Global Economics Paper No: 170

The Expanding Middle: The Exploding World Middle Class and Falling Global Inequality

- We are in the middle of an unprecedented explosion in the 'world middle class', but the pace will pick up significantly further.
- And global income distribution is getting narrower, not wider.
- So while there is a lot of focus on widening inequality and the embattled middle class in developed countries, *globally* the opposite is true.
- This story of what we call the 'Expanding Middle' – a shift in income towards middle-income countries and people – should accelerate.
- By 2030, two billion new people may join the world middle class.
- These shifts could be a significant influence on spending patterns, resource use, and environmental and political pressures.

Thanks to Jim O'Neill
for many valuable comments

Dominic Wilson and Raluca Dragusanu

July 7, 2008

Contents

The Expanding Middle: The Exploding Middle Class and Falling Global Inequality

1. The Age of the Expanding Middle

The middle class get a lot of attention, particularly in developed economies. They are held up frequently as the engine of growth, the bastion of social values and the arbiter of elections. And in many countries, the commentary increasingly paints the picture of an embattled and shrinking middle class, fighting against a rising tide of inequality.

Within much of the developed world, parts of this picture are justified and the last decade has seen income disparities increase in a range of places. But *globally*, the opposite is true. In fact, as we show here, we are in the middle of an unprecedented explosion in what might be considered a 'world middle class', which we define as those with incomes between $6,000 and $30,000 in PPP terms. And global income distribution is getting narrower, not wider.

This story of what we call the 'Expanding Middle' is set to continue, if not accelerate, over the next two decades and is likely to be critical to how the world is changing.

The story of the Expanding Middle can be seen in two related ways:

- The first is the **shift in spending power towards middle-income *economies*** (and away from the richest countries), to a point where they may dominate global spending for the first time in decades, as the largest population countries enter the middle-income group. This relates to our work on the rise of the BRICs and N11 economies, who are at the heart of this. By 2050, this middle-income bulge will include six of the N-11 (Egypt, Philippines, Indonesia, Iran, Mexico, Vietnam) and three of the BRICs (China, India, Brazil), and will be responsible for close to 60% of the world's GDP.

- The second is the **shift in spending power towards middle income *people*** and the explosion of what we think of as a global 'middle class' on a scale never seen before. Over the last ten years, we have already seen unprecedented expansion in this group. But the pace of expansion here is likely to pick up much further still, reaching its peak in about a decade. As a result, an astonishing two billion people could join the global middle class by 2030! At around 30% of the world's population, this dwarfs even the 19th-century middle class explosion in its global scale.

To illustrate this, we estimate how the growth shifts in the world economy are likely to affect the distribution of income and spending power over the next few decades, looking across 75 countries that represent 97% of the world's GDP and around 90% of world population to provide a heat map for global incomes. We do this by updating our long-term growth projections, adding assumptions for country income distributions, and using them to project income groups at the country and global levels.

As a result of these two trends, the share of the world's income and spending that goes to this Expanding Middle is rising and could rise much further. China and India are the most important part of that story, but these dynamics stretch well beyond them. As a result, while rising inequality within countries has been in sharp focus, the *global* story is one in which the distribution of global income has been becoming *more*, not *less*, equal and is likely to continue to do so. And from a global perspective, more people are set to share more of the world's income than has been true for decades. So whether one sees the rise of the large emerging economies, and the last decade of global growth and globalization, as a force that is driving greater inequality, depends more on vantage point than current debate often reflects.

The changes that these dynamics set in place – like the rise of the BRICs – are likely to be important to understanding a large range of shifting currents in the world economy. The rise of the Expanding Middle may well drive (in fact, is already driving) a similarly broad range of economic, social and political pressures on a scale not seen since the formation of the developed country middle classes in the second half of the 19th century.

Of course, it might not happen. Like our BRICs and N11 projections, the paths we set out here are not forecasts of how the world will evolve. There is simply too much uncertainty about too many dimensions over longer time horizons to be confident in any prediction.

Countries may not succeed in maintaining the kinds of growth conditions that we see currently and which underpin our basic growth projections. And the kinds of pressures that a rapid expansion of the global middle class may generate and rising inequality *within* countries – particularly in the developed world – might themselves derail the process.

Our goal here is to set out sensible assumptions and a robust framework to understand the transformation that lies ahead of us. The Expanding Middle is already a reality and one that – in one form or another – is likely to be here to stay.

2. Drivers and Consequences of the Expanding Middle

Before describing our projections in more detail, we highlight our key conclusions up front:

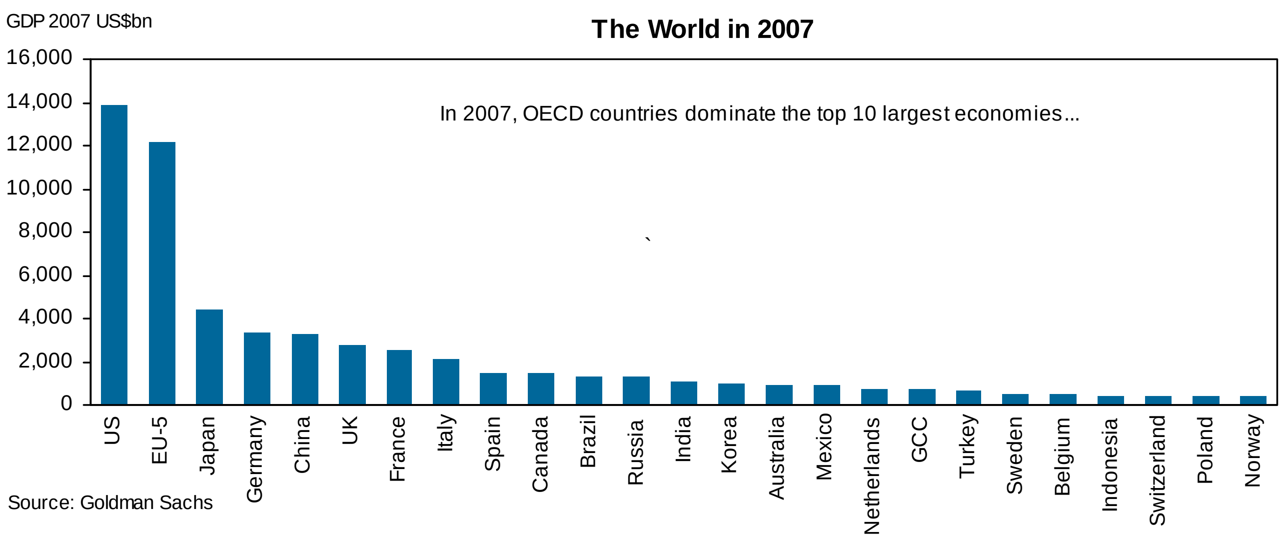
The Rise of Middle Income Countries

- Our updated projections show **a world that could continue to be dominated by the rise of the BRICs, the N-11 and a handful of other emerging countries** (the GCC). Whether all of these countries can sustain growth or not – and history says that is unlikely – the basic shift is likely to continue and a much broader set of projections confirm it.

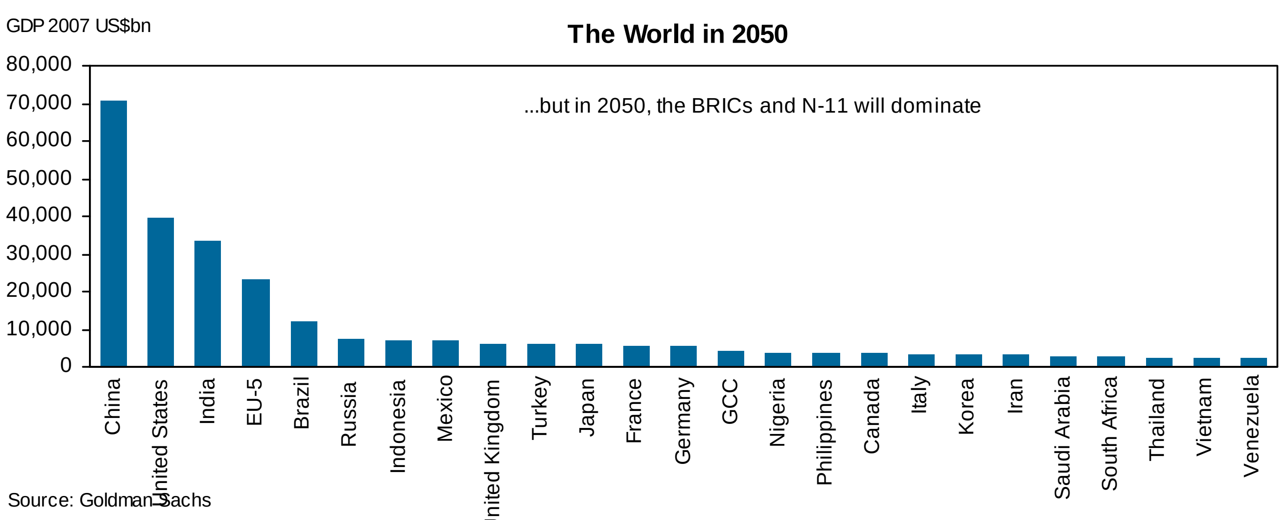
- Despite higher growth and a rising share of global GDP, incomes in many of these countries are likely to remain well below the level of the very richest economies. So the catch-up process will be partial, even though enormous progress in that direction is possible.

- **The first dimension** of the Expanding Middle is already visible. **Spending power has already been shifting away from the richest countries towards a growing middle-income bloc.** In 1980, the seven largest economies in the world in USD terms were all developed economies. That list now includes China and by 2025 could easily include all of the BRICs. By 2050, on our projections, only the US may qualify, and most of the other six will not be amongst the richest economies.

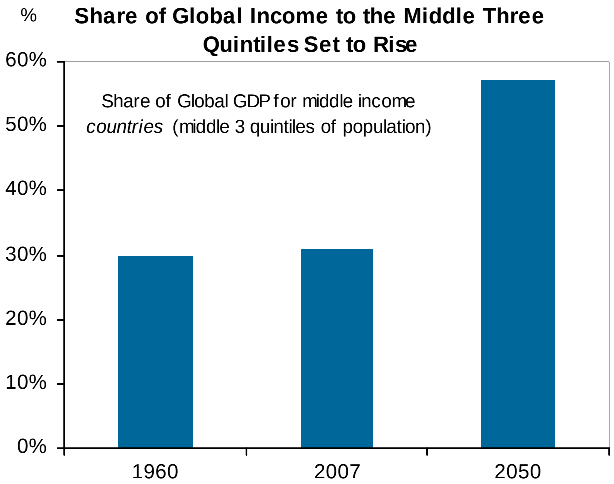
- As a result of these shifts, the **purchasing power of middle income countries is rising and set to rise much more**. The middle three quintiles (i.e. excluding the top and bottom 20%) in terms of country incomes could be responsible for 57% of global GDP in PPP terms, up from only 31% now (and climb from 15% to 43% in USD terms). This group, which will be dominated by a subset of the BRICs and N11 (China, India, Brazil, Egypt, Philippines, Indonesia, Iran, Mexico, Vietnam) will matter more and more for global spending patterns.



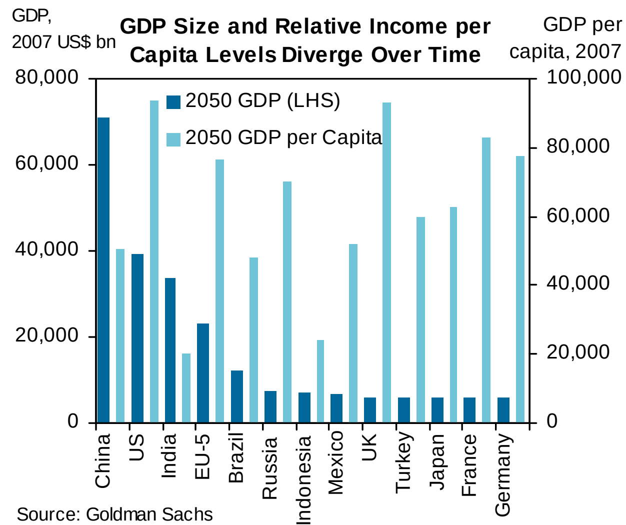
Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs

The Explosion of the Global Middle Class

- **The second dimension of the Expanding Middle is also visible in the distribution of income across *people*.** The same growth process is driving unprecedented growth in those that we define here as the global middle class – those with incomes between $6,000 and $30,000 per annum.

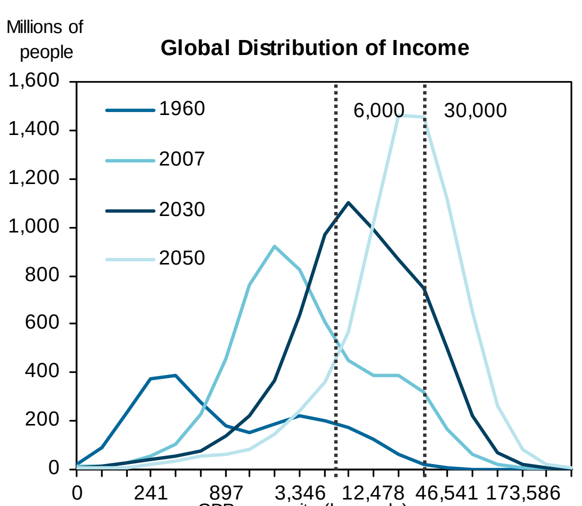
- This group is already growing at an astonishing 70 million per year, its fastest growth on record. But the acceleration in middle class expansion is far from over, with a peak rate of 90 million likely around 2030 and a large pool of people globally now sitting on the cusp of that transition. As a result, **around two billion people could join our definition of the global middle class by 2030,** when the process begins to level off.

- Shifts in China and India are clearly an important part of the story, though peak growth in China is likely to come much earlier than in India. What is striking, though, is that **the Expanding Middle, the narrowing of the global income distribution and the expansion of the global middle class is clear whether or not either or both of these giants is included**, at least in the recent past and projected future. In fact, even without these two economies, the expansion of the global middle class, at around 20 million new entrants per year, would still be larger than the world has seen for many decades.

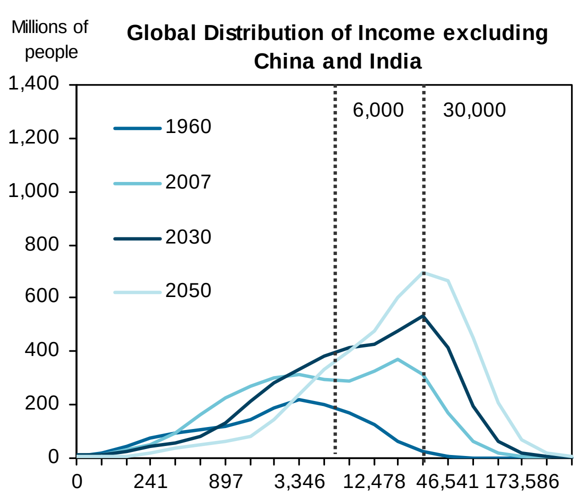
A More Equal World

- As the Expanding Middle has become slowly visible, **the distribution of income globally in fact appears to have been narrowing**. While there is intense (and justifiable) focus on the rise in inequality within countries, we estimate that the three middle income quintiles globally now earn close to 30% of global income, up from around 23% in 1960. The success of China (and now India) is clearly an important part of that process, but it runs well beyond them, particularly very recently and in the projected future.

- On our projections, **the distribution of global incomes could narrow significantly further, even if inequality within some countries remains high or rises further**, as middle income countries continue to move through the pack. By 2050, our projections show that the ‘middle income’ group of individuals could have increased their share from nearly 30% to close to 40% by 2050.

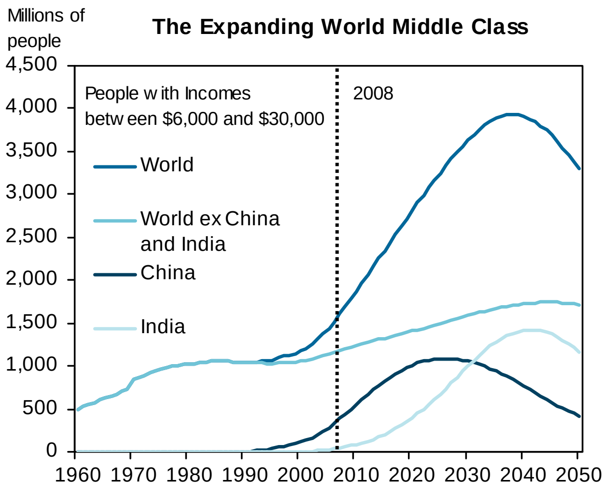


Source: Goldman Sachs



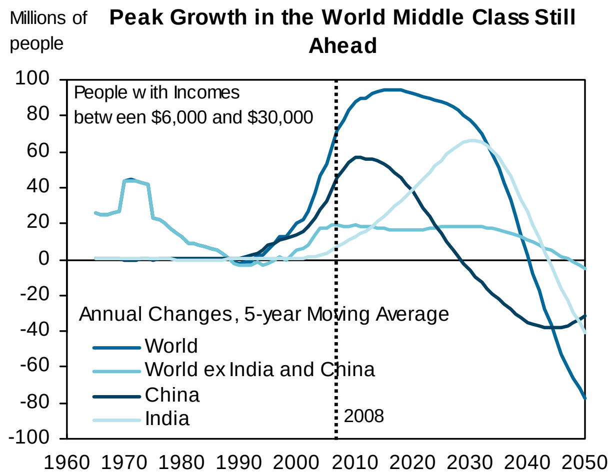
Source: Goldman Sachs

The Expanding World Middle Class



Source: Goldman Sachs

Peak Growth in the World Middle Class Still Ahead



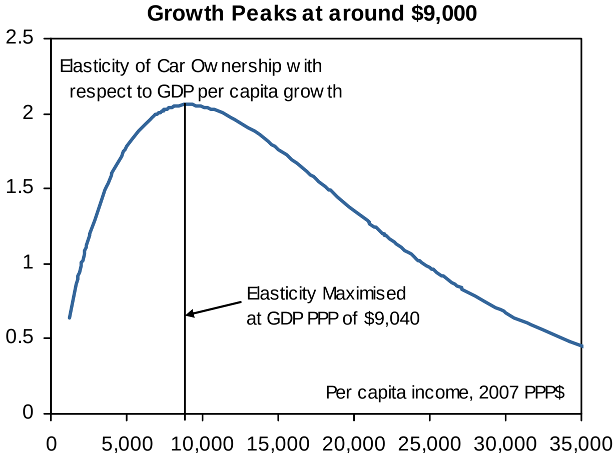
Source: Goldman Sachs

- One welcome side-effect is that if our growth projections are met, **poverty rates should continue to decline sharply**. The proportion of the world with incomes less than $1,000 per annum ($2.75/day) has already fallen a lot in the last ten years (from nearly 30% to 17%), but could fall further. Those with incomes less than $500 per annum ($1.50/day) are already much smaller in number as a result of development in India and China, but could also plausibly shrink further. Africa's share of the global poor may continue to rise, however, even as absolute poverty rates decline.

The Pressures From The Expanding Middle

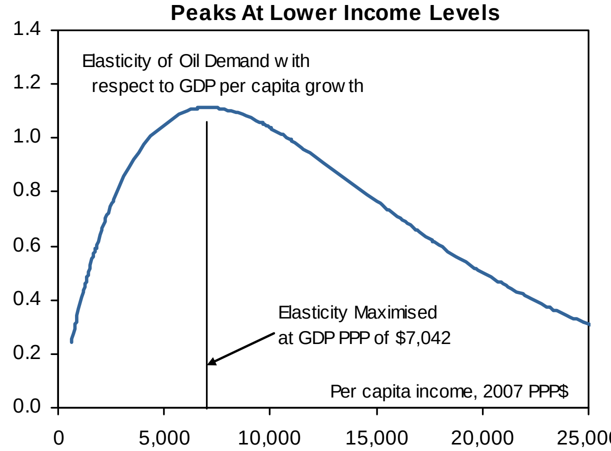
- The explosion of the global middle class is already changing spending patterns, opening up new forms of political pressure and placing fresh burdens on global resources.
- Understanding the preferences, demands and changing pressures from the Expanding Middle is likely to be critical to understanding how resource pressures and spending growth in different global markets are likely to evolve (we have shown before how demand for energy and cars shifts with incomes), as well as helping us to think about a much broader range of issues.
- Ultimately, the biggest pressure points and opportunities will come from income pools that are growing most – and that will shift over time.
- Previous periods of massive middle class expansion – like the late 19th century in Europe and the US – have been times of enormous progress, but also of political, social and environmental change. Resource constraints are already being felt and are arguably tighter than they were then.
- It is possible that the pressures that the Expanding Middle give rise to, will ultimately prevent success occurring as broadly as our projections show. And maintaining the basic conditions for growth, as many countries have done more successfully recently, is clearly a precondition for this dynamic to continue.

Sensitivity of Car Ownership to Income Growth Peaks at around $9,000



Source: Global Paper No. 118

And Sensitivity of Oil/Energy Demand Growth Peaks At Lower Income Levels



Source: Global Paper No. 118

Who Are the 'Middle Class'?

The media, public and political debate is full of discussion of the 'middle class' – how they are doing, how their ranks are growing or shrinking, where they are spending, their views and their values. As the MIT development economists Abhijit Banerjee and Esther Duflo have put it; "we expect a lot from the middle classes". The middle class has been seen as an engine of growth, a source of demand, and a critical support for political openness and democracy.

Given that, it is surprising how little agreement there is about who the middle class actually is. Even within individual countries, there is no generally accepted economic definition. And once attempts are made to compare across countries, the problems become even thornier.

It is common in parts of the research into the middle class to define them on a relative basis – as a particular share of the income distribution. But a relative notion of the middle class makes it hard to talk sensibly about the development of a middle class in a country that has essentially not had one, or to make any kind of comparison or aggregation across countries in a consistent way.

An absolute measure, which makes much more sense for the issues we examine here, is not without problems either. Being in the middle class or the poor, particularly when measured over time, does at some point inevitably become a relative concept. And once almost everyone crosses a particular income threshold, standards of who belong to which group would generally be redefined.

Our choice for a 'world middle class' of $6,000 to $30,000 in 2007 PPP terms is designed to mitigate as many of these problems as possible, and is tailored to the issues we want to illustrate here. The lower band corresponds approximately to the World Bank's current definition for the income level at which countries qualify to be 'upper middle income' (currently around $3,600 in current dollars, which is equivalent to around $6,000 on average in PPP terms). And the upper band is roughly equivalent to median incomes in the OECD group.

Other studies have used levels that are both significantly higher and significantly lower. Duflo and Banerjee's study of the middle class in several developing countries, and their spending habits, used consumption of $2-$10 per day (roughly $800-$3600 per year), while a recent World Bank study used a definition of incomes of $17,000-$70,000 – much more in line with the current middle class in developed countries.

The definition of poverty is perhaps even more controversial, though here at least more effort has been made to define global benchmarks through the Millenium Goals. The most commonly used is the World Bank's definition of $1/day as 'extreme poverty', though even here how to define those dollars and the different ways of measuring income can lead to very different answers. Clearly again the notion of poverty in many debates also has a strong relative flavour, even if there is agreement that the US poor and the African poor are in very different predicaments.

Our position ends up being that the best approach possible is to be clear about definitions and to acknowledge that different definitions are likely to be appropriate for different issues. The advantage of the map of global income distributions that we generate here is that we can easily examine alternative definitions. And we take comfort from the fact that the story of the Expanding Middle, declining global inequality and a growing global middle class are basically intact under a fairly wide range of alternative benchmarks.

3. What We Mean by the 'Middle Class' and 'Global Income Distribution'

Income distribution and inequality are controversial and complicated topics. So before going further, it is important to be explicit about what our focus is here (and what it is not) and the definitions we are applying.

Our primary goal is to look at the distribution of incomes globally and identify the people that are moving through different income pools across the world over time. For many global markets, these shifting patterns are likely to be critical, but they are not often discussed. What we are not going to spend much time on here – though it is an important topic in its own right – is the issue of inequality *within* countries, except to illustrate that the distribution of incomes and inequality globally can and does look very different to the country-level perspective. We noted that same point last year in *Global Paper* 158 ('Rising Income Inequality in the G3') in a much more detailed look at income inequality in the G3, and we address it briefly in the Box above. That paper contains much more detail on the problems of developed country inequality – and how to address them – than we attempt here.

The analysis shows the development of a growing 'middle class' globally. Despite the fact that the 'middle class' is frequently discussed, there is no generally accepted definition of what it means. As the Box discusses in more detail, different notions of the middle class make sense for different kinds of questions. But our goal is to identify groups of people entering income levels where a wide variety of new spending patterns emerge, and to compare the number of people globally at particular income levels.

Any choice of income brackets is somewhat arbitrary. As the Box describes, when we refer to the global middle class we will generally be talking about those with a 2007 equivalent income per capita of $6000-$30,000 per year. The lower bound is roughly the level at which rates of discretionary spending seem to pick up sharply. The upper bound is roughly the median income of the current OECD group, so the upper half of this group qualifies as the 'global rich'. Although this group may not always feel 'rich' within the context of their own countries – and debate about how they are doing is a central political issue – there is little doubt that, representing the top 10% of the global income distribution, they are well off in global terms. Our choice here is similar to the definition that we used within the BRICs in 2004 (*Global Paper* 118, 'Crude, Cars and Capital'), when we addressed the issue of the middle class in a less comprehensive way.

Our goal here is to come up with projections for the changing country and global income distribution over the next few decades. But we also look back to the 1960s, since even history viewed this way is not well understood as part of the global debate on inequality and growth.

As with our BRICs projections, it is impossible to understand what is plausible and what is not, without setting out a firm way of modeling them and following a set of plausible assumptions to their logical conclusion. We build our projections up in three stages (Appendix 1, 2 and 3 provide details):

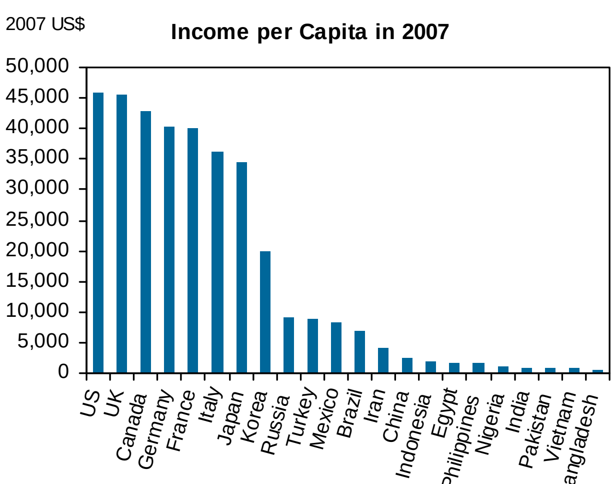
- Projecting the path of the economy and average incomes, using the approach that we have used for our long-term income projections for the BRICs and N11.
- Mapping out a path for inequality, using survey evidence on income distributions on income levels, and the historical links between income and inequality.
- Combining the averages and the distribution, to project how pools of people at different income levels evolve over time for each country, and aggregating to regional and global income distributions.

4. A New World – Our Projections for the BRICs, N11 and Well Beyond

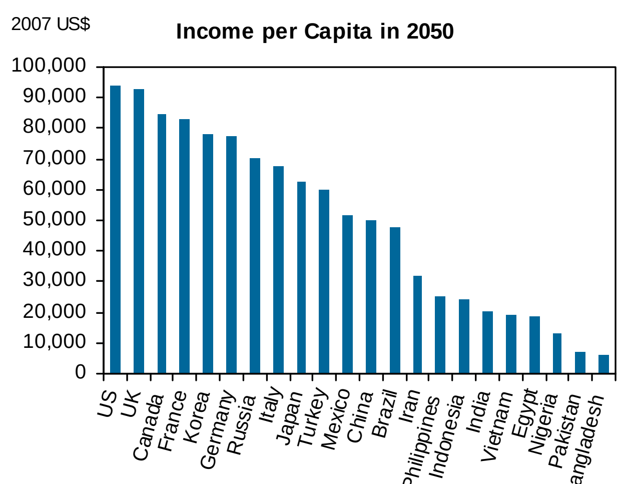
Our starting point is to expand our projections for GDP and income growth to a broader range of countries. In the process, we have updated them for the latest data and made some further improvements to the way in which we link our projections to our Growth Environment Scores (see Appendix 1 for details). In general, we now show somewhat more of the growth in US dollar incomes coming from real GDP growth, and somewhat less from real currency appreciation.

Before turning to the story of the Expanding Middle, we review them briefly here. The basic story from our previous projections remains firmly intact. In particular:

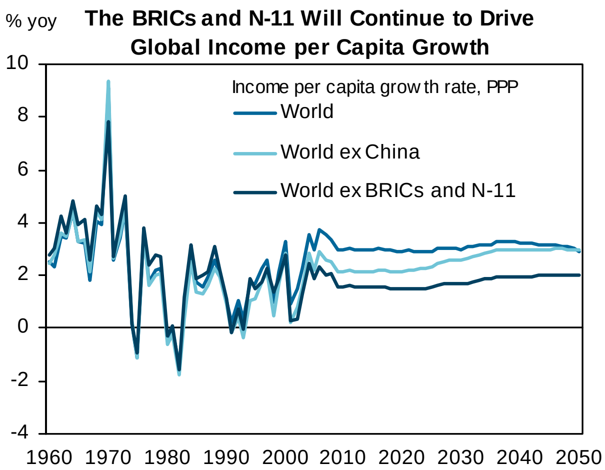
- The BRICs continue to emerge as dominant forces in the global economy going forward. Our latest projections show the BRICs as four of the five largest economies in 2050.
- The rise of the N-11 also remains a significant feature. The updated projections have resulted in somewhat higher GDP and income levels in a few decades time for some countries (Turkey, Philippines, Iran), and somewhat lower for others (Vietnam, Mexico, Korea). But the broad picture confirms our earlier work and ten of the N-11 are in the top twenty largest economies by 2050.
- The GCC, who we have highlighted too, are also confirmed as another important grouping. As a group, they rank 13th on our latest projections in 2050, above many of the N-11. In terms of the 25 largest economies, beyond the BRICs, N11, G7 and GCC, two other countries – South Africa and Thailand – may have some claim to be considered in these groupings on the latest projections.
- Extending our projections to a much larger group of countries also allows us to see some other key dynamics. Two stand out: the ongoing potential (albeit



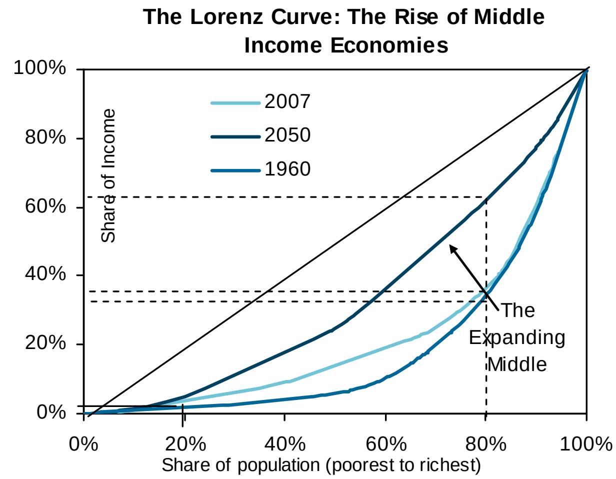
Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs

on a smaller scale) in many Eastern and Central European economies; the continuing difficulties in several of the larger sub-Saharan African economies (Zimbabwe and Congo), even as other parts of Africa are succeeding more.

- As in our earlier projections, while the ranking of global GDP is set to change dramatically, the ranking of *incomes* changes less. As we shall see shortly, this turns out to be critical in terms of defining the Expanding Middle.

Although incomes in the poorer countries generally do not catch up to the richer ones, the story from the global 'averages' is a relatively optimistic one. Our projections imply that global income per capita is likely to continue to grow at relatively high rates (roughly 3.1% annually in PPP terms) and our path in fact shows it drifting modestly higher. The growing weight of the larger high-growing markets (BRICs and N-11) is a significant part of that story. Excluding China, the projected annual growth rate is only 2.6%, and excluding BRICs and N-11 countries, growth rates would fall to 1.8%. But to get a good understanding of how global income pools are really changing, we need to account both for the different sizes of different economies and the fact that incomes vary greatly within countries, which is where we now turn.

5. The Expanding Middle I – The Rise of Middle-Income Countries

The first key part of the story of an Expanding Middle is already apparent in the country projections: a rise in the share of spending power from middle income *countries*.

By and large over the last few decades, the largest countries in terms of GDP (the current G7 for example) have generally come from the rich group of developed economies. Their incomes were so much higher that even developing economies with much larger populations were responsible for much smaller shares of global spending. The growth successes of a group of large-population economies (the BRICs and the N-11 for example) have begun to change that. A simple way to see this is to look at the list of the seven largest economies (the 'true G7') in 1960, 2007 and 2050. The table on the next page shows the incomes of the top seven economies over time. The pattern is clear. In 1960, the largest economies were all essentially 'developed' countries from the higher income groups. By 2007, that has already clearly begun to change, with China in the top seven and Brazil, India and Russia not far behind. But developed countries still dominate the rankings. From here on, however, the shift is likely to accelerate. On our projections, by 2030, the four BRICs have all joined the group. And by 2050, the story is almost reversed – only the US from the current developed world is in the top seven economies, despite the fact that the other economies are by and large not nearly as rich as the current high-income group.

As a result, for the first time in decades, a group of middle-income countries is poised to emerge as the dominant source of global spending. The most powerful way to see this ongoing shift in the share of global purchasing power going to those countries in the middle of the pack, is to look at how the share of global GDP is changing for countries at different income levels. One simple way to illustrate that is to plot what economists call the 'Lorenz curve'; country by country, mapping out the share of global GDP that accrues to a particular percent of the world's population, starting from the poorest and moving towards the richest. Essentially the curve looks at what proportion of the world's GDP the poorest 'x% of countries' earn (Appendix 2 provides detail).

Using the historical data and our projections, the country 'Lorenz curve' shows the Expanding Middle clearly. The proportion of income owned by the middle group of countries – the middle three quintiles of the world's population – has shifted a little, from roughly 30% in 1960 to 31% in 2007 in PPP terms, so the middle income countries have gained share modestly (and the distribution within that group has evened out). But this is

Top Seven Countries: Shifting Towards Middle Income Countries

1980	GDP rank	Income Rank	2007	GDP rank	Income Rank	2030	GDP rank	Income Rank	2050	GDP rank	Income Rank
US	1	12	US	1	9	China	1	49	China	1	45
Japan	2	19	Japan	2	22	US	2	12	US	2	15
Germany	3	17	Germany	3	16	India	3	63	India	3	61
France	4	9	China	4	56	Japan	4	29	Brazil	4	46
UK	5	18	UK	5	10	Brazil	5	47	Russia	5	28
Italy	6	21	France	6	17	Russia	6	35	Indonesia	6	60
Canada	7	15	Italy	7	20	Germany	7	22	Mexico	7	44
Average		***16***	**Average**		***21***	**Average**		***37***	**Average**		***43***

Source: Goldman Sachs

likely to rise much more going forward, on our projections, to 57% in 2050. The same representation also points towards another key story – declining global inequality. Over time, the country 'Lorenz curve' is shifting inwards towards the 45-degree line, indicating (as Appendix 2 also explains) that the distribution of incomes viewed this way has been and should continue to become *more* equal. As we mentioned earlier, it is a subset of the BRICs and N-11 that come to dominate this group.

6. The Expanding Middle II – The Explosion in the Global Middle Class

The problem with looking at things using country averages, as we have so far, is that they effectively assume that everyone in a country is congregated at the average income level. Of course, we know that in practice there is huge variation in incomes within countries, and even the poorest countries may have a reasonable number of very wealthy individuals (and vice versa). The only way to account for all of these interactions is to move to looking at the full distribution around the averages, and then adding them back up to the global level. Doing this – the heart of what we have done here – allows us to track a simplified but comprehensive form of the entire global income distribution over time and look at where pools of people lie in a much more detailed way.

We have already highlighted the main conclusions in Section 2, but we provide more colour on what is driving those shifts here. The charts there on how world income distribution is changing showed both halves of the story of the Expanding Middle clearly: world incomes are set to increase and the distribution is projected to narrow.

From Two Peaks to One

The historical pictures suggest that this is a continuation of a recent trend. In 2008, for example, the distribution of income congregates around two peaks; one around $2,000 and second around $19,000 (a mild version of the stylized picture we show in Section 3). As the picture shows, the 'twin peak' distribution is partly a function of China and India, where incomes are currently concentrated between US$2,000-4,000 PPP. But there is also clearly a 'twin peak' in the rest of the world, with clustering of people around the group of developed incomes and the group of poorer economies, but fewer people in between.

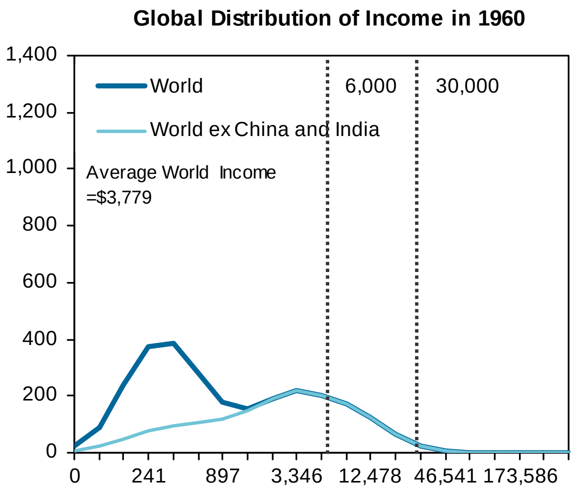
By 2030, incomes in China and India are projected to be close to the global average. Because of that, and more rapid growth in some other developing countries, the second peak in the distribution has effectively disappeared. And by 2050, global incomes, including and excluding India and China, now seem to center around $30,000, as continued rapid growth in some of the large developing economies pushes people further up the income ladder. By 2030, roughly 50% of the world population would fall into the $6,000-$30,000 bracket, up from around 29% currently (and around 24% in the 1980s), after which this share will start to fall as growth in higher income brackets picks up.

China, India and Beyond

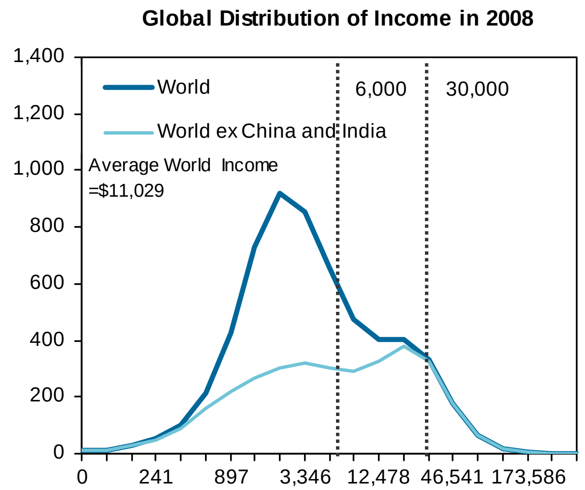
It is helpful to look at where this explosive growth in the global middle class will come from. China and India are clearly important parts of that story, but they also differ significantly, with the transition to the middle class occurring earlier and faster in China than in India as incomes have risen more sharply. In the past decade, half of the number of people crossing the $6,000 line came from China. But that is set to change. As average incomes there rise, the rate at which China is adding to the middle class globally will probably peak in the next few years, though it will remain at high levels for at least another decade. India will take over where China is leaving off, becoming the driver of middle class creation over the next decade. Its contribution to growth in the middle class will increase sharply and is unlikely to peak until around 2030.

The percentage of people who we count as middle class has already increased from close to 1% at the beginning of the 1990s for China, to close to 35% today. By 2020, 70% of China's population will have this middle class status. Meanwhile, India seems to be around 10 years behind China, with the percentage of people in the middle class increasing from 1% in 2000 to 5% today. But if growth conditions along the lines of our projections eventuate, the vast majority of Indians could be in this group by 2040.

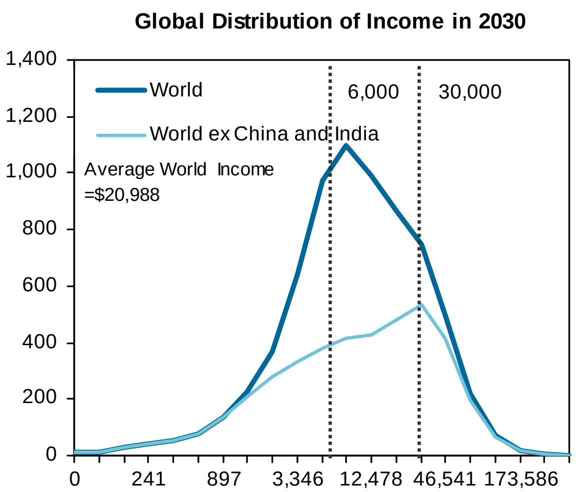
While China and India's size mean that they are bound to be big parts of this story, the story stretches well beyond them. Our projections imply that even without the two giants, growth in the world middle class in the rest of the



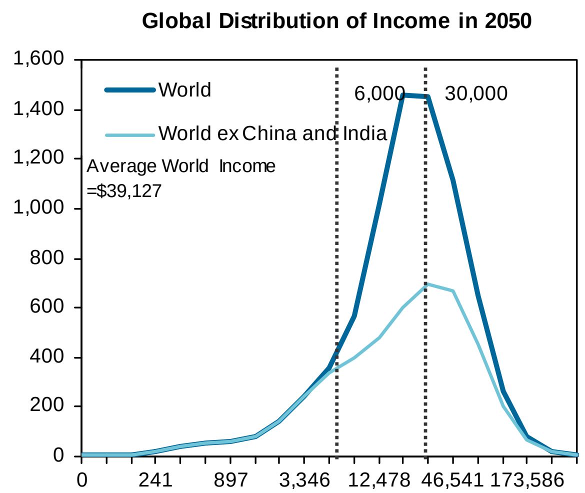
Source: Goldman Sachs



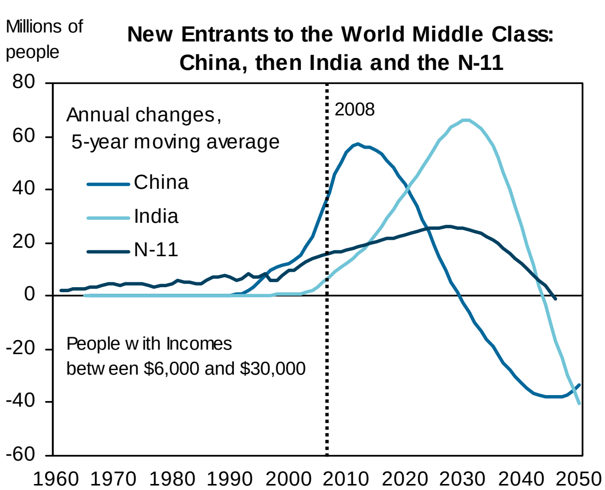
Source: Goldman Sachs



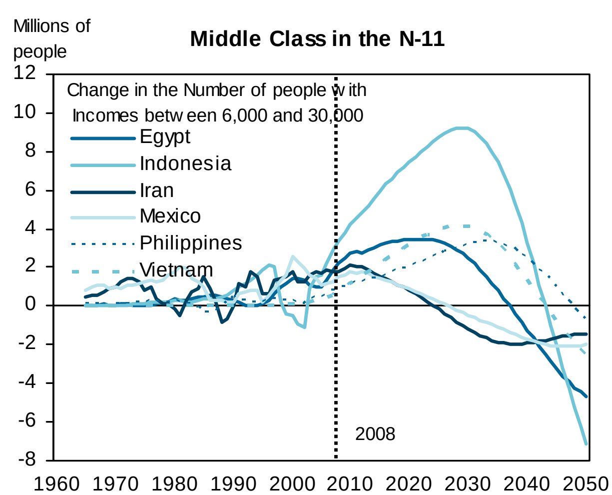
Source: Goldman Sachs



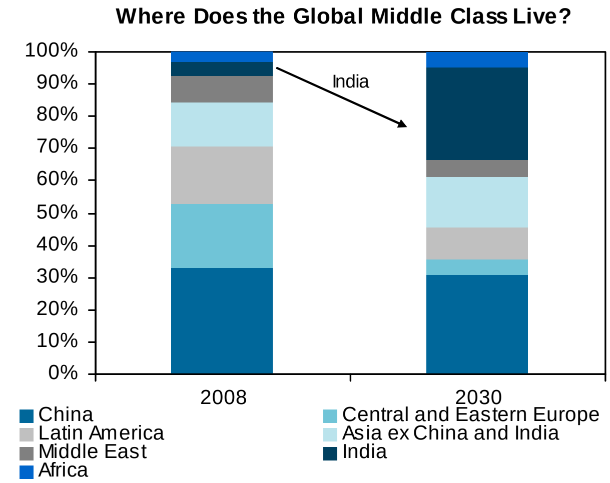
Source: Goldman Sachs



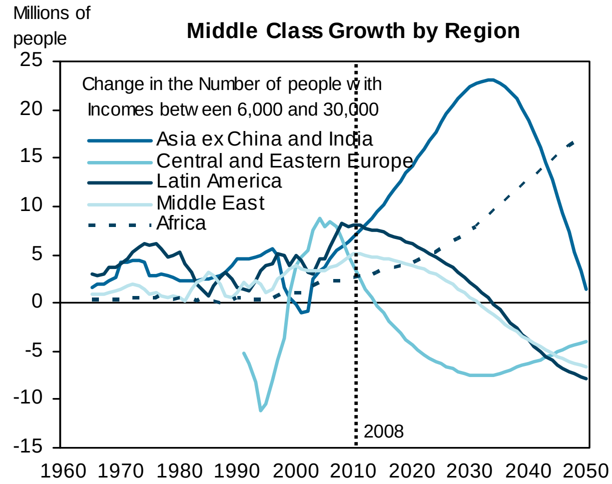
Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs

world could outstrip anything we have seen globally for decades, and will peak (at around 20 million per year) around the same time as India. Already by 2020, one-third of the new entrants to the world middle class will come from outside China and India. And this percentage could reach half by 2030.

Regional Shifts in the Middle Class

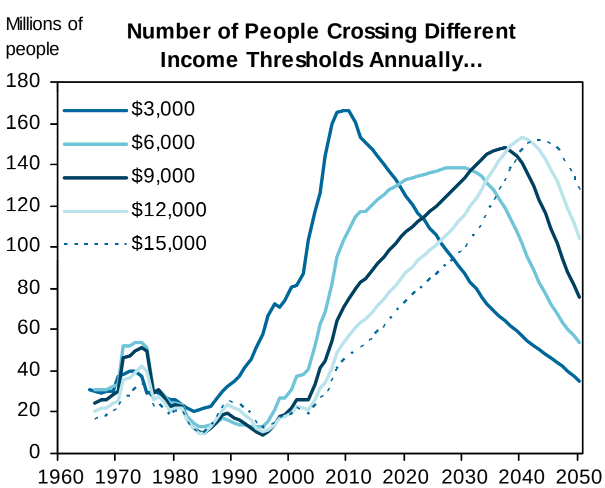
These shifts also lead to pronounced differences in the regional patterns of entry into the global middle class. Even excluding China and India, Asia is rapidly becoming the dominant contributor to this pool, though it is Latin America and Central and Eastern Europe that have had that role until now. And middle class creation will peak at very different points in time across the different regions.

In fact, the pace of growth already seems to have peaked in Central and Eastern Europe (in around 2004) and is set to peak in Latin America and the Middle East by 2010. By contrast, the peak in Asia ex China and India is likely to come closer to 2035. And we do not see any peak in our projection interval in Africa, where the process is barely beginning and will pick up only slowly. As a result, Asia and Africa's share of the global middle class should increase while Latin America and Central Europe's shares will decrease, as these economies move into higher income brackets.

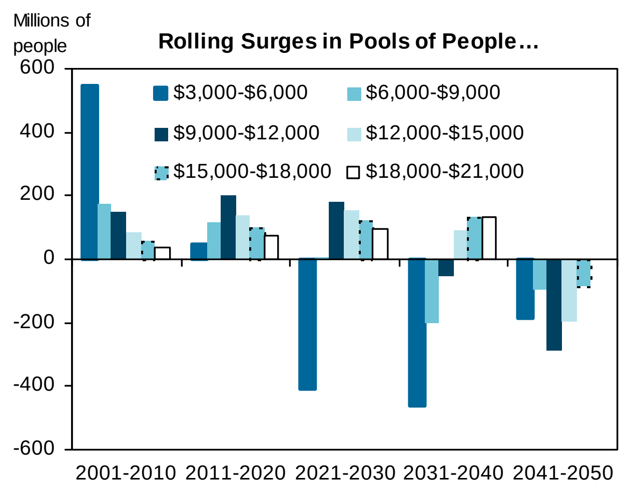
Identifying the Fastest-Growing Income Pools

What our projections also imply is that we should see rolling 'surges' in the pools of people at different income levels as the Expanding Middle develops, which could influence spending patterns and resource use. While the number of people crossing the $6,000 mark has already risen sharply, growth in higher middle income segments of the middle class are poised to take off. Growth in those with incomes over $9,000, for instance, already appears to have picked-up sharply, literally in the last few years. And the charts show that growth in the number of people with incomes over $12,000 and $15,000 may be just about to experience the start of the kind of rapid acceleration that we saw at lower income levels a decade ago.

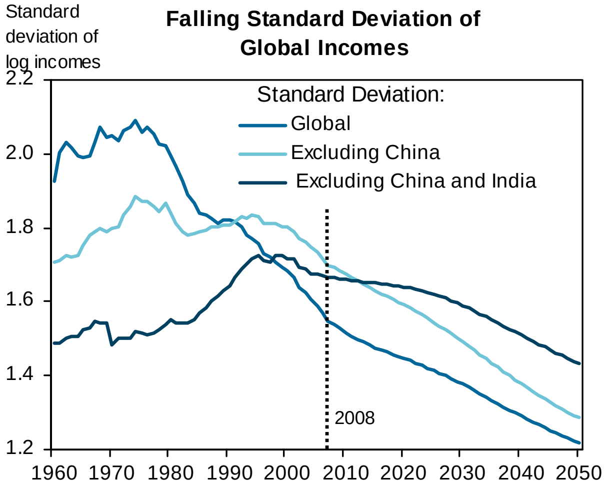
Our projections show that the fastest growing segment currently falls at around $3,000-$6,000, just below the levels that count as the middle class on our definitions.



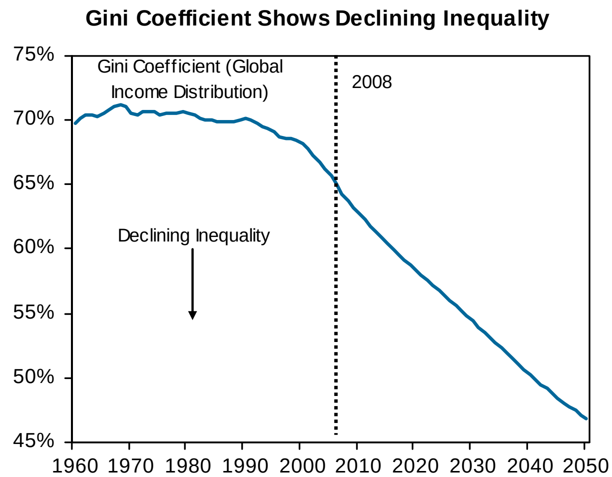
Source: Goldman Sachs



Source:Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs

But in the next two decades, this group will be surpassed by growth in the $9,000-$12,000 group, before shifting further towards those with incomes between $15,000-$18,000 by 2030-2040, and much higher income brackets beyond that point.

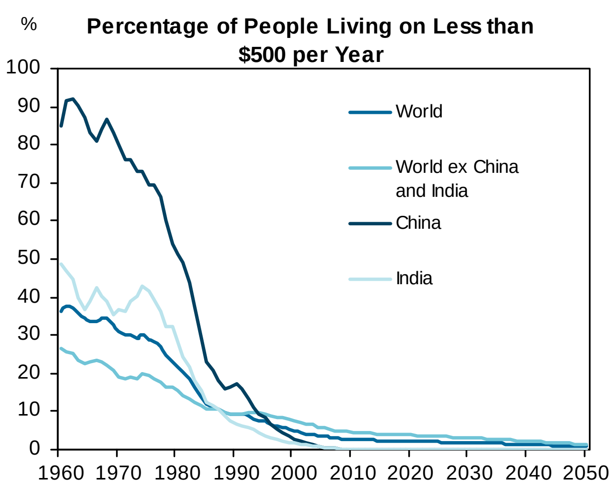
7. The Ongoing Fall in Global Inequality

The maps of global income distribution also illustrate that income inequality across the world has been narrowing and is likely to narrow further, despite the rise in inequality within many countries. The first story – while not often discussed – is something that we pointed out in last year's *Global Paper* on G3 inequality, referencing work by the Columbia academic Xavier Sala-i-Martin. We can not only confirm that trend more formally, but we can also show that it has accelerated and that the process is likely to continue.

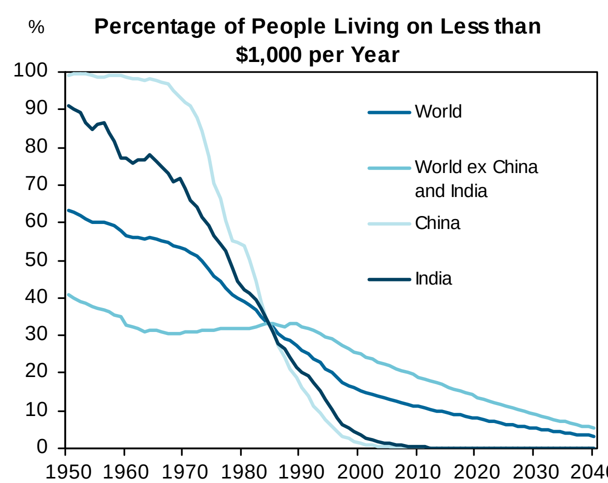
Declining Global Inequality – Past and Future

One simple way to show this is to illustrate the fall in the spread of global incomes implied by the distribution (literally, the standard deviation of log incomes from the world distribution). As the chart shows, this appears to have been falling since the mid-seventies, and on our projections should fall much further. China and India have clearly been a large part of that story for much of the last two decades. But it seems that global income distribution has been narrowing even beyond them in the last few years, and while the story for the future is more dramatic with them, it is likely that global income inequality will narrow even leaving these two giants aside. What is also striking is that the basic story of narrowing global income distribution is not very sensitive to alternative assumptions about the path of inequality within countries that we tried.

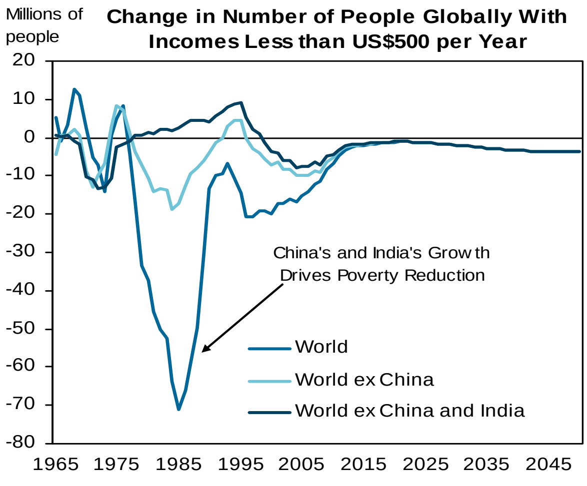
Once again, we can build a Lorenz curve – this time the conventional kind at the individual level – to look at the share of income that goes to the poorest and the richest, and to look at how inequality is changing globally. The charts on the next page show the Lorenz curves from our global income map for 1960, 2007 and 2050. The pattern is very clear. We are already in the middle of a period in which the share of income going to the middle is growing larger. But that process seems likely to continue and perhaps accelerate. The share of the middle three quintiles has risen from 25% in 1960 to 29% in 2007. On our



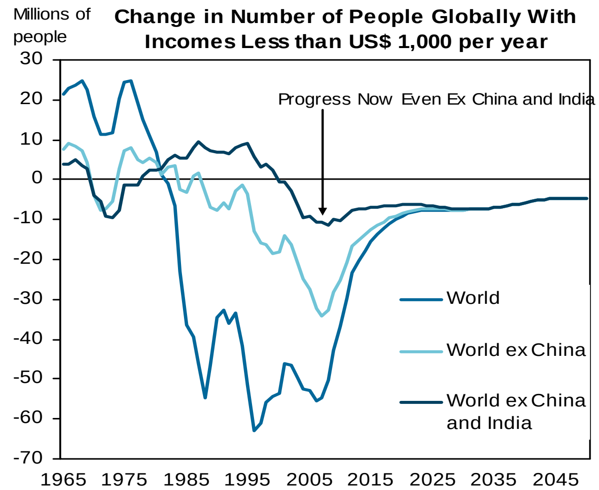
Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs



Source: Goldman Sachs

projections it will rise to 37% in 2050, with the bulk of that improvement happening in the next 20 years.

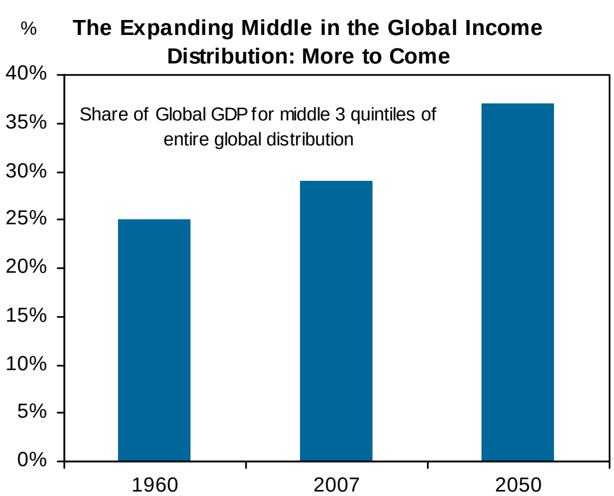
The area between the curve and the diagonal line is commonly called the Gini coefficient – as it gets smaller, inequality is falling globally (Appendix 2 provides an explanation). Our estimates of the Gini coefficient from the global distribution confirm the story from the simpler 'standard deviation' measure. The global Gini coefficient on our estimates peaked around 1970 at roughly 71%, and in 1990 began to fall noticeably. That process has accelerated since 2000, with the Gini coefficient now below 64%. On our projections, it should continue to fall at a similarly rapid rate going forward.

Falling Poverty Rates

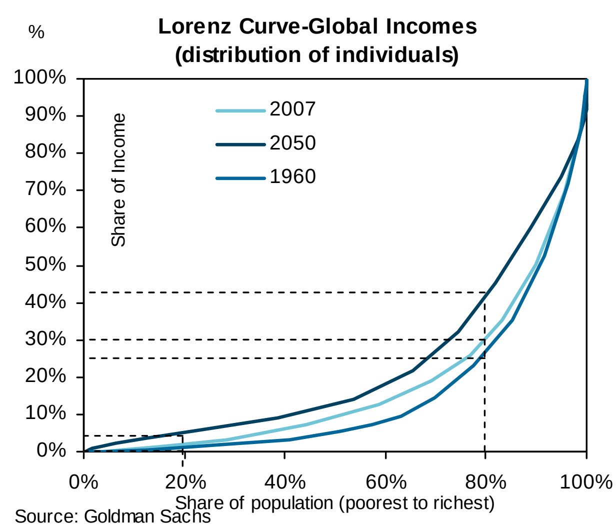
Alongside the rise in the share of incomes going to the middle, is an ongoing decline in the extreme poor. Our projections allow us to look at a version of poverty trends across time. Perhaps even more so than the middle class, the definition of poverty is a complicated and controversial topic. While there are many issues with defining poverty levels (the Box earlier on page 6 discussed some of these), we have focused on two 'extreme poverty' lines: the number of people with incomes below $500 (approximately $1.30 per day) and below $1,000 ($2.75 per day) in 2007 international dollars. Our conclusions here give a sense of global poverty trends, but we would caution against setting too much store by the absolute numbers, and the World Bank definitions show significantly higher estimates of global poor.

On either definition, what is clear is that the last 10-15 years have already seen dramatic progress here as the big developing economies advance. On the first measure, we estimate that the number of people with an income of less than $500 per year has fallen from around 30% of the world population in 1970, to close to 10% in the 1990s and 5% in 2000. By 2015, this percentage should almost fall by half and be near 1% by 2045. On the second measure, the trends are even more staggering, with the percentage of people living with less than $1,000 per year declining from close to 50% in the 1970s to 30% in the 1990s, to 17% in 2000. The projected declines here are even sharper, with the number of people living on less than $1,000 falling to 6% of the world's population by 2015.

But as the charts illustrate, the sharp reduction in poverty is most pronounced in China and India. In fact, the BRICs story has already been responsible for the largest declines in global poverty that we have ever seen. Nearly all of



Source: Goldman Sachs



Source: Goldman Sachs

The Developed World and the Global/Country Inequality Paradox

As we have described it, the story of the expanding middle is much more a story about the rise of middle-income countries and an emerging market 'middle class' than a story of shifts in the developed world. While we expect developed countries to get richer and for average incomes to exceed most current developing countries for decades to come, there is essentially nothing in our projections that implies that the middle class – as conventionally defined – in the developed world itself will necessarily expand or that the process of widening inequality that we have seen lately in many places will necessarily stop.

From the global perspective, much as with our BRICs work, developments in the major economies are simply less dramatic in terms of the way in which the global growth and income picture are changing. But they clearly matter enormously, not just to people in these countries, but because the tensions that they generate may lead to policy responses that could in the extreme derail the broader global trends we describe.

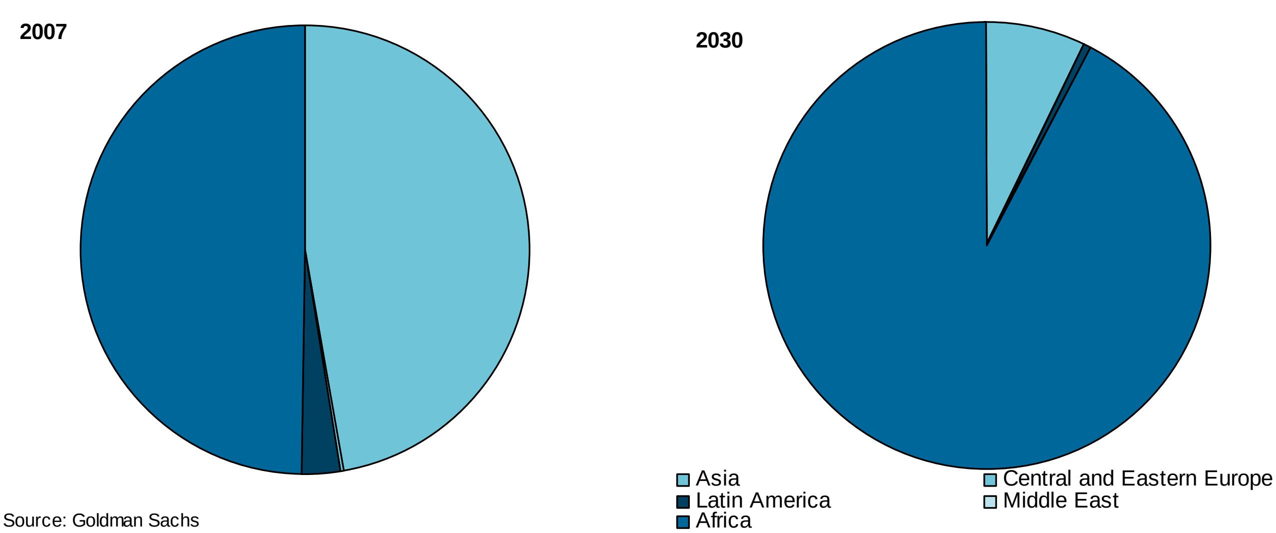
We wrote extensively about these issues – and ways to address them – in last year's *Global Economics Paper* 158 ('Rising Income Inequality in the G3'). We looked there at the forces driving this inequality, possible means to address them and – as we have shown in much more detail here – the fact that the global income distribution was probably becoming more even. That paper remains the best source for our detailed views on this subject.

The prospects of rising inequality and the pressures on the developed country middle class will feature prominently once again in the US presidential debate and many other political contests. How much international trade, globalization and the growth of the large emerging markets has contributed is a matter of huge research debate, but it is hard to argue that it has not played some role and most academic research accepts this. Basic economic theory provides some good reasons why increased trade might be exacerbating the position of some parts of the developed world income spectrum. But it also shows that as incomes grow in the developing world – and their own wage structures rise – some of these pressures might also be expected to ease.

Widening inequality in many developing countries has generally come along rapid enough growth that even the poorest are still finding incomes rise quite significantly, as the IMF has recently illustrated. Even here, however, the inequalities driven by rapid growth – as in India and China – are politically sensitive issues that are big policy focuses. But in parts of the developed world, given slower overall growth, there is evidence that real incomes for significant groups of people have not been improving. And if that continues, it will continue to represent a political challenge for building support for current global trends.

The irony, as we show here, is that globally inequality is falling even if within-country inequality is rising in many places. But governments are responsible for (and ultimately held accountable for) national not global developments, and the global perspective is not well represented politically. It is possible – as we show here has been broadly true over the last decade – for country inequality to be rising broadly even as the global income distribution becomes more equal. The paradox that this might present is simply a part of the political reality, and will need to be managed if the current period of rapid global growth is to continue.

Regional Distribution of World's Poor in Our Sample Shifts Towards Africa



Source: Goldman Sachs

China lived on less than $3 per day until the early 1970s (80% lived in extreme poverty, consuming $1.30 per day between 1960 and 1970) when their share of total population declined to 50% in the 1990s and around 5% currently. In India, the trends are less spectacular than in China, but nonetheless more so than the world average. Because of that the peak rates of poverty reduction globally may already be behind us.

In contrast, outside these two large markets, progress in reducing poverty over the last few decades has been much less clear. But in the very last few years, encouragingly, we appear to have seen much more substantial progress. The charts on the top of page 14 show that we have recently made the switch to declining absolute numbers of the 'extreme poor' outside China and India.

On our projections, we see continued progress in these areas dominating the story now, with reductions outside China and India expected to continue at a more rapid pace. But the history so far points to one of the significant challenges going forward, which is that while poverty rates have fallen they remain concentrated in areas where they have generally proved least tractable. In particular, our results imply that the share of the world's poor in Africa could easily increase further from high levels. And so the risk is that the story of declining global inequality still passes some areas by.

8. Pressures From The Expanding Middle

The Expanding Middle is already a fact. The global middle class is growing and global inequality is falling. But on our projections, the changes here still have a long way to run. A little like the shifts wrought by the baby boomers in the developed economies as they have moved through the system, the gradual rise in incomes of this growing global middle class as they move forward is also likely to lead to a broad range of economic, social and political changes as their demands increasingly dominate.

We can envisage potential shifts under four general categories:

- **Changing spending patterns.** Demand growth for different products peaks at different levels of income. As bulges in the pool of people at different incomes rise and fall in the ways we map out, different kinds of markets are likely to see periods of rapid growth, often more rapid than growth in the underlying economies might suggest.

- **Increased pressure and competition for resources.** Changing demand for goods will lead to changing demand for the resources to provide them. The commodity pressures from the Expanding Middle are already visible across a range of markets. Pressures on fuel, food, water are all likely to remain major issues and potential constraints on the dramatic expansion of a global middle class that we describe here.

- **Greater threat of environmental degradation and rising environmental consciousness.** We have already highlighted the environmental challenges from BRICs growth. A rapidly growing global middle class is likely to reinforce those pressures. At the same time, as incomes rise, domestic constituencies pressing for a cleaner environment may also grow, leading to some offsetting pressure to divert resources to address emerging environmental problems.

- **Political and social changes.** Alongside greater demand for goods, a rising middle class may lead to more widespread demands for political involvement. Institutional pressures may also become more apparent. In particular, there is evidence that the institutions that are successful in promoting growth at lower income levels may not always be good at delivering growth at higher incomes, so complicated political transitions may be needed.

What Other Studies Say

Some of our results may seem surprising. In that context, we are comforted that aspects of what we show here are, at a minimum, consistent with some work done by others in this area. In particular:

- Most importantly, as we mentioned earlier, Xavier Sala-i-Martin showed in a paper in 2006 ('The World Distribution of Income: Falling Poverty and Convergence, Period', *Quarterly Journal of Economics*) that global income distributions seemed to have narrowed between the mid-seventies and 2000, estimating country distributions in a comparable way to what we do here. We find a similar result, but have shown here that the pace has accelerated dramatically since 2000, with global income inequality narrowing more in the last eight years than it did over the entire prior period that Sala-i-Martin examined. And, equally importantly, that this process is likely to continue.

- The World Bank's Global Economic Prospects for 2007 projected growth in the middle class (though it defined that middle class at much higher income levels – comparable to a developed country middle class). They too found that growth in the middle class was likely to rise markedly and gave some evidence for narrowing global income distributions, as we do here.

- Last October's IMF *World Economic Outlook* looked at the issue of Globalisation and Inequality, concluding that inequality had risen *within* a wide range of economies over the last two decades even though almost all income groups were better off, but they did not address the fact that global income distributions have been narrowing.

The scale of the middle class explosion that we are seeing is without precedent. But the last period of comparably widespread middle class development – in the major developed economies in the late 19th century – saw changes along each of these dimensions. Spending patterns changed rapidly as industrialization spread and income growth broadened. Competition for resources intensified, in this case fueling the colonial race to secure natural resources. Environmental pressures became much more acute, but were also met with the first major public moves towards environmental regulation. And the demand for enfranchisement picked up rapidly.

Of these areas, the most concrete implications – and those most directly relevant to investors – are likely to be the shifts in spending patterns and the associated market opportunities. We appear to be moving towards a period of unprecedented growth, for instance, in the global population with incomes above $6,000 per capita. We previously identified this level as the approximate income levels at which growth generates the most incremental demand for energy. So, all else equal, the kinds of commodity pressures that we are currently seeing may not recede without significant further adjustments. By contrast, the sweet spot for higher-end durables typically takes place at a higher income level (around $8,000-9,000 per capita on our earlier estimates), and so our results here confirm our earlier projections that peak growth in those markets is probably a decade or more away.

These general lessons – and the shifting opportunities as different income pools expand and contract – are likely to be replicated across a broader range of products and services: meat, cell phones, PCs, financial services, insurance and healthcare. The income data we map out here should help us to understand the shifting market sizes in these areas and across geographies with much finer detail than has been possible before, though we leave that for a later date.

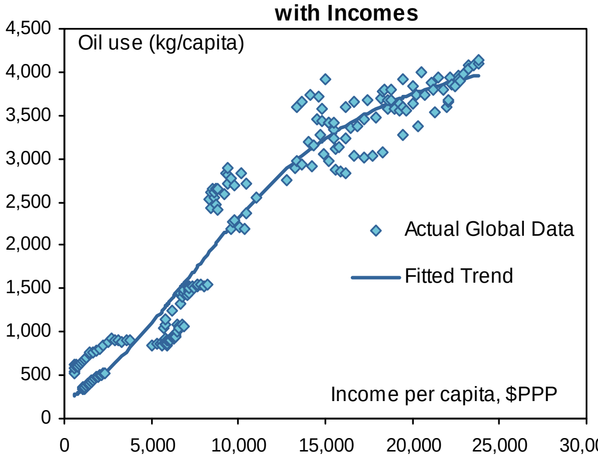
The global picture we paint here also provides another window onto the debate about the process of global growth, and its winners and losers. We know that our conclusions – particularly those related to income distribution – are likely to be controversial. We take some comfort from the fact that some of the broad trends that we describe are consistent with some other work done in this area (the Box on the previous page describes examples). We have already mentioned that there are many important debates that we do not focus on here. In particular, the story of the developed country middle class and inequality within countries will remain critical to the political debate on growth and globalization, and the prospects that it continues, and our projections here have little concrete to say about it. But the fact that the global perspective and the country perspective are so different on some key issues means that the issues of winners and losers may be even more complicated than they look.

We generally think of ourselves as optimists about these kinds of global shifts. We believe that a world in which these economies succeed in developing is likely to be a better one than one in which they do not, not just for them but for other countries and for broader global stability. But there is no doubt that the kinds of demands and pressures that the Expanding Middle could put on global resources and the sorts of changes it may set in place are likely to generate tensions within and across countries. And those left out of the process, or who feel disadvantaged by it, may remain a source of global instability.

Like the BRICs 'dream' that we set out in 2003, there is nothing inevitable about the path for the Expanding Middle or the global projections that we set out here. The underlying assumptions we are making could clearly turn out to be wrong for a host of reasons. The advantage of setting out a framework is that it allows us to consider the plausibility of a broad range of alternative paths. We think that the more we and our clients understand the forces that are driving the Expanding Middle, the market opportunities that they present and the challenges they could present to businesses and policymakers, the better they will prepare themselves for the way that the world is changing.

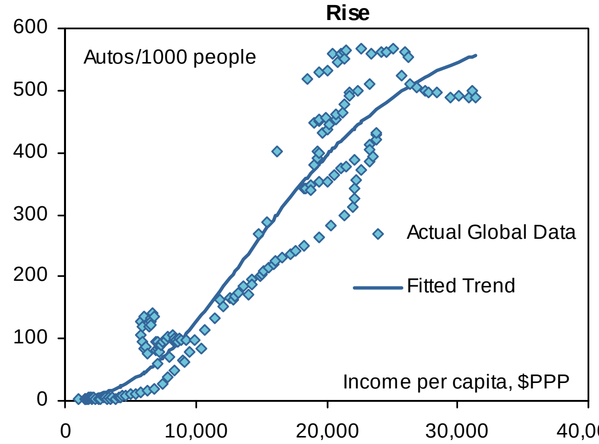
Dominic Wilson and Raluca Dragusanu

Oil Demand Also Has a Shifting Relationship with Incomes



Source: World Bank, GS Calculations

Car Ownership Patterns Shift as Incomes Rise



Source: World Bank, GS Calculations

Appendix 1: Sample Countries

Country	2007 Income per capita, $PPP	Population, millions	Country	2007 Income per capita, $PPP	Population, millions
Argentina	13,308	40	Mexico	12,775	108
Australia	37,299	21	Morocco	4,076	32
Austria	38,779	8	Netherlands	38,592	16
Bahrain	32,064	1	New Zealand	27,191	4
Bangladesh	1,300	161	Nigeria	2,040	151
Belgium	36,191	10	Norway	53,607	5
Brazil	9,695	194	Oman	23,967	3
Bulgaria	11,302	8	Pakistan	2,592	167
Canada	38,074	33	Paraguay	4,489	6
Chile	13,936	17	Peru	7,803	28
China	5,292	1,336	Philippines	3,378	90
Colombia	6,724	47	Poland	16,311	38
Czech Republic	24,236	10	Portugal	21,652	11
Congo, Dem Rep	309	65	Qatar	80,870	1
Denmark	37,299	5	Romania	11,387	21
Egypt	5,491	77	Russia	14,692	142
Estonia	21,094	1	Saudi Arabia	23,243	25
Ethiopia	806	85	Singapore	49,714	4
Finland	35,399	5	Slovakia	20,251	5
France	32,109	62	South Africa	9,761	49
Germany	34,084	83	Spain	33,405	45
Greece	30,325	11	Sudan	2,172	39
Hong Kong	41,994	7	Sweden	37,099	9
Hungary	19,027	10	Switzerland	39,765	8
India	2,659	1,185	Tanzania	1,256	40
Indonesia	3,725	234	Thailand	7,900	64
Iran	10,624	72	Turkey	12,888	76
Ireland	45,322	4	Uganda	939	32
Israel	25,799	7	Ukraine	6,941	46
Italy	30,707	59	United Arab Emirates	37,293	5
Japan	33,693	128	United Kingdom	35,184	61
Kenya	1,699	39	United States	45,971	309
Korea	24,783	48	Uruguay	11,621	3
Kuwait	39,306	3	Venezuela	12,166	28
Latvia	17,416	2	Vietnam	2,587	89
Lithuania	17,661	3	Zimbabwe	188	13
Malaysia	13,315	27			

Appendix 2: Updating Our Growth and Income Projections

In terms of updating our country growth projections, we have moved in three directions. First, we have expanded the list of countries. Second, we have made some small improvements to the way in which we map out the growth path that we think make the projections more consistent and more easily tied to changing growth conditions going forward. Third, we have used the latest data available for 2007, which in some cases has made a meaningful difference. In particular, the International Comparison Project, which underpins the World Bank Purchasing Power Parity estimates, went through a comprehensive revision that ended early in 2008. The new PPP estimates are in many cases significantly different from earlier estimates, as better information on prices has become available. Most notably, PPP estimates for both China and India show their economies to be significantly smaller than originally thought in PPP terms.

In terms of the methodology, the broad framework remains unchanged. As with our initial BRICs and N11 projections, we model growth as a function of demographics, a process of capital accumulation and a process of productivity catch-up. We then model exchange rates as a real appreciation process linked to the relative productivity performance of the US (the technological leader). We have made three small changes:

- We have tied our convergence speeds – the rate of productivity catch-up – more tightly to a country's Growth Environment Scores (GES), using the work that we did at the end of last year that highlighted that link (*Global Paper 163*, 'Building on a Decade of Progress—our 2007 GES Scores'). We had moved in this direction already for the BRICs and N-11 projections, but we take a step further towards tightening this link here. This means that shifts in a country's GES over time will automatically flow through to shifts in our views of projected growth.

- We have reduced the extent to which shifts in relative productivity growth lead to real currency appreciation in our models (we now assume a 1% change in relative GDP per capita leads to 0.5% in real currency appreciation). Cross-checking the latest empirical evidence, we find enormous sensitivity to the sample period in estimating that relationship. While some sample periods would justify the assumption of a one-to-one relationship that we have been using, it is substantially above what our GSDEER FX models assume, and we wanted to bring the two closer together.

- We have always assumed a somewhat faster rate of convergence in the initial projection phase for the countries transitioning from a communist state economy (China and Russia) – we carry that assumption over to other transition states in Eastern Europe. This allows us to better match the productivity growth that they are actually achieving (our work on the GES showed that many of these economies were growing more rapidly than their growth conditions would predict) and captures the notion that the reorganization of the economy after significant output declines provides some additional scope for growth for a while.

While the projections end up in most cases very similar, on balance more of the USD growth comes from real growth and less from currency appreciation than before.

Appendix 3: Modeling and Understanding Income Distributions

How We Model Income Distributions

In order to describe the income distribution of economies in detail, we need to find a way of approximating the distribution of income from the underlying data, and a way to estimate that income distribution over time to allow us to make sensible projections for it.

As in our previous work, we use the common assumption of a lognormal distribution to map out income distribution. The lognormal distribution has been shown to fit the pattern of income distributions in countries reasonably well, and has the advantage that it can be fully described by its mean and standard deviation, while allowing us to account for the different rates of inequality in different countries.

Our projections – and the historical data – give us the mean per capita incomes over time. So what we need to complete the projections is a measure of the standard deviation of incomes and how it evolves over time. In fact, what we do is use data on the standard deviation relative to the mean from the data we have across a wide range of countries, and then map out the way in which income inequality shifts as incomes change. The WIDER database now collects a large range of survey data in a single place that allows us to calculate the standard deviation of incomes across a wide range of countries over the last few decades. There is little doubt that this kind of income distribution data is highly variable in quality—and at times inconsistent across surveys—but it provides the only sensible starting point for this kind of exercise.

We use that data to estimate a version of the Kuznets curve – a U-shaped relationship between income and inequality proposed by the economist Simon Kuznets – using a panel of data across 140 countries from 1960. As the data show, our simple measure of inequality – the ratio of the standard deviation of incomes to the mean – does follow the Kuznets pattern, with rising incomes in general first leading to higher inequality across countries and then to falling inequality. Obviously, overlaid on this are broader shifts over time (the trend towards higher inequality in many developed countries over the last few years for instance), but the basic pattern remains intact.

In the historical data, we extend or interpolate the actual data on income distributions wherever it is available. Where it is not – and for the forward projections – we use the estimated Kuznets relationship to map out the path of inequality as incomes themselves change.

Like any part of these projections, it is easily possible to imagine that inequality evolves differently from how we project, and these simplifying assumptions mean that the estimates of income pools will be approximations, even for the historical data. But we think the underlying assumptions are both plausible and sensible, and the broad picture they paint is likely to be representative of the underlying dynamics.

Why A Global Perspective Is Different

Looking at global income distribution and the evolution of these global trends is less closely linked to the more commonly heard debates at the national level. The complexity of the links between the two perspectives may make what we say here seem counter-intuitive relative to what is often said on the topic. But we hope that this is also what makes it valuable. The two processes (growth at the country level and the evolution of global incomes) are clearly linked, but in practice the pattern of how global income pools develop is the result of a complicated interaction between growth, country size and income inequality. Two simple examples may help to illustrate the difference.

The first is that the rate of growth in a particular income group can be much faster than the growth in the overall population or economy, so thresholds can be important. If what matters, for instance, for whether people buy cars is not so much *average* incomes but the number of people with incomes over $5,000 per annum, then understanding how that pool may grow is likely to be important. In particular, there will be points where that market segment may grow very rapidly – much more rapidly than the underlying economy, defining a ‘sweet spot’ for growth in particular areas.

A small rise in average incomes in the economy may push a large number of people over a certain income threshold. If crossing that threshold is what matters for allowing people to afford TVs or cars, or to start caring about the environment, understanding these dynamics can be as important as understanding the economy-wide growth path. In fact, for an economy growing steadily, the fraction of the population with an income above a certain level tends to follow an S-shape (as the charts on page 17 show for autos and energy demand), which is why spending/saturation levels often do too.

The second is that *global* income distribution can be very different from *country* income distribution. What matters for thinking about how many people globally are in particular income groups, or the size of the global middle class, is a complex mix of the size of countries, the spread of their average incomes and the inequality within each.

Again a simple example may illustrate the point. Imagine a world clustered around a group of rich countries and a group of poor countries with very different average incomes. The global income picture would look very uneven, with two separate peaks. Now imagine two changes occur: income inequality within each group widens (the bells get 'fatter'), but a large part of the poor group grows more quickly and moves closer to the average incomes of the rich group. Even though inequality within each group may have widened, the distribution of incomes across the world could in fact be much more equal. As we shall show shortly, something a bit like this is exactly what may be underway.

Useful Concepts for Interpreting Income Inequality

Because we use them here to explain our results, it may also be helpful to describe two representations of global incomes. The first is simply the histogram of global incomes. We record the number of people at various income levels from our estimated distribution. Since the distribution of incomes is roughly 'log normal' (the log of incomes is roughly normally distributed), we find it easier to use a logarithmic scale to represent the distribution in a compact and consistent way. So we advise readers to pay attention to the numbers on the X-axis!

The second set of concepts that we use are the notions of the Lorenz curve and the Gini coefficient. These are common ways of describing income distribution and inequality. The Lorenz curve is built essentially by arranging the population from poorest to richest, and then mapping out the proportion of total income earned by the poorest X% of the population as X increases. So it traces out how uneven the share of income is across the population.

The Gini coefficient – a measure of inequality – is measured as twice the area between the Lorenz curve and the 45-degree line, and so it ranges between 0 and 1, with higher numbers meaning more inequality. The closer the Lorenz curve is to the 45-degree line, the more even the distribution and the lower the Gini coefficient would be (a totally uniform income distribution would have a Lorenz curve that *was* the 45-degree line and a Gini coefficient of zero).

Recent Global Economics Papers

Paper No.	Title	Date	Author
169	Ten Things for India to Achieve its 2050 Potential	16-Jun-08	Jim O'Neill and Tushar Poddar
168	Immigration and the North American Economy	27-May-08	Andrew Tilton, Kent Michels, Alec Phillips and Alberto Ramos
167	In defence of Sovereign Wealth Funds	21-May-08	Jim O'Neill, Erik F. Nielsen and Saleem Bahaj
166	Building the World: Mapping Infrastructure Demand	24-Apr-08	Sandra Lawson, Raluca Dragusanu
165	Vietnam: The Next Asia Tiger In the Making	16-Mar-08	Helen Qiao
164	Women Hold Up Half the Sky	04-Mar-08	Sandra Lawson
163	Building On a Decade of Progress–Our 2007 GES Scores	14-Dec-07	Dominic Wilson and Raluca Dragusanu
162	Housing (Still) Holds the Key to Fed Policy	27-Nov-07	Jan Hatzius, Edward F. McKelvey, Andrew Tilton, Seamus Smyth
161	Bonding the BRICs: A Big Chance for India's Debt Capital Market	07-Nov-07	Francesco Garzarelli, Sandra Lawson and Tushar Poddar
160	Russia: A smooth political transition	22-Oct-07	Rory MacFarquhar
159	Europe's Immigration Boom: Causes and Consequences	26-Jul-07	Ben Broadbent and Istvan Zsoldos
158	Rising Income Inequality in the G3	06-Jul-07	Dirk Schumacher, Jan Hatzius and Tetsufumi Yamakawa
157	Latin America: More Than Just a Commodity Play	22-Jun-07	Alberto M. Ramos
156	Can the Carry Trade Carry On?	07-Jun-07	Jens Nordvig-Rasmussen
155	The GCC Dream: Between the BRICs and the Developed World	17-Apr-07	Ahmet Akarli
154	Gender Inequality, Growth and Global Ageing	03-Apr-07	Kevin Daly
153	The N-11: More Than an Acronym	28-Mar-07	Dominic Wilson and Anna Stupnytska
152	India's Rising Growth Potential	21-Jan-07	Tushar Poddar
151	US Balance of Payments: Is It Turning and What Is Sustainable?	16-Jan-07	Jim O'Neill
150	The 'B' in BRICs: Unlocking Brazil's Growth Potential	04-Dec-06	Paulo Leme
149	Bonding the BRICs: The Ascent of China's Debt Capital Market	20-Nov-06	Francesco Garzarelli, Sandra Lawson and Michael Vaknin
148	You Reap What You Sow: Our 2006 Growth Environment Scores (GES)	08-Nov-06	Dominic Wilson and Anna Stupnytska
147	Globalisation and Disinflation – Can Anyone Else 'Do A China'?	05-Oct-06	Jim O'Neill, Sun-Bae Kim and Michael Buchanan
146	China's Investment Strength is Sustainable	03-Oct-06	Hong Liang
145	Japan's Pension Story	06-Sep-06	Dambisa Moyo
144	Capital Markets and the End of Germany Inc.	23-Aug-06	Dirk Schumacher
143	The US Productivity Boom: Far From Finished	17-Jul-06	Andrew Tilton
142	Europe in a Globalised World: Winners and Losers	06-Jul-06	Ben Broadbent and Erik F. Nielsen

Goldman Sachs Economic Research Group

[1] Jim O'Neill, M.D. & Head of Global Economic Research

Global Macro & Markets Research

[2] Dominic Wilson, M.D. & Director of Global Macro & Markets Research
[1] Francesco Garzarelli, M.D. & Director of Global Macro & Markets Research
[2] Jens J Nordvig-Rasmussen, V.P. & Senior Global Markets Economist
[1] Binit Patel, E.D. & Senior Global Economist
[1] Thomas Stolper, E.D. & Senior Global Markets Economist
[2] Peter Berezin, V.P. & Global Economist
[1] Kevin Edgeley, E.D. & Technical Analyst
[1] Fiona Lake, E.D. & Global Markets Economist
[1] Salman Ahmed, Associate Global Markets Economist
[1] Themistoklis Fiotakis, Associate Global Markets Economist
[1] Michael Vaknin, Associate Global Markets Economist
[1] Sergiy Verstyuk, Associate Global Markets Economist
[1] Swarnali Ahmed, Research Assistant, Global Macro
[2] Raluca Dragusanu, Research Assistant, Global Macro

Americas

[8] Paulo Leme, M.D. & Director of Emerging Markets Economic Research
[2] Jan Hatzius, MD & Chief US Economist
[12] Luis Cezario, V.P. & Senior Brazil Economist
[2] Edward McKelvey, V.P. & Senior US Economist
[2] Alberto Ramos, V.P. & Senior Latin America Economist
[2] Andrew Tilton, V.P. & Senior US Economist
[7] Alec Phillips, V.P. & Economist, Washington Research
[2] Pablo Morra, V.P. & Latin America Economist
[2] Malachy Meechan, Associate, Latin America/Global Markets
[2] Seamus Smyth, Associate US Economist
[2] Alex Kelston, Research Assistant, US
[2] Kent Michels, Research Assistant, US
[2] Shirla Sum, Research Assistant, US

EMEA

[1] Erik F. Nielsen, M.D. & Chief European Economist
[1] Ben Broadbent, M.D. & Senior European Economist
[4] Rory MacFarquhar, M.D. & Senior Economist
[9] Dirk Schumacher, E.D. & Senior European Economist
[1] Ahmet Akarli, E.D. & Economist
[11] Ashok Bhundia, E.D. & Economist
[1] Kevin Daly, E.D. & European Economist
[1] Dambisa Moyo, E.D. & Economist
[1] Javier Pérez de Azpillaga, E.D. & European Economist
[3] Natacha Valla, E.D. & European Economist
[1] István Zsoldos, E.D. & European Economist
[1] Saleem Bahaj, Research Assistant, Europe
[1] Oliver de Groot, Research Assistant, Europe
[1] AnnMarie Terry, Research Assistant, Europe
[1] Anna Zadornova, Research Assistant, Europe

Asia

[1] Tetsufumi Yamakawa, M.D. & Co-Director of Asia Economic Research
[5] Michael Buchanan, M.D. & Co-Director of Asia Economic Research
[5] Hong Liang, M.D. & Co-Director of Asia Economic Research
[5] Enoch Fung, V.P. & Asia Pacific Economist
[10] Tushar Poddar, V.P. & Economist
[13] Goohoon Kwon, V.P. & Korean Economist
[6] Yuriko Tanaka, V.P. & Associate Japan Economist
[6] Chiwoong Lee, Associate Japan Economist
[5] Helen Qiao, Associate Asia Pacific Economist
[5] Yu Song, Associate Asia Pacific Economist
[5] Mark Tan, Associate Asia Pacific Economist
[5] Eva Yi, Research Assistant, Asia Pacific
[10] Pranjul Bhandari, Research Assistant, Asia Pacific

Admin

[1] Linda Britten, E.D. & Global Economics Mgr, Support & Systems
[1] Philippa Knight, E.D. & European Economics, Mgr Admin & Support

Location

[1] in London +44 (0)20 7774 1160
[2] in NY +1 212 902 1000
[3] in Paris +33 (0)1 4212 1343
[4] in Moscow +7 495 645 4000
[5] in Hong Kong +852 2978 1941
[6] in Tokyo +81 (0)3 6437 9960
[7] in Washington +1 202 637 3700
[8] in Miami +1 305 755 1000
[9] in Frankfurt +49 (0)69 7532 1210
[10] in Mumbai +91 (22) 6616 9000
[11] in Johannesburg +27 (11) 303 2745
[12] in São Paulo +55 (11) 3371 0778
[13] in South Korea +82 (2) 3788 1000

GOLDMAN SACHS GLOBAL RESEARCH CENTRES

New York
Goldman Sachs & Co.
New York Plaza, 45th Floor
New York, New York 10004, USA
Tel: +1 212 902 1000

Washington
Goldman Sachs & Co.
101 Constitution Ave, NW
Suite 1000 East
Washington, DC 20001
Tel: +1 202 637 3700

London
Goldman Sachs International
Peterborough Court
133 Fleet Street
London, EC4A 2BB, England
Tel: +44 (0)20 7774 1000

Frankfurt
Goldman Sachs & Co. oHG
MesseTurm
D-60308 Frankfurt am Main,
Germany
Tel: +49 (0)69 7532 1000

Moscow
Goldman Sachs OOO
14th floor, Ducat III
6, Gasheka Street
Moscow 125047
Russian Federation
Tel: +7-495-645-4000

Paris
Goldman Sachs Inc et Cie
2, rue de Thann
75017 Paris, France
Tel: +33 (0)1 4212 1341

Hong Kong
Goldman Sachs (Asia) L.L.C.
Cheung Kong Center,
68th Floor
2 Queen's Road Central
Hong Kong
Tel: +852 2978 1000

Tokyo
Goldman Sachs Japan Co, Ltd.
Roppongi Hills Mori Tower
47th Floor, 10-1, Roppongi 6-chome
Minato-ku, Tokyo 106-6147, Japan
Tel: +81 (0)3 6437 9960

Singapore
Goldman Sachs (Singapore) Pte.
1 Raffles Link, #07-01 South Lobby,
Singapore 039393
Tel: +65 6889 1000

South Africa
Goldman Sachs International
13th Floor, The Forum
2 Maude Street
Sandton 2196
South Africa
Tel: 27-11-303-2700