exporter. In contrast, the Republic of Korea grew 6.5% per year during 1965–86, reaching per capita GDP in 1986 of PPP $7,700, about the same level as Brazil. However a more egalitarian income distribution meant that the Republic of Korea's middle class made up 53% of the population. (See Box 5 for a look at the emergence of the Republic of Korea's middle class.) This allowed the Republic of Korea to develop a service- and knowledge-based economy in a way that Brazil could not. Kharas and Gertz note that the PRC, with its high (and rapidly rising) level of income inequality, today more closely resembles Brazil in 1974 (when Brazil too had a per capita income of about PPP $6,000) than the Republic of Korea in 1983 (with per capita GDP at PPP $6,300).

As for the large and evolving disparity between the spending power of the Indian and the Chinese middle class, Kharas (2010) argues that India's lower levels of income inequality and a larger share of household income in GDP give it a big advantage. There is other evidence that supports this line of thinking. It is estimated that nearly three-quarters of the PRC's capital goes to some 120,000 state-controlled entities and their many subsidiaries, with the remaining quarter shared by the 40 million or so privately owned businesses (Business Week 2010). The result is that a large portion of business profits in the PRC end up in state coffers (and reinvestment), not in the pockets of Chinese entrepreneurs. In contrast, India's bottom-up private sector model leaves a larger share of business profits in private hands which can be spent on consumer goods.

Certainly, there is little question that aggregate demand is heavily tilted in the PRC in favor of investment, government expenditure, and net exports. This is seen in household final consumption, which accounts for only 37% of total output, significantly lower than in other Asian countries (66% in Viet Nam, 63% in Indonesia, 54% in India, and 51% in Thailand) (Kharas and Gertz 2010).

The contrast between the PRC and India is even starker in the rural areas. The PRC's rural sector accounts for only a third of GDP and generates just 15% of growth; in India it accounts for 50% of GDP, up from 41% in 1982, and for about two-thirds of overall growth (Business Week 2010). As a result, Indian consumer product companies have recognized the need to reach rural consumers to succeed, fuelling intense innovation in the development of low-cost products and services (frugal innovation). Indeed, Indian companies are now world leaders in designing and marketing low-priced products and services geared to low-income consumers.

Analysis of household survey data by Khor and Pencavel (2006) shows that while there was considerable income mobility in the PRC in the early 1990s—more than, say, the United States—the situation had changed by the early 2000s. By that time, income inequality had increased and income mobility begun to slow. Interestingly, Khor and Pencavel find important differences across rural and urban areas. As the urban-rural gap in incomes widened, inequality among rural households decreased and income mobility increased, the opposite of urban areas, where inequality increased and income mobility decreased.

How can Asian developing economies—particularly the PRC—accelerate their transformation from export-oriented and investment-led to personal consumption-led growth? One way, of course, is to reduce high rates of household savings. This process could be aided by the

Box 5 **Fostering a Middle Class—Korea's Economic Transition**

From its position in the 1960's as a developing, low-income country, the Republic of Korea has in just 30 years transformed itself into a major global economic player with a strong, stable, and sizable middle class. It did so through a visionary and effective government that introduced policies that fostered such change.

The process of middle class development started in 1962 with the Five Year Economic Development Plans, which led to rapid industrialization and the creation of stable sources of employment. By 1966 middle class formation became a specific topic of concern when then-President Park Chung-hee gave a speech reflecting social concerns such as relative income distribution and workers' real wages.

The emergence of the middle class was further encouraged by (i) policies that promoted wealth accumulation among the middle and lower middle classes and (ii) policies for accumulating and maintaining human capital—namely, education and health—for middle income groups. Among these, the "Workers' Asset Building Savings" plan and the health insurance system effectively raised middle class living standards and reduced vulnerability to poverty.

Workers' Asset Building Savings

In 1976, the government introduced Workers' Asset Building Savings under the Saving Promotion and Workers' Asset Building Supporting Act. Savings provides a safety net in the face of risks and negative income shocks, but they are also a key component of the formation of a middle class. Since the poor generally do not have sufficient means to save, these savings policies are essentially directed at lower middle class groups.

When the new plan was enacted, employees whose monthly income was below 250,000 won (W)—about $1,036 2005 PPP—were entitled to an asset building account. Monthly savings put into these accounts were between W5,000 and W120,000, but were not allowed to exceed 30% of monthly income.

The accounts were exempted from taxes with government and employer added subsidies in the form of matching funds, raising the effective interest rate to roughly 60% to 180% higher than the normal interest rate, depending upon maturity and a worker's income level. Depositors could also borrow housing funds for up to W20 million. In 1987, the upper bound of workers' monthly income was raised to W600,000—(about $1,446 in 2005 PPP) under the Workers' Housing Stability and Asset Building Supporting Act.

Meanwhile, similar types of tax-exempted, long-term savings for middle and low-income workers were created in the early 1990s: workers' preferential savings deposits and long-term savings, and households' long-term savings. These accounts gave tax incentives, but there were no direct subsidies from the government or employers and subsequently disappeared in the early 2000s, as the government tried to minimize preferential tax benefits on financial commodities.

The National Health Insurance System

The National Health Insurance was an important foundation for building up human capital for the middle class, as it provided medical services at affordable prices. The Medical Insurance Act was created in 1963, with actual implementation first occurring in 1977 to companies with more than 500 employees. The program subsequently extended its coverage to public officials, and employees in educational institutions in 1979, rural residents in 1988, and urban residents in 1989; by 1990 the majority of the population was covered, with the exception of the extremely low-income population, which receive government subsidized medical care. Between 1988 and 2003 the system absorbed all other public health insurers.

Coverage through the National Health Insurance is compulsory for all. The employed make a monthly contribution through an automatic salary deduction in proportion to income of which 50% is paid by the employer, with the contribution rate determined each year (5.33% in 2010). No contribution is required for the portion of monthly income exceeding W6.579 million. Dependents of an enrollee with no income are automatically covered without any additional contributions. On the other hand, self-employed or regional insured enrollees have to contribute according to their identified income. The system has effectively redistributed income, providing the foundation for productive human capital.

Policies for middle class recovery after 1997/98

Despite its successes, Korea remains focused on middle class development. The 1997/98 Asian financial crisis, for example, spurred the government to implement policies explicitly aimed at the formation and recovery of the middle class. In 1999, the government presented "measures for stabilization of [the] middle class and ordinary people's living." It planned to spend W1.4 trillion to reduce the tax burden of wage earning workers, and W1.1 trillion for government projects for middle class and ordinary people.[1]

It effectively reduced income tax by 41.7% for workers whose annual income was W15 million, while income tax was reduced by 17.9% for annual income of W30 million. Small and medium enterprises and venture startups got more tax exemptions on initial operations.

Among measures aimed at boosting the middle class are: (i) support for small startup firms through credit guarantees, management and marketing know-how, and network infrastructure for ventures, (ii) enlarging loans to college students, subsidizing education investment, health insurance, and housing funds for low-income group, and (iii) extending low interest loans to rural populations.

In March 2009, the government made "Human New Deal for Middle Class" one of the two main agendas under President Lee Myung Bak.[2] It aimed to (i) prevent slippage into the lower class, (ii) promote entry into the middle class, and (iii) foster the future middle class.

Policies to prevent slippage included helping to maintain and create jobs, diversify household income sources, and lower household expenditures on housing, health and especially education.

Policies to promote entry included enhancing vocational education and job training, strengthening work incentives for low-income groups, fostering startup firms such as "one-person creative firm(s)," and improving the transmission of social welfare expenditures.

1 "Ordinary people" is not scientifically defined but usually refers to low- and middle-income groups. The middle-high income group may be excluded in this category.

2 The other main agenda is "Green New Deal", focused on environmentally friendly technologies.

Source: Ha (2010).

development of broader social safety nets, including social security and universal health care, helping to stimulate personal consumption in Asia.[23]

The PRC could also accelerate the development of its middle class by raising the share of household income in GDP directly through macroeconomic policy changes. Kharas and Gertz (2010) suggest two: first, use the large profits of state-owned enterprises to reduce labor taxes and fees on employment, and, second, accelerate banking reforms to ease access to credit for small and medium enterprises. Both measures would increase the share of labor, and, thereby, the share of household income in GDP.

Additionally, the PRC could increase aggregate consumption by changing its exchange rate policy. The yuan is alleged to be undervalued relative to the US dollar, making Chinese goods artificially cheap to foreigners and foreign goods artificially expensive to the Chinese. The undervalued currency is equivalent to a subsidy on exports and a protective tariff on imports. If the yuan were to rise in value relative to the US dollar, Chinese consumption of goods and services produced elsewhere in the world would rise.[24]

B. Jobs and Education

Ultimately, two factors drive the creation and sustenance of a middle class: (i) stable, secure, well-paid jobs with good benefits, and (ii) higher education. This is clearly borne out by our examination of middle class profiles, which showed that a large portion of the middle class (in the Philippines, India, and the PRC) have jobs which provide them with stable incomes in comparison to the poor, who are primarily self-employed. The US case provides more substantial support for these claims, where the automobile industry is credited with contributing significantly to the creation of an urban middle class in the post-war economy. The industry grew rapidly in the early years of the last century, auto sales rising from 4,100 in 1900 to 895,900 in 1915, to 3.7 million in 1925, producing huge growth in automobile employment. By 1925, over 10% of US workers were working in occupations related to the production, sales, service, or fueling of automobiles (Kyvig 2004).

Despite this, industry wages were too low—and non-salary benefits almost nonexistent—to put auto workers into the middle class. It was only toward the late 1930s, when unionization became the norm, that wages began improving significantly. Workers and the auto companies struck an implicit social contract whereby the companies would get labor, loyalty, commitment and productivity in exchange for good wages and job and retirement security. This new balance of power made US auto workers the first well-paid working class, with job security and health and retirement benefits, in the world (Freeman and Medoff 1984). As the US example suggests, sometimes it takes more than the sustained growth of a new, mass-production-based industry to create middle-class jobs; other interventions, in this case unionization, may also be needed to ensure that the jobs created are well-paid, stable and secure, providing workers a middle-class lifestyle.

Banerjee and Duflo (2008) make a broadly similar point in their paper on the middle class in developing countries. According to them, "… nothing seems more middle class than the fact of having a steady well-paying job… The reason why this matters – indeed why it might matter a lot – is that it leads us to the idea of a good job. A good job is a steady, well-paid job; a job that allows one the mental space that one needs to do all those things that the middle class does well. This is an idea that economists have often resisted, on the grounds that good jobs may be expensive jobs, and expensive jobs might mean fewer jobs. But if good jobs mean that children grow up in an environment where they are able to make the most of their talents, one might start to think that it may all be worth it."

Widespread education, especially post-secondary, is the other important element in creating a large middle class. Again, the US provides a good historical example. Its G.I. Bill of 1944—which provided college or vocational education benefits (in addition to many others, including one year of unemployment compensation and low-interest home loans) to returning World War II veterans—sparked a vast expansion and democratization of US higher education (McCarthy 1975).

Before World War II, high school graduation was rare in the US; millions of armed forces personnel had not even graduated from grammar school, and many young Americans did not go beyond the 10th grade. The impact of the G.I. Bill was profound. Two years before the war, there were 160,000 students in college; by 1950 the graduating class was nearly 500,000 (Greenberg 1997). In 1942, veterans accounted for 49% of college enrollments. Before the war, there were only 25 research universities and only 10% of young adults went on to attend college. With the G.I. bill the number of research universities grew to 125

23 Wei and Zhang (2009) propose that high savings due to a precautionary motive may not be the only reason. In particular, Chinese households may save due to the desire for parents of sons to postpone consumption in order to increase their son's competitiveness in the marriage market. They posit that the competitive factor may account for up to half of the increase in the household savings rate during 1990–2007, and this will not be easily reversed as long as the imbalance in the ratio of women to men in the PRC persists.

24 "The Renminbi Runaround," by Paul Krugman, New York Times, 25 June 2010, page A31.

and the proportion of young adults attending college was nearly 51%. Seven million veterans took advantage of education and training, with 2.2 million attending college (Wilson 1995). The bill also allowed thousands of African Americans to attend college for the first time in US history.

Bledstein (1978) summarizes the unique role of the university in the development of the US middle class: "With the creation of the university in America, an institution unlike any in Europe, the middle class succeeded in establishing an institutional matrix for its evolving types of behavior. By and large the American university came into existence to serve and promote professional authority in society. More than in any other Western country in the last century, the development of higher education in America made possible a social faith in merit, competence, discipline, and control that were basic to accepted conceptions of achievement and success."

Of course, other aspects of the G.I. Bill played a role in expanding the US middle class. The offer of subsidized mortgages meant that millions of servicemen could afford homes for the first time. Residential construction jumped from 114,000 new homes in 1944 to 1.7 million in 1950 (Suddath 2009). Indeed, the rise of the subdivision—an icon of US middle-class lifestyles—is often attributed to the G.I. Bill.

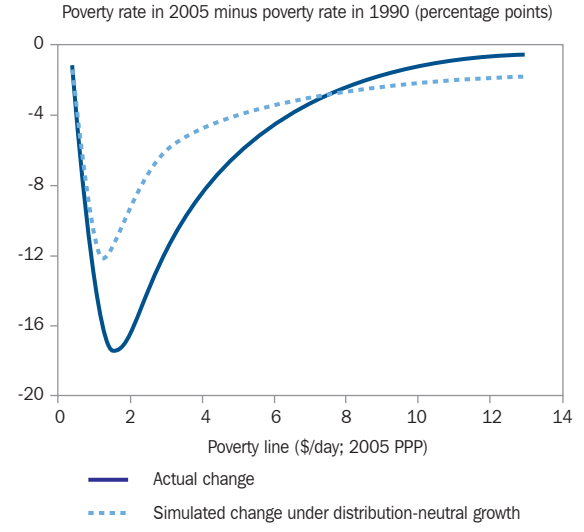
Nevertheless, it was affordable access to college that, above all, provided a ticket to the middle class for a whole new generation of Americans. It is no wonder the 1950s are often regarded as a golden era of US prosperity and affluence.

This suggests that creating jobs that provide stable wage employment and more education are highly important factors for developing countries to focus on in their efforts to expand the middle class. It also highlights the role well-crafted policy can play in building the middle class.

C. Mobility and Vulnerability

While Asia's middle class has grown rapidly, some of this could easily be reversed. Because much of the decline in poverty has occurred among individuals living on about $2 a day, the new middle class is extremely vulnerable. Indeed, as Figure 4.1 shows, the actual change in poverty (from 1990 to 2005) at the $2 poverty line has been significantly greater than what would be expected from distribution-neutral economic growth (shown in the figure as "simulated change"). While such growth is positive and suggests that the developing world has experienced pro-poor growth, it also suggests that a large proportion of the new middle class in developing countries can easily

Figure 4.1 **Change in Poverty Across 116 Developing Countries by Poverty Line** (1990–2005)



Source: Ravallion (2009).

slip back into poverty in the event of external shocks and economic contractions. Indeed, while it is too early to tell, it is quite possible that a large number of middle-class individuals slipped back into poverty during the global recession of 2008–09.

The 1997/98 Asian Financial Crisis provides valuable evidence of the risks. Two surveys from Indonesia just before and after the crisis (1996 and 1999) show that the number of middle-class individuals ($2–$20 per day) fell by 4.8 million or roughly 10% of the middle class population. Almost all individuals slipped back into poverty probably because of the severe contraction in the Indonesian economy.

Panel household survey data can be an effective tool for tracking the mobility of the poor into the middle class, as well as the downward mobility of the middle class into poverty, and for identifying the influencing factors. Recently, with the increased availability of longitudinal data sets from developing countries, there have been several efforts to analyze income mobility.

Using panel data from the different rounds of the Indonesia Family Life Surveys, Chun (2010) has estimated the factors associated with household vulnerability to poverty.[25] She finds that safety nets—in particular, social

25 Chun (2010) first estimates a bivariate probit to estimate the probability of a household being in poverty in one period, conditional on being in poverty in an earlier period. She also estimates household-level regressions of log consumption per capita and variance in consumption to assess how different factors affect household vulnerability to poverty.

programs such as the health card program and a subsidized rice program for poor households—are important in reducing vulnerability to poverty in Indonesia. Her analysis confirms that workers in agriculture with little education are the most vulnerable to falling into poverty. Surprisingly, the results suggest the availability of private credit banks can actually lead to greater vulnerability as well as higher variance in consumption fluctuations.

Although the Family Income and Expenditure Survey (FIES) of the Philippines is not a panel survey, its sampling design provides for a subset of common households in the sample between two consecutive rounds. Data on 7,500 households from both the FIES 2003 and the FIES 2006 are used to examine the income mobility of households. Table 4.1, which displays the movement of households across expenditure groups from 2003 to 2006, shows that 8.7% of those classified as middle class ($2–$20) in 2003 became poor in 2006, while 7.3% of those poor in 2003 moved up to middle class status in 2006.

Table 4.1 **Distribution of "Panel" Households by Expenditure Class, Philippines** (2003 and 2006)

2003	2006			
	Poor (>$2)	Middle ($2–$20)	Rich (>$20)	Total
Poor (<$2)	30.5	7.3	0.00	37.7
Middle ($2–$20)	8.7	51.9	0.6	61.2
Rich (>$20)	0.0	0.6	0.5	1.0
Total	39.2	59.7	1.1	100.0

Source: Staff estimates, based on the 2003 and 2006 FIES.

The FIES contains questions on the sources of income, detailed consumption patterns, assets, living conditions and family profile of sample households. Table 4.2 shows the distribution of the "panel" households across the major sources of income for 2003 and 2006. The major source of income is determined as the income source with the biggest percent share of income. The data indicates that the main source of income for the majority of the households did not change between 2003 and 2006. Wages or salary from non-agriculture activity, agriculture entrepreneurial activity, and remittances from abroad were the top three sources of income in both periods.

To understand the factors associated with downward mobility in the Philippines, we fit a maximum-likelihood probit model to the probability of middle class households in 2003 moving into poverty by 2006. The results suggest that middle class households in 2003 with large family size and a large number of dependents were more likely to fall into poverty by 2006 (Table 4.3). On the other hand, households headed by a high school or college graduate were less likely to fall into poverty (and more likely to stay middle class). The larger the number of household members working as own-account members and casual/temporary employees, the greater the risk the household will fall into poverty. The risk of falling into poverty was lower for almost all other occupations.

A similar analysis of downward income mobility in the PRC by Khor and Pencavel (2010), using CHIP (Chinese Household Income Project) survey data from

Table 4.2 **Distribution of Panel Households across Major Sources of Income, Philippines** (2003 and 2006)

Distribution (%) in 2003	Distribution (%) in 2006											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	Total
(1) Wage/salary from agriculture activity	4.03	1.03	1.58	0.23	0.03	0.08	0.18	0.4	0.1	0.09	0.17	7.92
(2) Wage/salary from non-agriculture activity	1.08	27.46	1.77	1.77	0.32	1.26	1.74	1.52	1.47	0.05	0.52	38.95
(3) Agriculture entre-preneurial activity	1.8	1.72	11.94	0.77	0.18	0.23	0.67	0.9	0.32	0.12	0.26	18.92
(4) Wholesale and retail	0.19	1.71	0.7	3.31	0.07	0.52	0.59	0.34	0.36	0.02	0.08	7.88
(5) Manufacturing, mining, quarrying & construction	0.03	0.32	0.17	0.16	0.49	0.08	0.09	0.06	0.08	0.01	0.04	1.53
(6) Services	0.12	1.26	0.25	0.59	0.08	1.52	0.3	0.13	0.25		0.02	4.51
(7) Assistance from abroad	0.11	1.36	0.54	0.33	0.06	0.35	4.48	0.31	0.72		0.24	8.49
(8) Assistance from domestic sources	0.27	0.67	0.64	0.22	0.01	0.12	0.33	1.14	0.31	0.03	0.2	3.95
(9) Income from investment/pension	0.1	1.08	0.53	0.33	0.01	0.25	0.7	0.33	2.13	0.02	0.19	5.68
(10) Income from family sustenance activities & Other Income	0.1	0.04	0.14	0.03	0.03			0.05	0.02	0.02	0.04	0.47
(11) Received as gifts	0.05	0.38	0.17	0.05	0.07	0.08	0.17	0.25	0.09		0.40	1.70
Total	7.88	37.03	18.43	7.78	1.35	4.48	9.25	5.43	5.85	0.36	2.16	100.00

Source: Staff estimates, based on the 2003 and 2006 FIES.

1991–95 and 1998–2002, suggests important differences across rural and urban areas in the factors determining income mobility. The study finds that female-headed households are less downwardly mobile than male-headed households in urban areas, but not in rural areas. Ethnic minorities tend to be more downwardly mobile than non-minorities in rural areas, but not in urban areas. While larger households tend to be less downwardly mobile in

Table 4.3 **Probit Estimates of the Probability of Middle-Class Households in 2003 Moving into Poverty by 2006, Philippines**

Characteristics in 2003	Marginal effects	Standard errors
Family size in 2003	0.0005	0.0038
Number of dependent members in 2003	0.0278***	0.0048
1 if head is highschool graduate in 2003	-0.089***	0.0111
1 if head is college graduate in 2003	-0.0786***	0.0122
Number in household members working on own-account in 2003	0.007	0.0062
Number in household members working as employer in 2003	-0.0388***	0.0135
Number in household members working as casual/temporary employees in 2003	0.0086	(0.0087)
Number in household members working as permanent employees in 2003	-0.0361***	0.0079
1 if main source of income in 2003 is wage/salary from non-agricultural activity	-0.1604***	0.0221
1 if main source of income in 2003 is agricultural entrepreneurial activity	-0.0578***	0.0167
1 if main source of income in 2003 is wholesale and retail activity	-0.1036***	0.0101
1 if main source of income in 2003 is manufacturing / mining & quarrying/construction activity	-0.1017***	0.0085
1 if main source of income in 2003 is service-related activities	-0.0978***	0.0098
1 if main source of income in 2003 is assistance from abroad	-0.1415***	0.0078
1 if main source of income in 2003 is from assistance from domestic sources	-0.086***	0.0117
1 if main source of income in 2003 is income from investment & pension	-0.1077***	0.0085
1 if main source of income in 2003 is income from family sustenance activities & other income	-0.0272	0.0508
1 if main source of income in 2003 is from received as gifts	-0.0737***	0.017
Number of observations	4372	
Pseudo R2	0.1335	
Chi-square test	460.57	
Log likelihood	-3038768.1	

Note: *** p<0.01, ** p<0.05, * p<0.1
Source: Staff estimates based on the 2003 and 2006 FIES.

rural areas, there is no relationship between household size and mobility in urban areas. More years of schooling are associated with a lower probability of downward income mobility in both rural and urban areas. Interestingly, Communist party membership is associated with a lower probability of downward mobility in both rural and urban areas. These results suggest the importance of distinguishing between rural and urban areas in analyzing the determinants of downward income mobility.

The evidence strongly indicates the role that formation of stable jobs, increased education, and safety nets can play in allowing individuals to reduce their vulnerability to poverty and increase their chances of remaining middle class.

D. Cross-Country Determinants of Middle-Class Growth

It is possible to use cross-country data to analyze the economic and policy determinants of middle-class growth. Using an unbalanced panel of data for 1985–2006 for 84 developing countries in Asia, changes in middle-class size based on tabulated distributions of household survey data are regressed on initial country characteristics, including initial consumption per capita and country fixed effects.

Higher initial levels of per capita consumption are associated with lower rates of growth in the absolute size of the middle class ($2–$20) (Table 4.4). This effect turns slightly positive when the middle class is defined as the consumption share of the middle three

Table 4.4 **Determinants of Changes in Size of the Middle Class across Countries** (1985–2006)

Variables	% MC $2–$20 (SM)			MC share of consumption middle 3 quintiles (SM)			MC .75-1.25 of median consumption and > $2 per day (SM)		
PerCap Cons (SM)	-0.000706	-0.00149	0.00128	0.00277*	0.00309*	0.00335**	0.0171***	0.00986*	0.00641
	[0.00529]	[0.00574]	[0.00519]	[0.00155]	[0.00168]	[0.00170]	[0.00481]	[0.00505]	[0.00462]
Trade to GDP ratio		0.00703	0.00558		0.00229	0.00287		-0.00266	-0.00692
		[0.0110]	[0.0100]		[0.00321]	[0.00327]		[0.00967]	[0.00891]
Share urban population		2.09	3.055		0.0485	-0.0652		21.71**	21.48**
		[11.32]	[10.21]		[3.310]	[3.338]		[9.951]	[9.081]
Service share of GDP		0.441	2.166		1.367	1.716		-12.95***	-15.42***
		[4.099]	[3.787]		[1.197]	[1.237]		[3.602]	[3.369]
Max political stability 1990–98		-0.103	1.742		-0.56	-0.0269		16.74***	-7.556***
		[3.789]	[2.229]		[1.106]	[0.728]		[3.329]	[1.983]
Max government effectiveness 1990–98		0.172	-3.026		-0.0199	-0.689		-23.10***	7.685***
		[6.117]	[2.788]		[1.785]	[0.910]		[5.375]	[2.480]
Degree of openness 90–99			3.339			0.145			1.218
			[6.134]			[2.003]			[5.457]
Black market markup			7.79E-05			1.86E-05			-0.000214*
			[0.000136]			[4.45e-05]			[0.000121]
Ethnolinguistic fractionalization 15			5.614			2.802*			-45.87***
			[5.142]			[1.679]			[4.574]
Constant	0.0691	-1.393	-8.629	-0.885	-2.219	-3.263	33.82***	34.50***	44.58***
	[2.487]	[5.259]	[7.965]	[0.727]	[1.535]	[2.600]	[2.263]	[4.621]	[7.086]
Country fixed effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	292	289	272	290	287	270	292	289	272
R-squared	0.167	0.169	0.139	0.179	0.18	0.189	0.925	0.929	0.941

Notes: SM = survey mean; MC = middle class
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Data based on an unbalanced sample of data where middle class size is generated from tabulated PovcalNet distribution data for 84 developing countries as detailed on Chun, Hasan and Ulubasoglu (2010).
Variables from other sources comes from Barro and Lee (2010), Wacziarg and Welch (2008), Desmet, Ortuno-Ortin and Wacziarg (2009), and world development indicators.
Source: Staff estimates.

consumption quintiles and is only slightly positive and significantly different from zero when the 0.75–1.25 of median consumption definition is used after putting in a series of control. Few other variables appear significant in explaining changes in the absolute size of the middle class or changes in the consumption share of the middle three quintiles. If the middle class is defined as those individuals consuming 0.75–1.25 of median consumption, the urban share of the population, service share of GDP, political stability, government effectiveness, and ethnic linguistic fractionalization matter as significant determinants of middle-class growth. Overall, though, the empirical results are weak enough to suggest that the determinants of middle-class growth may be too country-and context-specific to analyze with aggregated, cross-country data.

Still, factors commonly found to be significantly related to higher growth in the cross-country growth literature are also found to be good for the growth of the middle class when defined as those falling between 0.75 and 1.25 of median income. This suggests that many of the same policies that are good for growth, such as fiscal discipline, sound monetary policies, and reduced trade volatility, may also foster middle class growth.

5. Implications of Middle-Class Growth

While much research attention has focused on the emergence of the middle class in Asia and the factors behind it, there is not enough information about the implications, including for consumer durable markets, innovation, governance, and global economic growth, which we address in this section. (See Box 6 for a look at how implications may differ across countries, such as for bequests and financial instruments in the PRC and India.)

A. Expanding Markets for Consumer Durables

The signs of Asia's growing middle class are everywhere. Sales of refrigerators, television sets, mobile phones, and automobiles have surged in virtually every country in recent years. Car sales in the PRC and India have increased at staggering 15%–30% annual rates during the past decade (Wall Street Journal 2010). From 1998 to 2009, Indian car sales went from about 0.3 million units to 1.5 million (Nair 2004).[26] The PRC has now overtaken the US as the world's largest automobile market, with annual sales of nearly 12 million units, from just one million in 1992 and 2 million in 2000.

The PRC and India are now the world's first and second largest markets for mobile phones. The mobile phone subscriber base in India increased from 3.6 million in 2000–01 to 584 million by 2010, an annual growth rate of 66%.[27] The PRC has some 780 million mobile phone subscribers.[28] Even these large numbers represent only 50%–59% of the population of these countries, so there is still substantial room for sales of mobile phone units in both countries. In other countries, the absolute numbers are not as large, but the mobile phone penetration rate is even higher—60% in Pakistan and Indonesia, 74% in the Philippines, and 80% in Viet Nam.[29]

In Table 5.1 we use household survey data from the PRC, India, and the Philippines to examine the ownership rate of selected consumer durables across different expenditure classes. Figure 5.1 presents ownership patterns by expenditure decile groups. Surprisingly, the proportion of households with radios, TVs, and refrigerators is much higher in the Philippines than in India across identical expenditure classes. Thus, for example, while only 21% of Indian households living on less than $1.25 a day own radios, the corresponding ratio among Filipino households in the same expenditure class is 45% The only durables more widely owned in India than in the Philippines within each expenditure class are motorcycles and scooters. As for automobile ownership patterns are very similar across the two countries except for the richest expenditure class; in this group, Filipino households have much higher automobile ownership rates than Indian households. The PRC, by comparison, has much higher rates of TV and refrigerator ownership in the urban areas than in the Philippines for all expenditure income classes. Compared to India and the Philippines, Chinese ownership of TV, and refrigerators is higher. However, Chinese households lag noticeably in car ownership: only 2.7% of urban households with $10–$20 daily per capita income have cars, compared to 34.6% of Indian households and 40.6% of Filipino households in the same income group. Catching up on this measure will be one of the most significant implications of the growth of the Chinese middle class.

What explains these large differences in consumer durable ownership? It seems unlikely that differences in

Table 5.1 **Distribution of Households by Class and by Ownership of Selected Durables**

Per capita expenditure/ income class (2005 $ PPP)	Percent of households with …																	
	radio			TV			aircon			refrigerator			motorcycle/scooter			automobile		
	PRC*	India	Philippines	PRC**	India	Philippines	PRC***	India	Philippines	PRC	India	Philippines	PRC	India	Philippines	PRC	India	Philippines
<$1.25	21.9	19.0	44.9	43.7	17.0	26.1	0.3	2.0	0.1	8.3	1.0	3.3	13.2	2.0	1.9	0.1	0.2	0.2
$1.25–$2	24.2	27.0	56.6	55.3	30.0	54.6	0.3	3.0	0.5	14.5	3.0	13.6	18.7	5.0	5.6	0.1	0.7	0.5
$2–$4	28.7	31.0	62.7	74.5	43.0	80.7	1.4	7.0	2.4	37.5	10.0	41.1	24.6	13.0	13.1	0.2	1.0	2.6
$4–$10	39.4	36.0	67.9	92.6	61.0	93.7	8.4	17.0	14.2	74.3	29.0	76.2	24.3	29.0	22.1	1.1	2.0	14.8
$10–$20	49.1	42.0	72.3	95.9	67.0	96.1	25.0	26.0	45.3	91.3	46.0	88.9	26.5	41.0	18.8	2.5	8.0	39.9
>$20	63.2	48.0	76.1	98.3	74.0	98.4	31.6	40.0	74.7	91.5	59.0	94.5	44.1	46.0	18.0	10.2	22.0	59.7

Notes: PCE = per capita expenditure; PRC = People's Republic of China; * - stereo, rural; ** - color TV; *** - rural only

Source: Staff estimates based on Household Consumer Expenditure Survey of India (2004-05), Philippines' Family Income and Expenditure Survey (2006) and Chinese Household Income Project Survey (2002).

26 The 1998 figures are from www.indiastat.com.

27 http://www.telecomindiaonline.com/india-telecom-growth-and-subscribers-2010.html

28 Nystedt, D. 2010. China Nears 800 Million Mobile Phone Subscribers. PCWorld Business Center. 29 June.

29 "Indonesia Overtakes Japan to Take Third Place in Asia Subscriber Rankings". Cellular News. 21 April 2009; "Pakistan Telecom Indicators, PTA"; "IFC helps improve retail payment system in Viet Nam". Vovnews.Vn.; ICT Statistics Newslog—Mobile penetration rate reaches the mark of 75% at 2008-end (Philippines)". Itu.int. 2009-03-11.

Box 6 **PRC, Indian Investment and Inheritance Patterns Raise Inequality Concerns**

Asia's middle class has expanded rapidly in two decades of sustained economic growth, accompanied by an equally impressive reduction in poverty rates. Yet there is growing concern that inequality is increasing in the region. This concern is compounded by evidence that financial bequests within families and a greater tendency among the middle class to invest in financial products can exacerbate inequality.

Depending on how intergenerational transfers of wealth differ with the income or wealth of the recipient, bequests and other types of household transfers may increase inequality over time and result in lower economic growth and mobility. Thus, the rise of the middle class could worsen inequality and the incentives for upward mobility if higher income classes are more inclined to make bequests, and in larger amounts, than the poor.[1]

Data from the *Survey on Preferences Toward and Satisfaction with Life*[2] looks at the patterns of bequests in urban areas of the People's Republic of China (PRC) and India in 2009 (Box Table 6.1). It shows that, in general, there is positive correlation between household income and the likelihood that families will bequeath their wealth to the next generation in both the People's Republic of China (PRC) and India. But Indian households, across income groups, are much more likely to leave an inheritance to their children unconditionally than their Chinese counterparts.

The survey found that for those whose daily household earnings range between $2–$4 2005 PPP per person, the gap is especially acute: only 21% of Chinese households from this group plan to leave unconditional bequests, compared to almost 48% of Indian households. The percentage of Indian households who reported a conditional intention of leaving bequests, especially in return for care, is also higher. Thus, combining both conditional and unconditional bequests, almost 80% of Indian households plan to leave a bequest, compared to only about 50% of Chinese households.

Moreover, almost a third of Chinese households do not plan to make a special effort to leave behind a bequest, while less than 10% of Indian households are in this category. The evidence seems to suggest that bequest patterns in India are more likely to reinforce and perpetuate inequality.

Likewise, as the middle class grows we expect to see an expanding market for a diverse set of financial services and, especially, investment in stocks, which typically have a higher rate of return and may drive a greater wedge between the middle class and the poor (Box Table 6.2).

This is true if financial portfolios—and the rate at which these investments grow—changes with class status. The table shows that richer households do indeed tend to diversify their assets and own more of every asset type as wealth increases. In particular, in both countries, they own more stocks. In the PRC, 10% of households in the $2–$4 income bracket own stocks, rising to 31% in the $10–$20 bracket. In India, it is less pronounced, but still evident, rising from about 2% to about 15% in the same income brackets.

Looking specifically at each country, Chinese households tend to own more types of financial assets than their Indian counterparts and are more likely to have bank deposits, company pension funds, and stocks while two-thirds of Indian households own life insurance.

Box Table 6.1 **Patterns of Bequests**

	% of households in each income group							
	People's Republic of China				India			
	$2–$4	$4–$10	$10–$20	$20++	$2–$4	$4–$10	$10–$20	>$20
Leaving inheritances no matter what	21.05	38.12	34.67	49.04	47.58	49.61	54.10	45.83
Only if they provide care	10.53	7.18	8.39	12.50	25.99	29.77	21.31	33.33
Only if they provide financial assistance	5.26	4.14	6.57	6.73	2.86	4.96	6.56	4.17
Only if they carry on family business	5.26	5.25	4.38	3.85	1.10	0.78	0.00	4.17
No special efforts	36.84	33.15	35.77	23.08	11.01	9.92	11.48	8.33
None - reduce their will to work	5.26	2.21	0.36	2.88	1.76	0.78	1.64	0.00
None - use wealth for myself	0.00	2.21	2.55	0.00	0.00	0.26	0.00	0.00
Want to but no means to do so	15.79	7.73	7.30	1.92	9.69	3.92	4.92	4.17
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Box Table 6.2 **Asset Portfolios and Debt Patterns**

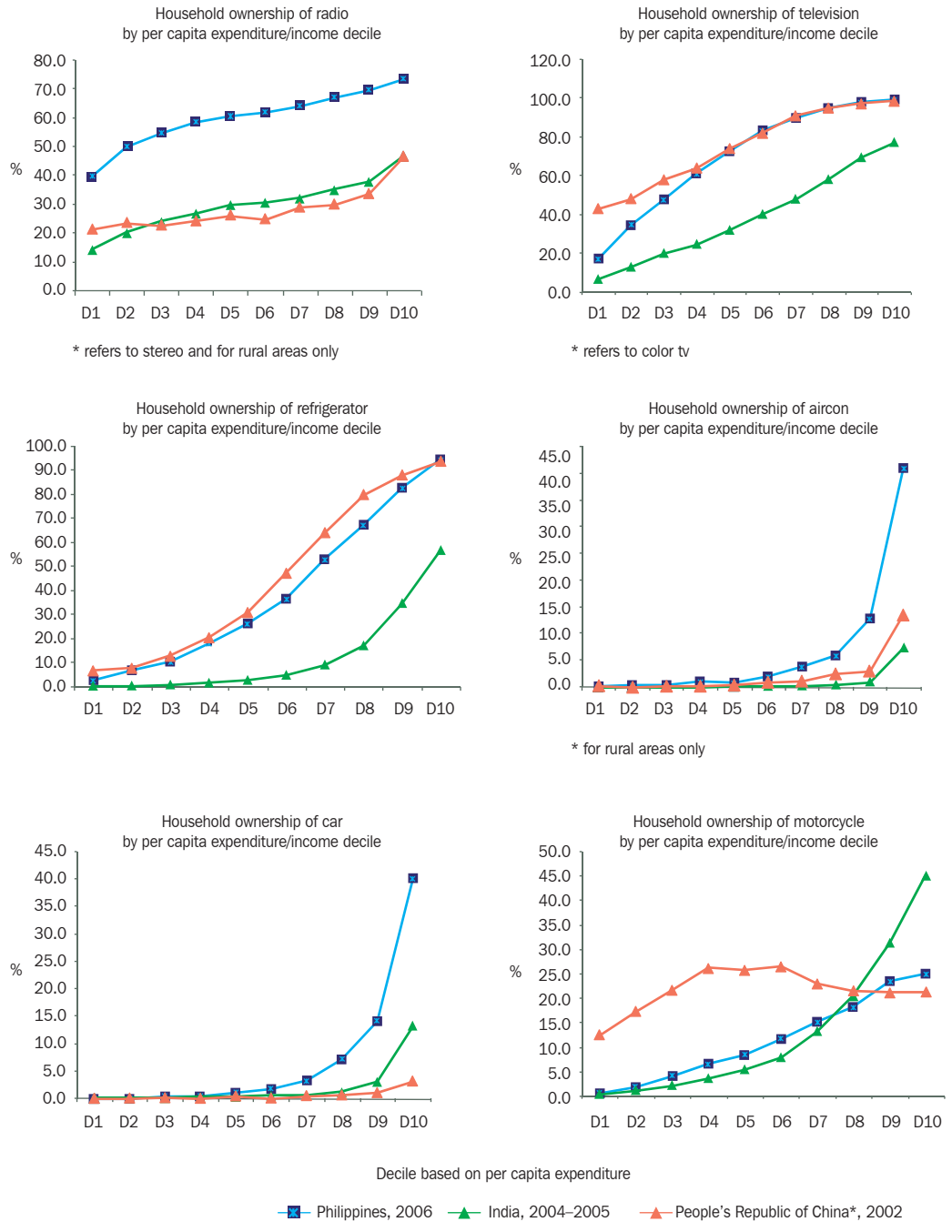
	% of households in each income group owning each asset type							
	People's Republic of China				India			
	$2–$4	$4–$10	$10–$20	$20++	$2–$4	$4–$10	$10–$20	>$20
Bank savings	50.00	81.99	89.74	94.61	37.63	42.09	50.68	21.43
Corporate bonds	5.00	6.40	11.68	16.77	2.62	6.28	16.44	10.71
Life insurances	10.00	19.19	33.05	41.92	57.14	72.79	71.23	64.29
Stocks	10.00	17.06	31.05	46.71	2.01	6.74	15.07	7.14
Investments Trusts	0.00	0.95	3.13	5.99	1.81	6.51	16.44	10.71
Foreign currency deposits	0.00	0.47	0.85	9.58	0.20	0.47	1.37	0.00
Futures/options	0.00	0.71	2.85	3.59	0.20	2.56	1.37	0.00
Domestic government bonds	0.00	5.21	12.25	7.19	1.81	8.14	10.96	14.29
Foreign government bonds	0.00	0.95	0.85	3.59	0.80	1.63	6.85	0.00
Private pensions	0.00	8.53	11.40	8.98	0.80	1.63	0.00	0.00
Company pensions	35.00	42.42	53.56	57.49	1.21	3.02	4.11	7.14
Cash savings	35.00	46.92	49.86	53.29	42.66	60.93	54.79	46.43
No financial assets	35.00	11.14	6.55	2.99	29.38	15.81	16.44	25.00
No debt at all	100.00	90.00	87.68	93.44	89.86	87.12	86.98	95.89

1 It is not a given that bequests will increase with income. As Horioka (2009) found for Japanese households, inheritances are negatively correlated with the recipients' economic status.

2 Conducted by the Global Center of Excellence Program on Human Behavior and the Socioeconomic Dynamics of the Graduate School of Economics, the Institute of Social and Economic Research (Research Center for Behavioral Economics) of Osaka University.

Source: Data were provided by Charles Horioka of Osaka University.

Figure 5.1 **Ownership Rates of Selected Consumer Durables by Per Capita Expenditure Decile**



Source: Staff estimates based on India's NSS-CES 2004–05, Philippines' FIES 2006, People's Republic of China's CHIP 2002.

taste are completely responsible. Much more likely is the possibility that India's consumer electronics and appliances industry has only recently taken off while the Philippines has relied on a fairly liberal trade policy for importing such products, and the PRC has manufactured domestically sufficient low-cost options. Another possibility is that India's weaker track record in providing reliable power to households has hurt ownership of consumer electronics and appliances.[30] Better infrastructure and the lower

30 Another possibility is that how the survey questions on durables are asked are not completely comparable. There is some evidence from Global Marketing Insights from TGI, in Brand Building in the BRICs 2010, that the PRC has very high rates of ownership, but low rates of purchasing compared to India. This indicates that the PRC may have households that are much more likely to hold on to and maintain durables than India, passing down and spreading durables to more impoverished groups.

cost of public transportation systems compared to the relative cost of cars may explain lower rates of automobile ownership in the PRC.

B. Frugal Innovation

More important than the growing consumer durable market, however, is the innovation in developing countries spurred by the rise of the middle class, one that differs significantly in income level and consumer demands from the traditional, Western middle class. Companies that have seen the potential in this lower-income, middle-class market —the "Bottom of the Pyramid," as Prahalad (2005) calls it—have catered to this market and have profited handsomely. Prahalad cites dozens of case studies of successful companies and entrepreneurs around the world—in such diverse industries as personal care and hygiene products, banking, information technology, health care services, insurance, and retail sales—that have creatively developed affordable new products and services for low-income consumers in the developing world.

The appearance of a large Asian middle class—albeit one that is poorer and more frugal than the Western middle class—has accelerated 'frugal innovation' in the past decade. Illustrating this point are new products such as the $2,200 'Nano car' (by Tata Motors of India), an inexpensive hand-held electrocardiogram machine that costs patients just $1 for an electrocardiogram (by General Electric's health-care laboratory in Bangalore), a $70 battery-operated refrigerator (by India's Godrej company), a $24 rice husk-based water filter (by Tata Chemicals), a $12 lithium-ion battery (by the PRC's BYD Lithium Battery Co), and mobile phone rates well below a penny a minute (offered by most Indian mobile phone carriers) (Economist 2010). "Developing countries are becoming hotbeds of business innovation in much the same way as Japan did from the 1950s onwards… All the elements of modern business, from supply-chain management to recruitment and retention, are being rejigged or reinvented in one emerging market or another" (The Economist 2010). As a result, emerging market companies are fast becoming serious players on the global business stage, but also potentially adding value and growth to the middle class by creating new avenues for stable employment.

C. Greater Accountability in Public Services

In most societies, the middle class is better positioned than the poor to demand greater accountability and transparency in public-sector operations. This demand is usually self-serving, but the poor benefit as much as the middle class from better public services (see Box 7 for more on the benefits of public spending and the middle class). The reason for middle class success is that it is better educated, more aware of its rights, and better organized than the poor. It is also the main source of the leaders and activists who create and operate many of the non-governmental organizations (NGOs) that work for greater accountability in government.

There are numerous examples of improved public services that resulted from citizen demands (World Bank 2004). An often-cited example is the Citizen's Report Card (CRC), an initiative organized by an NGO in Bangalore in 1994, which rated municipal services such as water supply, health care, education, electricity, telecommunications and transport, finding uniformly low levels of public satisfaction with the services. The CRC was expanded to several other cities and rural areas around India, creating pressure on local government to improve the quality of public services. A second report card on Bangalore in 1999 showed somewhat higher user ratings, while a third in 2003 showed a remarkable turnaround in the city's services. Not only did public satisfaction improve across the board, but the reported incidence of problems and corruption declined significantly. Thus, being in the public spotlight appears to have improved the quality of public services in Bangalore.

Chakrabarti (2009) discusses how India's urban middle class, despite being the main beneficiary of economic reforms since 1991, has become more involved in activism in recent years. Some of this has manifested itself in the rise of neighborhood associations, many of which have sought a more formal role in policy making by contesting local government elections.

History also shows the potency of the Asian middle class as an agent of change in the region. Rapid economic growth in the 1970s and 1980s in the Republic of Korea and Taipei,China helped create a large middle class, laying the foundation for a transition to democracy in these economies. The same process unfolded in Thailand, Malaysia, the Philippines, and Indonesia during the 1980s and 1990s. But the process is by no means universal. Writing about the Chinese middle class, Marsden (2009) notes that "… the values that the new Chinese middle class does share are not [US] progressive middle class values of a reverence for democracy; rather, they are centered around the retention of their newfound material well-being, much of which they attribute to the economic reform policies of the Chinese Communist Party in the past thirty years."

D. Economic Growth

If the middle class is associated with higher consumer spending, more innovation, and better governance, does its emergence accelerate a country's economic growth? In the literature, several avenues—beyond innovation

Box 7 **Philippines Public Spending Apt to Benefit Middle Class over the Poor**

In the Philippines, as in other countries in the region, it is the middle class who often benefit more from public health, housing loans, water supply, food subsidies, and other public services,

Household surveys invariably show that the poor use health facilities much less than the non-poor. The poor do use public primary health care facilities. But the non-poor, deeming those of poor quality, often bypass them and go directly to government hospitals, even though these tertiary facilities are meant mainly for the care of major illnesses. In public health insurance systems, not only do the poor have less coverage than the middle class, they are also often unable to raise the copayment required to be eligible, meaning they often do not use their health insurance benefits.

As Box Figure 7.1 shows, a greater share of middle and upper class households than poor households are enrolled in Philippine Health Insurance Corporation's government subsidized health insurance scheme known as PhilHealth.

Box Figure 7.1 **Proportion of Households That Have at Least One Member Who Has Philhealth Coverage**

Source: APIS 2008, 2007, 2004.

The middle class also takes greater advantage than the poor of public housing loan programs offering below-market interest rates. Of late, however, the decline in market interest rates and the increasing appetite of overseas foreign workers (OFW) for housing has attracted the private sector into targeting the OFW market. According to the World Bank (2001), "… most government housing assistance has been captured by rich and middle-income households, with only 21 percent of the beneficiaries coming from poor households. Ironically, a larger proportion of National Capital Region, urban, and non-poor households confirmed they did not require housing assistance."

In domestic water supply, it is government policy to provide subsidies only for level I (point source development) and level II (communal faucets) systems. Level III systems (individual household connections), which cater to the middle class and rich, are not supposed to be subsidized. In many rural areas, however, middle class households appropriate the subsidized level II systems and convert them into level III, effectively shutting off access to poor households. In level III systems in urban areas run by private concessionaires or by water districts, the poor who cannot afford to get connected often pay more per liter of water than those who have access to the system.

Basic commodities such as rice (regularly) and sugar (occasionally), likewise, receive subsidies enjoyed by the poor and nonpoor alike, either because of poor targeting by the concerned line agencies or because of a deliberate policy to spread the subsidy to the entire population. A higher proportion of the poor buy subsidized rice sold by the National Food Authority (NFA), but the absolute number of nonpoor (middle class and rich households) who buy this rice is nearly the same as the number of poor who do so. But on a per-household basis, the nonpoor buy more, thereby enjoying the bigger share of the rice subsidy (World Bank 2001).

and governance—have been identified as means by which middle class size can affect growth. For instance, it is sometimes argued that entrepreneurship and innovation are more likely to arise from the middle class than from the poor or rich classes (Banerjee and Duflo 2008). "Middle class values" can lead to higher investment in human capital and savings, both vital to raising productivity. Increased consumption and diversification is another channel (Murphy, Schliefer, and Vishny 1989). As a middle class emerges, consumption increases.[31] As domestic markets become larger, increasing returns to production technologies that are unprofitable with smaller market size become profitable. Their adoption then drives industrialization, growth, and an improvement in standards of living. Finally, the middle class can be a potent force for better governance and investment in public provision of services that provide increased benefits to all people and in particular the impoverished (Birdsall et. al, 2000). These arguments suggest that policies bolstering the middle class may have benefits not only for economic growth, but may be more cost-effective at long-term poverty reduction than policies which focus solely on the poor.

Easterly (2001) empirically explored the impact of the middle class on economic growth and development, econometrically estimating the effects of the middle class (defined as the income share of the middle 60% of the income distribution) on a host of variables, including economic growth. While he finds a positive middle class effect on economic growth, his results cannot be taken at face value because his measure of a middle class—the income share of the middle 60% of a population—is almost perfectly correlated with the Gini coefficient for income distribution. As such, it is not possible to know whether his results simply reflect the positive effect of an egalitarian distribution of income on economic growth, or whether they reflect a genuine effect of the middle class on growth.

31 According to Murphy, Shleifer, and Vishny, the middle class is "the natural consumer of manufactured goods."

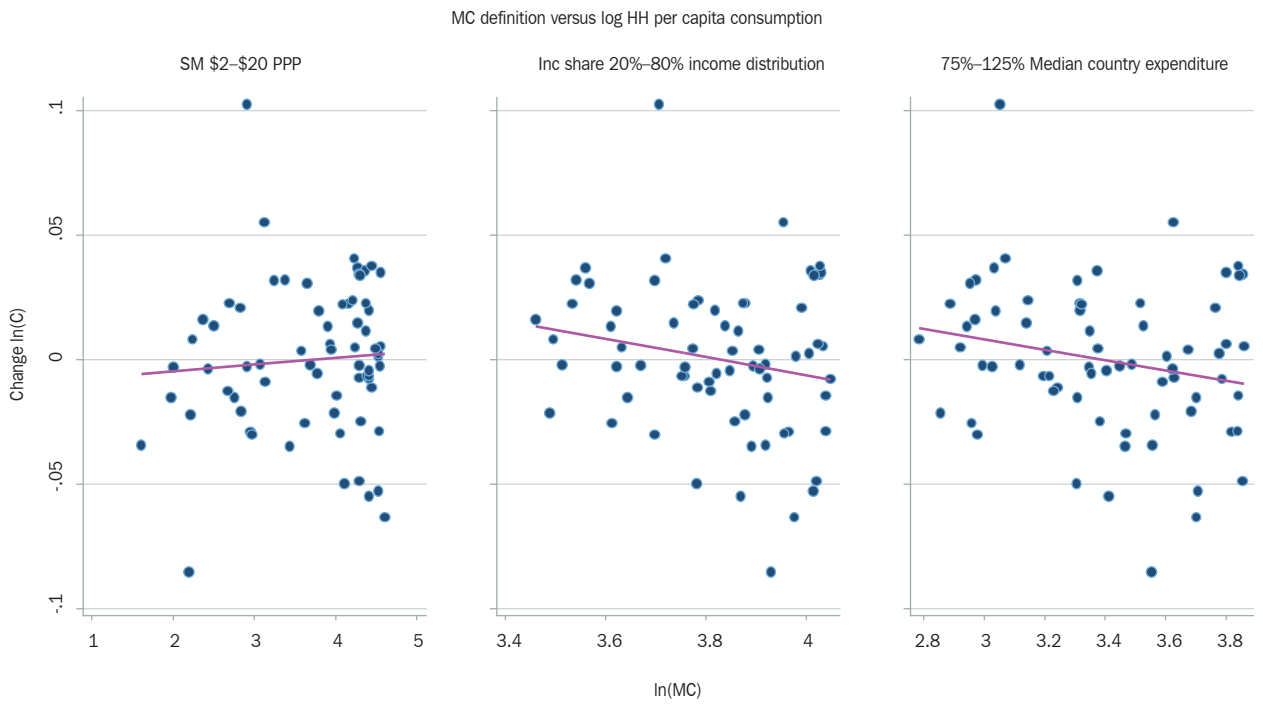
In this section, the focus is on whether there is a cross-country relationship between the size of the middle class and economic growth after controlling for the other major determinants of growth. The regression analysis uses data obtained from a variety of sources, including the PovcalNet database, the World Bank's World Development Indicators (WDI) database, and the World Governance Indicators. (See Appendix 4 for a discussion of the data and methodology as well as a list of countries included in the analysis.)

Three alternative definitions of the middle class are used in the regressions: (i) the share of the population living on $2–$20 (in 2005 PPP dollars) per day, (ii) the consumption or income share of the middle 60% of the distribution, and (iii) the share of the population making/consuming more than $2 per day and falls between 0.75 to 1.25 of the median income.[32] These measures of middle class are constructed by creating synthetic distributions based on Lorenz curve parameterizations of tabulated distribution data detailed in Datt (1998) and ADB (2007).

A simple scatter plot of the three definitions of middle class against change in log of household per capita consumption controlling for initial per capita consumption is shown in Figure 5.2.[33] When the absolute $2–$20 measure of middle class is used, the size of the middle class is observed to be positively correlated with consumption growth. However, for the relative measure of income share held by the middle 3 income quintiles, an inverse correlation is observed while almost no relationship is observed for middle class defined as 75%–125% of median consumption.

However, the plot indicates nothing about the significance of the relationship or whether the relationship will hold after controlling for other variables that also determine consumption growth. Table 5.2 shows the results of the growth regression. We find evidence of convergence, with initial per capita consumption having a negative effect on subsequent growth. In general, savings has no effect on consumption growth, while the average years of schooling have a highly significant and positive effect. Most importantly, after controlling for savings and schooling, the size of the middle class does not have a significant effect on consumption growth.

Figure 5.2 **Changes in the Size of the Middle Class against the Initial Level of Consumption Per Capita** (1985–2006)



Note: SM = survey means
Change per capita consumption mean extracts initial mean per capita consumption effect.
Source: Staff estimates, from cross-country data based on PovcalNet and World Development Indicators.

32 Where 1.25 of the median income is below $2 per person per day, the middle class is captured as those individuals whose consumption/income falls between $2 and $2.25 per day so that the share of the middle class is never 0.

33 Initial log household per capita consumption effect is extracted from growth in log consumption since middle class size would be negatively correlated with growth due to convergence in growth.

Table 5.2 **Determinants of Growth in Per Capita Consumption across Countries** (1985–2006)

Variables	Change log (per capita consumption survey means)			Change log (per capita consumption national account means)		
% MC $2–$20 2005 PPP	-0.0000711			-0.000431		
	[0.00155]			[0.000908]		
% UC $20+2005 PPP	0.00334			0.000668		
	[0.00358]			[0.00184]		
log(MC share consumption middle 3 quintiles)		-0.0479			-0.0164	
		[0.109]			[0.0721]	
log(MC .75–1.25 of median consump)			0.00173			-0.0139
			[0.0308]			[0.0132]
log(Per capita consumption)	-0.276***	-0.244***	-0.243***	-0.174***	-0.164***	-0.153***
	[0.0590]	[0.0244]	[0.0271]	[0.0382]	[0.0153]	[0.0185]
log(Average years of schooling)	0.249***	0.234***	0.233***	0.320***	0.309***	0.306***
	[0.0573]	[0.0565]	[0.0566]	[0.0406]	[0.0405]	[0.0403]
log(savings)	0.0151	0.019	0.0183	-0.00000316	0.00156	0.00136
	[0.0140]	[0.0140]	[0.0139]	[0.00923]	[0.00931]	[0.00923]
Constant	0.797***	0.843*	0.647***	0.357**	0.352	0.282***
	[0.232]	[0.478]	[0.176]	[0.153]	[0.309]	[0.104]
Country fixed effects	Y	Y	Y	Y	Y	Y
Observations	278	276	278	278	276	278
R-squared	0.453	0.446	0.445	0.56	0.552	0.555

Notes: MC = middle class; UC = upper class
Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1
Data based on an unbalanced sample of data where middle class size is generated from tabulated PovcalNet distribution data for 84 developing countries.
Average years of schooling comes from Barro and Lee (2010) and savings variable is the savings as a % of gross domestic product from World Development Indicators.
Sources: Staff estimates.

Still, the size of the middle class could have an indirect effect on growth—via savings or human capital accumulation. As savings has no significant effect in the growth regression, we focus only the effect of the middle class on human capital investment. Table 5.3, which displays the results, shows a robust and positive effect of the share of the population consuming between $2–$20 per day on the average years of schooling, after controlling

Table 5.3 **Determinants of Average Schooling Years across Countries** (1985–2006)

Variables	Average years of schooling					
	Spec 1			Spec 2		
% MC $2–$20 2005 PPP	0.00937**			0.00998***		
	[0.00454]			[0.00287]		
% UC $20+ 2005 PPP	0.0103			0.0299***		
	[0.0197]			[0.00755]		
MC share consump 20%–80%		0.0106			0.00802	
		[0.00997]			[0.00982]	
MC .75–1.25 of median consumption			0.00365			0.00588
			[0.00698]			[0.00526]
Per capita consumption	-0.000423	0.000314	0.000238	-0.000493	0.000503***	0.000508***
	[0.00138]	[0.000509]	[0.000511]	[0.000343]	[0.000179]	[0.000178]
Trade to GDP ratio	0.00178*	0.00203**	0.00203**	0.000709	0.00163	0.00155
	[0.00101]	[0.00100]	[0.00100]	[0.000995]	[0.001000]	[0.000999]
Share urban population	13.89***	14.38***	14.36***	13.69***	14.60***	14.50***
	[0.889]	[0.867]	[0.876]	[0.851]	[0.833]	[0.838]
Service share of GDP	2.769***	2.944***	2.900***	2.408***	2.685***	2.683***
	[0.333]	[0.349]	[0.343]	[0.318]	[0.339]	[0.327]
Max political stability 90–98	-0.922***	-0.785**	-0.767**	-0.936***	-0.846***	-0.870***
	[0.306]	[0.303]	[0.306]	[0.290]	[0.299]	[0.298]
Max government effectiveness 90–98	-1.117***	-1.282***	-1.366***	-1.277***	-1.265***	-1.298***
	[0.351]	[0.355]	[0.347]	[0.318]	[0.350]	[0.329]
Degree of openness 90–99	4.621***	4.951***	5.003***	4.653***	4.944***	4.916***
	[0.488]	[0.469]	[0.480]	[0.449]	[0.460]	[0.457]
Black market markup	-2.44e-05**	-2.07e-05**	-1.96e-05**	-2.35e-05**	-2.22e-05**	-2.21e-05**
	[9.79e-06]	[9.79e-06]	[9.74e-06]	[9.21e-06]	[9.66e-06]	[9.51e-06]
Ethno linguistic fractionalization 15	-3.921***	-3.969***	-4.023***	-3.896***	-4.067***	-4.056***
	[0.486]	[0.493]	[0.491]	[0.469]	[0.483]	[0.481]
Constant	-2.843***	-3.264***	-2.853***	-2.783***	-3.149***	-2.899***
	[0.665]	[0.807]	[0.675]	[0.642]	[0.796]	[0.664]
Country fixed effects	Y	Y	Y	Y	Y	Y
Observations	342	339	342	342	339	342
R-squared	0.98	0.98	0.98	0.982	0.98	0.98

Notes: MC = middle class; UC = upper class
Data based on an unbalanced sample of data where middle class size is generated from tabulated PovcalNet distribution data for 84 developing countries.
Variables from other sources comes from Barro and Lee (2010), Wacziarg and Welch (2008), Desmet, Ortuno-Ortin and Wacziarg (2009), and world development indicators.
Specification 1 uses middle class share and log per capita consumption means based on household survey means.
Specification 2 uses middle class share and log per capita consumption means based on national accounts means.
Sources: Staff estimates.

for mean consumption levels, urbanization, trade, and political factors within a country. However, when the middle class is defined in relative terms (as the share of population living on 0.75–1.25 of median income or the income/consumption share of the middle three quintiles), there is no significant middle-class effect on schooling years.

The data strongly suggest that the processes that lead to higher economic growth also lead to a bigger middle class. Thus, it is not surprising to find that the size of the middle class fails to have any systematic and significant positive effect on growth at the aggregate country level after controlling for measures of initial consumption per capita. While there is some evidence that middle-class size affects growth indirectly—via its positive effect on schooling attainment—that evidence is mostly inconclusive. However, this does not mean that the growth of the middle class has no effect on economic growth, only that it is not possible to discern this effect meaningfully with cross-country regressions. This may point to the limitations of the cross-country regression approach, which is based on many restrictive assumptions and highly aggregated data (often of uneven quality), more than to anything else.

6. Adverse Consequences of the Rise of the Asian Middle Class

There is another, less desirable side to the growth of the middle class. The rapid expansion of the Asian middle class in the last two decades has had several unintended effects including environmental and ecological, a rise in obesity, and an increase in chronic, non-communicable, middle-class diseases (such as diabetes, cardiovascular disease, and cancer). It is important to bring these negative aspects into policy discussions so as to sustain and promote strong and stable middle class and development.

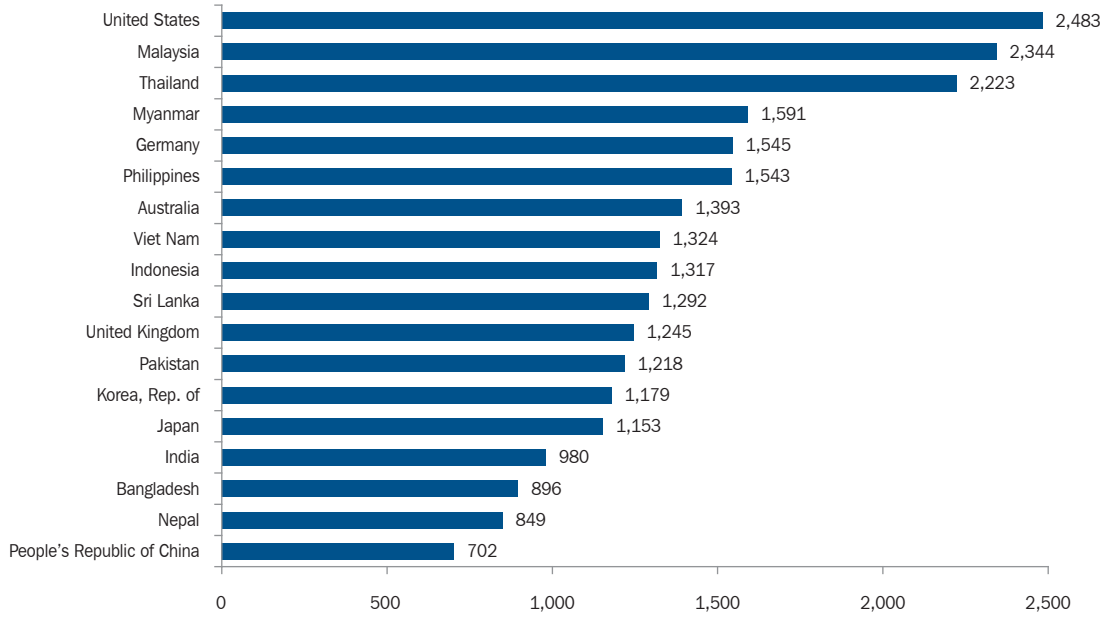
None of these issues should be overstated; the expansion of the middle class will clearly and substantially improve quality of life in Asia. Nonetheless it is important to recognize that without concerted effort to change some behaviors, the rise of the middle class will create new environmental and health challenges.

A. Environmental Stress

The growth of the middle class in Asia is likely to put considerable strain on natural resources and the environment. Currently, the average Indian uses only 40% of the water that an average American uses, and the typical Chinese consumer even less (28%) (Figure 6.1). As more Asians move into the middle class, water use per capita will increase, as it has during the past decade. An analysis of the determinants of per capita water consumption by domestic households in seven major metropolitan areas in India found that family size, the education of the household head's wife, and household living standards (as measured by a composite asset score) were associated significantly and positively with water consumption per capita (Shaban 2008). However one of the strongest determinants of per capita water use was 24-hour tap water availability. As household living standards rise and tap water facilities extend to more rural and urban households in developing Asia, domestic water use could increase dramatically. Given the severe scarcity of water in many parts of the region, there are potentially large consequences if the average Chinese or Indian increases his or her water consumption to the level of the American consumer, unless policies effectively balance water pricing with inclusive and sustainable growth concerns.

The same argument applies to environmental pollution. In most Asian countries, carbon dioxide emissions per capita are still considerably smaller than in Europe and North America (Table 6.1). For instance, CO_2 emissions per capita in India and the PRC are just 6% and 18%, respectively, of the US level. However both total and per capita carbon dioxide emissions have increased at a much faster rate in Asia than in Europe and North America.

Figure 6.1 **Per capita Water Consumption** (1997–2001, cubic meters)



Source: www.waterfootprint.org.

Table 6.1 **Carbon Dioxide Emissions** (1990 and 2004)

Country	Total (million metric tons)		Annual change (%)	Share of world total (%)		Per capita (metric tons)		Annual change (%)	Carbon intensity of growth CO_2 emissions per unit of GDP (metric tons of CO_2 per million, 2000 PPP $)	
	1990	2004	1990–2004	1990	2004	1990	2004	1990–2004	1990	2004
Japan	1,071	1,257	1.2	4.7	4.3	8.7	9.9	1.0	0.37	0.36
United States	4,818	6,046	1.8	21.2	20.9	19.3	20.6	0.5	0.68	0.56
United Kingdom	579	587	0.1	2.6	2.0	10.0	9.8	-0.1	0.47	0.34
Germany	980	808	-1.3	4.3	2.8	12.3	9.8	-1.5	0.58	0.38
Korea, Republic of	241	465	6.6	1.1	1.6	5.6	9.7	5.2	0.57	0.51
Malaysia	55	178	15.8	0.2	0.6	3.0	7.5	10.7	0.56	0.76
Russian Federation	1,984	1,524	-1.9	8.8	5.3	13.4	10.6	-1.5	1.61	1.17
Thailand	96	268	12.8	0.4	0.9	1.7	4.2	10.5	0.38	0.56
China, People's Republic of	2,399	5,007	7.8	10.6	17.3	2.1	3.8	5.8	1.30	0.70
Philippines	44	81	5.9	0.2	0.3	0.7	1	3.1	0.19	0.22
Sri Lanka	4	12	14.8	...	...	0.2	0.6	14.3	0.09	0.15
Viet Nam	21	99	25.8	0.1	0.3	0.3	1.2	21.4	0.28	0.47
Indonesia	214	378	5.5	0.9	1.3	1.2	1.7	3.0	0.54	0.53
India	682	1,342	6.9	3	4.6	0.8	1.2	3.6	0.48	0.44
Pakistan	68	126	6.0	0.3	0.4	0.6	0.8	2.4	0.39	0.41
Bangladesh	15	37	10.1	0.1	0.1	0.1	0.3	14.3	0.12	0.15

Source: UNDP *Human Development Report 2007–08*.

Indeed, experts expect the PRC's energy-related emissions of greenhouse gases to surge in the next decade or two, even if a national energy efficiency campaign now underway is successful. Current projections suggest aggregate carbon dioxide emissions from burning fossil fuels will be more than two times the US level by 2025.[34] If the Asian middle class approaches US levels of per capita emissions, there could be large and adverse implications for air pollution and global climate change, without innovative policies that mitigate the impact.

In large part, the rising stress on the environment reflects a policy failure. For instance, water subsidies to urban consumers and to cultivators often result in overconsumption of water, while fuel (diesel) subsidies in many countries exacerbate the problem of greenhouse emissions; clearly, there is a strong role for policy to help mitigate such environmental stresses, while facilitating adaptation to climate changes.

B. Health Burdens

In many developing countries alongside rapid middle class growth, has come greater obesity and a rise in chronic diseases such as diabetes, cancer and heart disease, problems earlier considered rich-world issues. Because many countries in Asia have not yet eradicated communicable diseases such as malaria, they face a double burden of communicable disease and chronic disease.

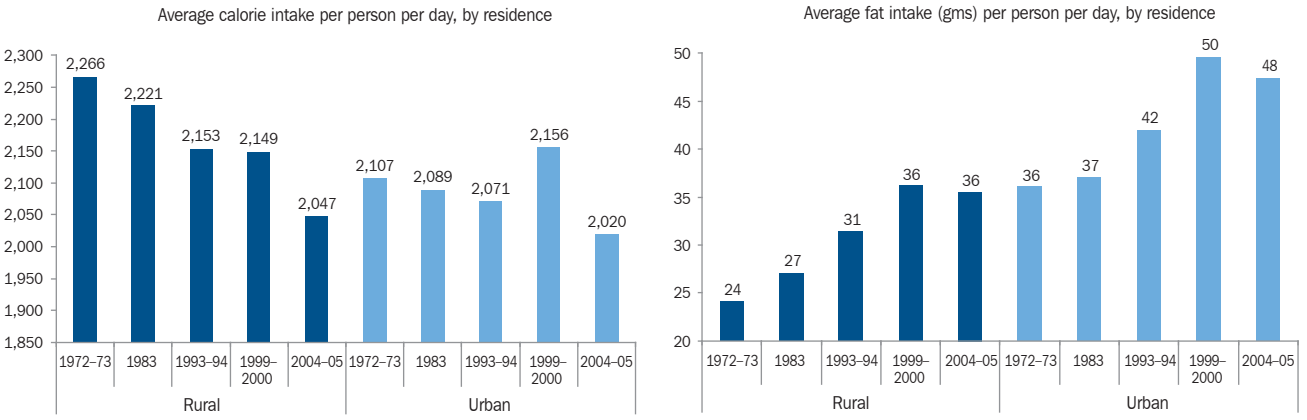
The growth of the middle class in Asia appears to have brought about large changes in diet, shifting it toward foods rich in fat and low on fiber and micronutrients. At the same time, casual empiricism suggests that the urban middle class has become more sedentary as it has come to rely more heavily on motor vehicles, raising levels of obesity.

This is in part driven by greater availability and lower prices for of processed foods, which has greatly increased fat consumption in low-income countries (Drewnowski and Popkin 1997). The transition from a complex-carbohydrate, low-fat diet to an energy-dense, high-fat diet now occurs at much lower levels of income than previously and has been further accelerated by rapid urbanization so that an ever increasing share of the middle class is exposed to more unhealthy diets (Lang 1997). In the PRC, for example, upper-income groups consuming a relatively high-fat diet (>30% of daily energy intake) rose from 22.8% in 1989 to 66.6% in 1993. The middle-income class consuming a high-fat diet also rose (from 19.1% to 51.0%) (Reddy and Yusuf 1998). Data from the National Sample Survey of India show similar trends. As Figure 6.2 shows, average fat intake per person per day increased quite sharply from 1972–73 to 2004–05, even as daily per capita calorie intake fell. This means that the ratio of fat to calorie intake nearly doubled over the period.

The rise in obesity is closely connected to the rise in diabetes; many Asian countries now face epidemic levels of the disease. For instance, India and the PRC now have the largest absolute number of diabetics in the world (51 million and 43 million respectively) (Shaw et al. 2010). The incidence of diabetes in some Asian countries, such as Malaysia, Sri Lanka, and the Republic of Korea, is now as large as in the developed countries, such as the US, Germany, Canada, and Spain (Figure 6.3).

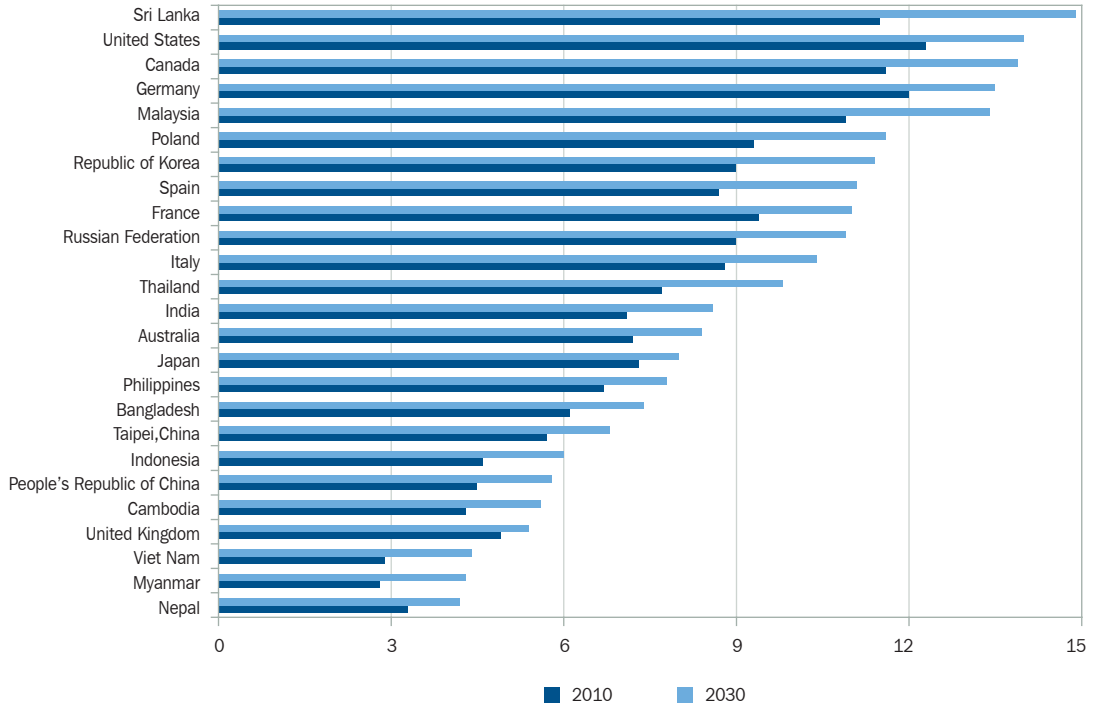
34 "China Fears Consumer Impact on Global Warming," *New York Times*, 4 July 2010, page A1

Figure 6.2 **Average Calorie and Fat Intake, India** (1972–73 to 2004–05)



Source: National Sample Survey Organisation, *Nutritional Intake in India 2004–05*, Report No. 513(61/1.0/6), May 2007.

Figure 6.3 **Diabetes Prevalence Worldwide** (2010 and 2030, %)



Note: Statistics are for individuals 20–57 years of age.
Source: Shaw *et al.* (2010).

Cardiovascular disease presents a similar picture. In developing countries, cardiovascular deaths represent three quarters of the mortality from all non-communicable diseases, while they are the primary cause of death in industrialized nations (Earth Institute 2004). So without substantial changes in health care and dietary choices, cardiovascular deaths are only expected to increase as incomes rise in developing Asia.

7. Conclusion

As rapid economic growth has reduced poverty across Asia, the middle class has grown rapidly in size and spending power. Depending upon the definition adopted, the middle class in Asia constitutes anywhere from 500 million to a billion or more people and accounts for more than $3 trillion in annual expenditures.

The rise of the Asian middle class has already hugely expanded markets for consumer goods in recent years. Sales of consumer durables such as refrigerators, televisions, mobile phones, and automobiles have expanded significantly in virtually all countries in the region. The PRC is now the world's largest automobile market and India the fastest growing. The rise of the middle class has led to considerable frugal innovation among firms in Asia. Since the middle class in Asia is poorer—and so far spends much less—than the Western middle class, firms have had to develop affordable new products and services targeted to this group of consumers. This has spawned a great deal of innovation in such varied areas as consumer goods, personal care products, banking, insurance, health care products and services, and information technology among Asian firms. This innovation in turn boosted economic growth, setting off a virtuous cycle of growth, consumption, innovation, and more growth.

The bigger middle class has also generally translated into greater accountability and transparency in public services. The middle class is better educated, more aware of its rights and better organized than the poor, giving it a greater voice in demanding better government services. It is also the main source of social activists who typically found and operate non-governmental organizations that demand greater government accountability.

Yet much of the middle class remains extremely vulnerable to falling back into poverty. Thus, many of the same policies—fiscal discipline, sound monetary policies, and stable trade—that reduce poverty will also foster growth of the middle class. Reducing income inequality is potentially critical to the further development of the Asian middle class and unleashing its spending power. While there are a number of ways to reduce income inequality, such as through redistribution policies, Asia's policymakers can focus on the expansion of economic opportunities for the vulnerable middle class. Our analysis of data from developing Asia and the historical experience of today's developed countries has shown that one of the key factors driving the creation and sustenance of a middle class is the availability of stable, secure, well-paid jobs with good benefits.

By establishing extensive safety nets, policymakers can help to raise consumption spending of the middle-class in Asian countries, especially in countries such as the PRC, where there are historically high personal savings rates due to strong precautionary motives to save. Policies that contribute to and build upon education and entrepreneurship can leverage these characteristics of the middle class, stimulating the growth of good jobs, reinforcing the benefits of middle class expansion.

Even in the absence of specific policies to promote its growth, the Asian middle class is likely to expand significantly both in number and spending power over the next few decades just through population and economic growth. This will have profound economic and social implications—for global growth, innovation in emerging countries, accountability in public services, global climate change, and the spread of 'diseases of affluence.' While much of the existing literature has focused on measuring the size and characteristics of the Asian middle class, and expanding its size and spending power, it is also crucial to focus on the social and economic implications of its rise.

There are a number of unintended and potentially adverse consequences. Carbon dioxide emissions have been increasing, reflecting the emulation of resource-intensive Western lifestyles by the Asian middle class. Likewise, with the adoption of high-fat diets and less active lifestyles, obesity levels have risen sharply. This has led to a surge in non-communicable, chronic diseases, such as diabetes, heart disease, and cancer, which previously were confined to the rich countries. Indeed, rates of cardiovascular disease are projected to increase two- to four-fold in several Asian countries over the next 2–3 decades. All indications are that in the next 20–30 years, Asia will be faced with an increasing number of chronic diseases on a scale previously unseen.

What this means is that much greater policy attention is needed on these emerging challenges. To be sure, sound policies need to be in place to ensure that the Asian middle class continues to grow, but it is even more important to have policies in place that plan for the *sustainable* growth of this middle class.

This much is clear—the Asian middle class will play an increasingly important role in the shift in the balance of global demand and change over the next few decades. Its rise may present many challenges, but it will also open up new and unprecedented opportunities for the region and for the world.

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Appendix 1: Data Sources for Estimating the Size of the Asian Middle Class, 1990–2008

A variety of data sources were used to create the distributions and determine the size of the middle class. For developing countries, the primary source for the distribution data was obtained from the World Bank's PovcalNet database, which provides detailed distributions of either income or household consumption expenditures by different percentiles based on actual household survey data. In addition, it provides the survey means for household per capita income or consumption in 2005 PPP dollars. The database primarily provides distributions based on consumption except in the instances in which only income measures exist. At lower income levels, the difference between consumption and income is small. But these tend to grow with wealth and thus should be considered a potential measurement error in the analysis. Still we expect that these differences are relatively minor as there is a high correlation between income and consumption especially at lower levels and thus should have little effect on overall computations. We also focus on consumption as it better captures individual welfare and is less prone to fluctuations caused by negative and positive shocks.

The tabulated distributions and means allow us to back out the entire (smoothed) income distribution based on the methodology outlined in ADB Inequality in Asia (2007) and Datt (1998), drawing upon parameterizations of Lorenz curves based on tabulated distribution data. While a method discussed in Shorrocks and Wan (2004) may better approximate the true distribution, it is shown to only marginally underestimate the effect, such that altering the methodology is likely to leave the percentage sizes in different income/expenditures brackets relatively unchanged.

For OECD and high-income countries in Asia, we use decile and quantile distributions compiled by the United Nations University – World Institute for Development Economics Research (UNU-WIDER) World Income Inequality Database (WIID), Version 2.0c, May 2008. As the quality of the data was suspect and more difficult to compare across time, attention was limited to the distributional data designated as top quality (quality = 1) and that represented gross income or expenditures. However, the data quality restriction was relaxed for the Republic of Korea, Singapore, Japan, and Taipei,China. In general, most of the data for the OECD countries was income-based rather than expenditure-based. In all cases, if the median household per capita income or expenditures of the survey was reported, this value was used; otherwise, the mean of the survey was used in deriving the distribution. In cases where neither the median of the survey nor the mean of the survey were reported in the database, the ratio of survey mean to national account mean was taken and then interpolated or extrapolated based on years in which both existed. This interpolated or extrapolated ratio was then used to back out the survey mean for the missing year based on the reported national account means. These survey means were then converted into 2005 PPP's using reported PPP values obtained from the Penn World Tables database 6.3 developed by the International Comparison of Prices Program (ICP).

The use of national accounts household per capita consumption means was also employed as these means tend to differ substantially from the survey means, particularly in Asia. These national accounts means were obtained from the World Development Indicators database (WDI) using the national account means with the survey distributions to derive alternative measures of middle class size. For Taipei,China we used the distribution data provided by WDI where the WIID data did not at least report quantile distributions.

The regional comparisons and direct country comparisons reported in this chapter were created by developing common reference years at three year intervals from 1990 to 2008 that coincide with those reported by the World Bank's PovcalNet database. These common reference years were assigned the closest available survey for each country within a region to the common reference year, limiting inclusion of countries into the regional aggregates based on whether there were are at least two distinct years of survey data within the time frame 1985–2008. The assumption is that the closest available survey year was a fairly close approximate of the distribution of the common reference year. Thus, all regional aggregates have the same set of countries for each common reference year from 1990 to 2008. The additional requirement was that all countries included in this set had at least two years of valid national accounts data for the common reference years and the survey years. This allowed us to transform the survey mean to the common reference year by assuming that the survey mean increased or decreased in the same proportion as the change in the national accounts mean. That is, we assumed that there was no differential change in the relationship between the survey mean and the common reference years between these two years. In cases where the survey mean or national accounts mean was missing for a particular year we backed out the survey mean or national accounts means by interpolating or extrapolating the data. The survey means were then adjusted to the common reference year using 2005 PPPs and deflated or inflated using consumer price indices (CPI) from WDI using 2005 CPIs as the base reference year. In instances where urban and rural measures were reported separately,

we used PPP 2005 deflators discussed in Ravallion, Chen and Sangraula (2008) which take into account purchasing price parities between rural and urban areas. Finally, as urban and rural areas for India, the PRC and Indonesia were presented separately in the PovcalNet database, we collapsed the data for some parts of the analysis using the population weights for urban and rural. The countries associated with the regional aggregates based on countries grouped into ADB developing member countries, World Bank designations, and OECD countries are listed below.

Appendix Table 1 **Countries Included in Regional Aggregate Data**

Region	Countries
Developing Asia	Armenia, Azerbaijan, Bangladesh, Cambodia, People's Republic of China, Georgia, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, Viet Nam.
Developing Europe	Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Turkey, Ukraine.
Latin America and Carribean	Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Peru, Uruguay, Venezuela.
Middle East and North Africa	Algeria, Djibouti, Egypt, Iran Jordan, Morocco, Tunisia, Yemen.
OECD	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Korea, Luxembourg, Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, United Kingdom, United States
Sub-Saharan Africa	Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda.

Appendix 2: Data Sources and Methodology for Projections to 2030

Proprietary information from the Canback-Dangel Global Income Distribution Database (GIDD) is first used to econometrically estimate the parameters of lognormal distributions for 34 Asian and other related economies. The lognormal distributions are entered into a global calibrated general equilibrium (CGE) forecasting model, which is calibrated to a 2005 reference global database obtained from the Global Trade Analysis Project (GTAP) Version 7.

The present global modeling facility has been constructed according to generally accepted specification standards, implemented in the GAMS programming language, and calibrated to Version 7 of the GTAP global economic database. The result is a 20-country/region, 10-sector global CGE model, calibrated over a 25-year time path from 2005 to 2020. Apart from its traditional neoclassical roots, an important feature of this model is product differentiation, where we specify that imports are differentiated by country of origin and exports are differentiated by country. This feature allows the model to capture the pervasive phenomenon of intra-industry trade, where a country is both an importer and exporter of similar commodities, and avoids tendencies toward extreme specialization.

Using this aggregation, the dynamic CGE model is calibrated to a baseline time series reflecting a business-as-usual (BAU) scenario over 2006–2030. This baseline comprises consensus forecasts for real gross domestic product (GDP) obtained from independent sources (e.g. International Monetary Fund, Data Resources International, and Cambridge Econometrics). The model is then run forward to meet these expected growth targets, calculating the implied productivity levels in each year, country, and region. This calibration yields productivity growth that would be needed to attain the macro trajectories, and these are then held fixed in the model under other policy scenarios. Other exogenous macro forecasts could have been used and compared, but this is the standard way to calibrate these models. In addition, forward projections are also made for a number of alternative policy scenarios.

CGE models are the preferred tool these days for detailed empirical analysis of economic policy. They are ideally suited to trade analysis because they can detail structural adjustments within national economies and elucidate their interactions in international markets. The CGE model is a system of simultaneous equations that simulate price directed interactions between firms and households in commodity and factor markets. The roles of government, capital markets, and other trading partners are also specified, with varying degrees of detail and passivity, to close the model and account for economy-wide resource allocation, production, and income determination. The role of markets is to mediate exchange, usually with a flexible system of prices, the most important endogenous variables in a typical CGE model. As in a real market economy, commodity and factor price changes induce changes in the level and composition of supply and demand, production and income, and the remaining endogenous variables in the system. In CGE models, an equation system is solved for prices that correspond to equilibrium in markets and satisfy the accounting identities governing economic behavior. If such a system is precisely specified, equilibrium always exists and such a consistent model can be calibrated to a base-period data set. The resulting calibrated general equilibrium model is then used to simulate the economy-wide (and regional) effects of alternative policies or external events.

The distinguishing feature of a general equilibrium model, applied or theoretical, is its closed-form specification of all activities in the economic system under study. This can be contrasted with more traditional partial equilibrium analysis, where linkages to other domestic markets and agents are deliberately excluded from consideration. A large and growing body of evidence suggests that indirect effects (e.g., upstream and downstream production linkages) arising from policy changes are not only substantial, but may in some cases even outweigh direct effects. Only a model that consistently specifies economy-wide interactions can fully assess the implications of economic policies or business strategies. In a multi country model like the one used in this study, indirect effects include the trade linkages between countries and regions, which themselves can have policy implications.

Appendix Table 2 **Countries, Regions, and Sectors in Computable General Equilibrium Model Used for Projections**

	Label	Country
1	ANZ	Australia and New Zealand
2	BGD	Bangladesh
3	CHN	China, People's Republic of
4	EUR	Europe-27
5	GEO	Georgia
6	HYA	High Income Asia
7	IDN	Indonesia
8	IND	India
9	KAZ	Kazakhstan
10	KHM	Cambodia
11	LAC	Latin America and the Carribean
12	LAO	Lao PDR
13	LKA	Sri Lanka
14	MYS	Malaysia
15	PAK	Pakistan
16	PHL	Philippines
17	THA	Thailand
18	USA	United States
19	VNM	Viet Nam
20	XAZ	Rest of Asia
21	ROW	Rest of the World
	Label	**Sector**
1	Crp	Crops
2	Lvs	Livestock and Fishery
3	Erg	Energy Extraction and Exploration
4	Omn	Other Minerals and Mining
5	Pfd	Processed Food
6	Txa	Textiles and Apparel
7	Lmf	Light Manufacturing
8	Hmf	Heavy Manufacturing
9	Utl	Utilities
	Srv	Services

Appendix 3: Data Sample and Index Creation for World Values Survey Analysis

The World Values Survey data contains a wide range of information on cultural, social, and political values from a large set of countries (http://www.worldvaluessurvey.org/). Surveys begin in 1981 with 14 countries and subsequently expanded to capture a greater number of countries in each successive wave. So far five waves have been covered through 2008. In our analysis we focused on the last year for each country that responded to the class status question. This resulted in coverage of 80 distinct countries with 12 of the surveys occurring prior between 1996 and 1999 and the remaining 68 countries having survey years between 2000 and 2008. We focused on individuals who were between the ages of 25-55 with the number of raw observations for each country ranging from a low of 240 individuals in the Dominican Republic to a high of 2138 observations for Egypt within the 25-55 year age range. In our sample and analysis each individual included in our sample population was re-weighted so that the sum of the weights for a given country was equal to their countries population in 2008.

To construct the indices in our analysis we rebased our answers to a given question so that it ranged between 0 and 1 with 1 always representing a more progressive score and then took the average of a compilation of responses to different questions so that each question was weighted equally in the index. The questions that comprised each of these indices are displayed in Appendix table 3.

Appendix Table 3 **Composition of Values Indexes**

Market competition
(v117) Private vs state ownership of business and industry
(v119) Competition is good/harnful
(v121) Wealth (People can only get rich at the expense of others vs Wealth can grow so there's enough for everyone)
(v45) When jobs are scarce, employers should give priority to [___] people over immigrants
Gender eqaulity
(v44) When jobs are scarce, men should have more right to a job
(v61) On the whole, men make better political leaders
(v62) A university education is more important to a boy
(v63) Men make better business executives
(v161) Women have the same rights as men (as an essential characteristic of democracy)
Upward mobility
(v115) Fairness, one secretary is paid more
(v116) Income equality (Incomes should be made more equal vs We need larger income differences as incentives for individual effort)
(v120) Hard work and success
(v46) Control over lives (No choice at all vs A great deal of choice)
(v52) People who don't work become lazy (opinion on this)
(v122) Fate vs control
Trust
(v23) Most people can be trusted vs Need to be very careful
(v47) People would try to take advantage of you vs People would try to be fair
(v126-v130) Level of trust on particular groups of people
Political activism
(v28) Active membership in political party
(v27) Active membership in labor union
(v29) Active membership in environmental organization
(v32) Active membership in consumer organization
(v72) Which is most important:
(a) maintaining order in the nation;
(b) giving people more say in impt govt decisionsx
(c) fighting rising prices
(d) protecting freedom of speech
(v95) Level of interest in politics
(v96 - v103) Political action/s done or can be done potentially
Technology adoption
(v77) More emphasis on the devt of technology (opinion on this taking place in the near future, i.e., whether good, bad or don't mind)
(v90) Scientific advances being helpful or harmful in the long run
(v91) S&T are making our lives, heatlheir, easier & more comfortable
(v92) Because of S&T, there will be more opportunities for the next generation
(v93) S&T make our way of life change too fast.
(v94) We depend too much on science and not enough on faith
(v123) The world is a lot better off or a lot worse off because of S&T
(v230) How often you use a computer?

Note: S&T = science and technology

Appendix 4: Data Sources for Estimating the Cross-Country Determinants of Per Capita Consumption Growth, 1985–2006

Data is drawn from a variety of sources to create measures of middle class size and per capita consumption growth and control for major aspects related to growth and investments that are also fundamentally linked to middle class size. Middle class measures and per capita consumption are constructed from distributions of household consumption survey data reported in PovcalNet.

Since the middle class relationship to growth may be contingent on the *character* of a country's middle-class we gathered information related to characteristics of the middle class that may play a substantial role in driving growth, such as the degree of urbanization, sectoral composition, level of education, savings, trade, and political factors. Urbanization, trade to GDP ratio, gross savings as a % of GDP and sectoral composition comes from the World Bank's World Development Indicators (WDI) database which provides a fairly extensive amount of information at the aggregate country level. We also use the WDI to obtain measures of national accounts GDP per capita private consumption as a robustness check since departure between national accounts measures and comparative measures found in household survey data can vary substantially from country to country as discussed by Ravallion (2003).

We also use measures from other sources such as average years of education from Barro and Lee (2010).[35] Institutional and political environment variables are obtained from the World Governance Indicators (WGI) developed by Kaufmann, Kraay and Mastruzzi (2009) as measures of the institutional environment .

The degree of trade liberalization within countries was obtained from data created by Wacziarg and Welch (2003). This represents an indicator for whether a country was open to trade between the entire period of 1990 to 1999, an indicator for whether the black market premium was greater than 20% over the official exchange rate between 1990 and 1999, and the years that a country is open between 1990 and 2001. These measures were constructed based on the Sachs and Warner (1995) data. As only one observation exists per country our use of this variable assumes unchanging conditions over the entire period of observation.

Finally, as Easterly (2001) found that ethnic polarization was an important and relevant determinant in the growth of a country proxies for polarization developed by Desmet, Ortuno-Ortin, and Wacziarg (2009) were used and are known to proxy for civil conflict and redistribution. The indicators represent the degree to which languages differ within different regions and areas within a country based on historical data.[36]

We focused on creating three different sets of data where all middle class measures based on households surveys constructed prior to 1985 were dropped. We chose this approach as each set of data potentially has it's benefits and limitations and we wanted to thoroughly check how changing assumptions could affect our conclusions. The first set of data is an unbalanced panel sample that created yearly growth rates based on data between any two adjacent survey years independent of the length of time between the two surveys. The second set of data focused on longer term growth rates where the first and last year of survey data was used conditional on the time bewteen two survey years being greater than 5. An analysis of the distribution between the first and last of survey years revealed that the growth rates do not disproportionately represent longer or shorter periods depending on the region. Finally, we constructed a balanced panel of data representing short-term growth rates in per capita consumption means using interpolated data. However, we ultimately focused on the unbalanced panel sample as we expect this to more accurately capture the true effects while controlling sufficiently for country specific factors that are relatively unchanging over time.

35 www.barrolee.com

36 A cross-check with a few countries for which we have detailed micro records from house of expenditure surveys suggests that our population- or economy-wide measures are closely related the characteristics of the middle class itself. We also considered using measures from the world values survey, but due to only a small amount of countries covered we decided against using it.