Estimating Income/Expenditure Differences across Populations: New Fun with Old Engel's Law

Lant Pritchett and Marla Spivack

Abstract

How much larger are the consumption possibilities of an urban US household with per capita expenditures of 1,000 US dollars per month than a rural Indonesian household with per capita expenditures of 1,000,000 Indonesian Rupiah per month? Consumers in different markets face widely different consumption possibilities and prices and hence the conversion of incomes or expenditures to truly comparable units of purchasing power is extremely difficult. We propose a simple supplement to existing purchasing power adjusted currency conversions.

The Pritchett-Spivack Ratio (PSR) estimates the differences in household per capita expenditure using a simple inversion of the Engel's law relationship between the share of food in consumption and total income/expenditures. Intuitively, we ask: "How much higher (as a ratio) would the expenditures of a household at 1,000,000 Indonesian Rupiah need to be along a given Engel relationship before they were predicted to have the same food share as a US household with consumption of 1,000 US dollars?" The striking empirical stability of Working-Lesser Engel coefficient estimates across time and space and widely available estimates of consumptions expenditures and hence food shares allow us to make two robust points using the PSR.

First, the consumption of the typical (median) household in a developing country would have to rise 5 to 10 fold to reach that of a household at the poverty line in an OECD country. Second, even the "rich of the poor"—the 90th or 95th percentile in developing countries—have food shares substantially higher than the "poor of the rich."

JEL Codes: O10, I32, D12, D31

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Lant Pritchett
Harvard Kennedy School
Senior Fellow, Center for Global Development

Marla Spivack
Center for Global Development

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Center for Global Development
1800 Massachusetts Ave., NW
Washington, DC 20036

202.416.4000
(f) 202.416.4050

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1. Introduction

Many discussions about post-2015 development goals are dominated by concerns about (a) "sustainability"[1] (b) the plight of the "poor of the poor" (if not the "poorest of the poor") based on the penurious "dollar a day" standard or its ilk, (c) the minimalist standards on well-being indicators (Kenny and Pritchett 2013) embodied in the current Millennium Development Goals and (d) "inequality" in outcomes across groups *within* countries. The "post-materialist" concerns which empirically predominate in the richest countries (Inglehart 1997)) are very much in evidence. One might even get the impression that, while material standard of living standard of the "bottom billion" was a global concern, everyone else was doing fine[2]. In fact, given the frequency with which the words "consumption" and "sustainable" are paired one might think the most pressing concern with the current consumption "middle of the middle"—the median household in the world--was that it was *too high* or growing *too quickly*.

This lack of urgency for improving the material standard of living of the five billion people in the middle (neither in dollar a day poverty nor in the top billion) is not because the incomes in poor countries have "converged." Comparing GDP per capita in 2010 of the USA to the ten largest non-OECD developing countries[3] shows ratios from 50 times to 1 in Ethiopia to around 10 to 1 in "low middle income" countries like India and Indonesia to 5 to 1 in "upper middle income" countries like China and Brazil. But comparisons of GDP are increasingly out of favor. From Robert Kennedy[4] to the Sarkozy-Stiglitz Commission there have been criticisms of GNP as a relevant measure for human well-being. At high levels of material well-being it is natural that post-material concerns like "the beauty of our poetry" (part of RFK's critique of GNP) become important. This is sharpened, of course, by the inadequate accounting for natural resources and their depletion in the measured GNP. Moreover, per capita GDP (or consumption) says nothing about the distribution of consumption possibilities among the individuals within the economy.

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[1] The General Secretary of the UN has explicitly stated that the "development" and "sustainability" objectives should be merged in the post-2015 framework.

[2] Of course Paul Collier's "bottom billion" (2007) put attention on Africa and "fragile" and conflict states by ignoring the equally poor half billion of South Asia (Ghani 2010) and the poor of other regions on the premise that, although equally poor, these people resided in countries that were, on average, growing.

[3] Mexico's joining of the OECD makes the usual shorthand of "developed" and "OECD" problematic. Here we exclude Mexico, and when we want to refer to the developed countries, we use the phrase "rich OECD" which excludes the more recent joiners.

[4] He famously said of GDP that "it measures everything in short, except that which makes life worthwhile."

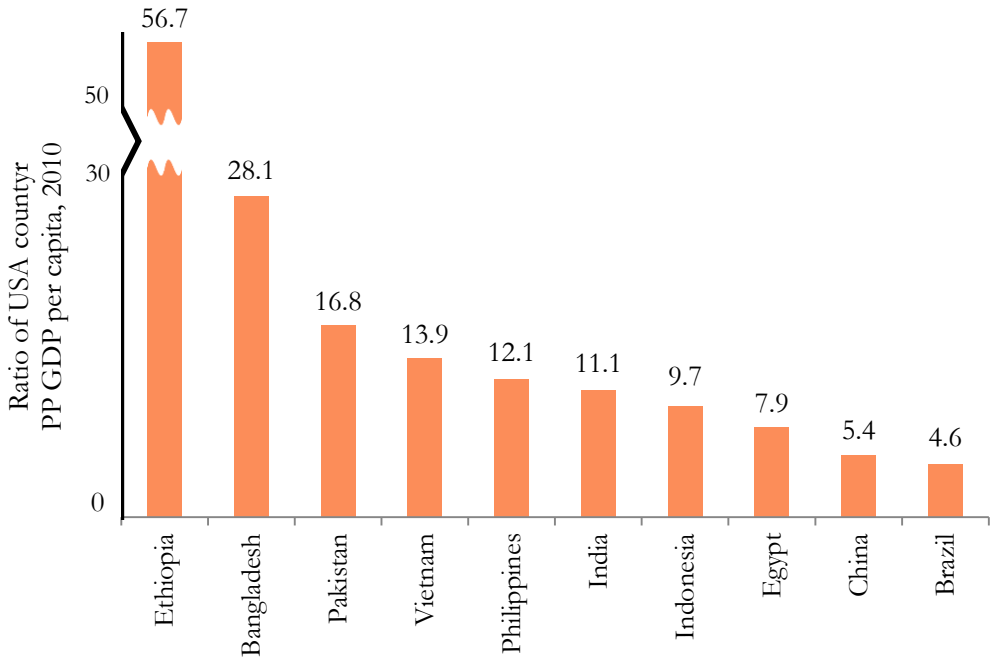
However, even eschewing GNP and examining global inequalities using household survey based incomes or expenditures across countries (e.g. Milanovic 2013b) leaves the challenge of comparisons of the purchasing power households. Two households in Cleveland, one making $50,000 a year and one making $20,000 a year can buy in the same grocery stores, rent from the same housing stock, could get haircuts from the same salons and get electricity from the same utility. Since they the same possibilities and prices money incomes proxy well for consumption possibilities. But how does one compare "true" purchasing power between a household spending $20,000 in Cleveland versus 1,000,000 Rupiah in Semerang Indonesia versus 50,000 Rupees in Chennai India? While the International Comparisons Project and its successors and partners have made enormous strides in the quality of estimates of PPP currency conversions, the sheer conceptual and empirical complexity of the exercise—especially quality adjusted price comparisons of non-traded goods and services--can leave both the "man on the street" and the expert skeptical[5].

In this paper we present a new measure, the Pritchett-Spivack Ratio, for comparing consumption possibilities across countries (or groups within countries) using average food shares. Our measure is free of all three of the previous objections. First, we use no national accounts data at all. None of the criticisms of GDP apply. Second, our measure is always based on specifics of the distribution of consumption across households. Third, we require no international measures of prices. Nothing of course is a free lunch. Our measure buys simplicity and intuitive appeal at the cost of dependence on the stability of Engel's Law.

The Pritchett-Spivack Ratio is the ratio of the expenditures it would take for the observed food share of any one group (say, the median urban household in Indonesia or the 95th percentile household in rural Ethiopia) to reach, by moving along an Engel relationship between food share and total consumption, the food share of another group (say, the bottom 20th percentile in the USA or the median in Denmark). The PSR simply uses the Engel curve to translate differences in food shares (vertical axis) into differences in expenditures (horizontal axis). With the Working-Leser (Working, 1943; Leser, 1963) specification of the Engel relationship, which relates the food share of expenditure linearly to the natural log of total household expenditures, the PSR takes a very simple and intuitive formula which depends on the Working-Leser Engel Coefficient.

[5] For instance, Deaton, Friedman, and Alatas (2004) use household data on prices to estimate PPP conversions for India versus Indonesia and find very different results than the standard comparisons.

Figure 1. GDP per capita in the USA is from five to fifty times higher than in any of the ten largest non-OECD developing countries



Source: Penn World Tables 7.0

We use our newly described measure to show two things.

First, the food share of the typical (median) household in the typical "low income" country is over 50 percent, is between 40 and 50 percent in "lower middle income" countries and 30 to 40 percent even in "upper middle income" countries. In contrast, the share of food expenditures in the total for poor households in rich countries is only 15 percent (and of course, lower still for the median household in rich countries).

The arithmetic of the PSR is intentionally simple so that anyone can understand and re-do the calculation any way they like. If the food share of the median household in a middle income country is 40 percent and that of the "poor of the rich" is 15 percent then the food share gap is 25 percent. Multiplying that number by the inverse of the WLEC, which as we show is commonly around -.125, equals the number of natural log units expenditure would have to increase to reach that food share so: -.25*8=2. The Pritchett-Spivack Ratio, which is the multiple of the expenditure households with a 40 percent food share would have to increase to reach a predicted food share of 15 percent is the base of the natural log (e) raised to that power and hence in this case is 7.4 ($e^2 \approx 7.4$). Increasing consumption to this level would take 50 years of sustained growth at double historical rates.

Second, using the PSR we can also compare the "rich of the poor" to the "poor of the rich." We find that in nearly every "lower middle income" country the food share of the top decile

is roughly twice as high (around 25 to 30 percent) as the food share of the poor in rich OECD. This implies that the even the "rich of the middle income" would have to have expenditures at least *twice as high* (e.g. exp((.25-.15) /.125)=2.2) to reach the same food share as *the poor* in rich countries. Even in upper middle income countries like Peru the food share of "the rich" barely reaches that of the OECD poor.

These calculations are not an alternative to existing comparisons of either national accounts consumption data or household income/expenditure using PPP exchange rates, but rather a supplement. They confirm the findings of previous studies which have compared welfare across groups using PPP expenditure and income estimates (Birdsall 2010). Our calculations add some simple "common sense" credibility based only on easily available data about actual consumption choices of households to the much, much, more complex and sophisticated calculations of GDP and of PPP exchange rates. Both come to the conclusion that the core global agenda for development, if it is to be all relevant to most people on the planet, has to continue to focus squarely on expanding the productivity of people around the world to endow them with choices that are both adequate to human well-being and globally fair.

2. The Pritchett-Spivack Ratio

2.1 Why a new comparison of material standard of living?

There are two dominant ways of comparing material standards of living across countries: national accounts and survey estimates. The national accounts estimates of GDP per capita or consumption per capita suffer from (at least) four difficulties. First, there is the intrinsic difficulty of making comparable estimates of national accounts across countries. Second, the "consumption" component of GDP is often the least well measured (and in fact is often measured as a residual). Third, the national accounts estimates produce a single number of aggregate consumption and provide no information about the distribution of consumption across households. Fourth, national accounts are produced in local currency and hence an exchange rate is needed.

Comparisons using measures of income or expenditure directly from household surveys solve three of these four difficulties, while adding a new concern. The new concern is whether the concept of "expenditure" is measured similarly across countries. Household survey estimates of income or consumption are also in local currency and hence cross-national comparisons require a conversion factor from one currency to another.

The well-known problem is that non-tradable goods and services (like getting a haircut) are cheaper in poor countries and hence using market determined exchange rates – even if these exchanges rates were to establish PPP in tradable goods – will *overstate* the differences in purchasing power between a rich and poor country, because they do not account for cheaper non-tradables. The International Comparisons Project (ICP) and its successors have made heroic efforts since the 1970s to collect and process the data needed to create Purchasing Power equivalent exchange rates, the exchange rate such that a rupee converted into a

common currency, say dollars, at that exchange rate represents equal command over resources in India as in the USA. These PPP exchange rates are now routinely used by all international comparisons of either national accounts (as for instance in the Penn World Tables or the World Bank's estimates) and are used for comparisons of household surveys (e.g. Milanovich 2013b).

Almas (2007) used household micro-data to calculate Engel curves across nine different countries and, relying on the observed stability of the Engel curves, imposes a common Engel relationship across the countries to estimate the bias in the Penn World Tables PPP calculations. He finds that PPP exchanges rates overestimate income of poor countries, with the a greater bias the poorer the country. Hence international inequality in living standards is systemically underestimated by the conventional estimates of GDP or consumption per capita.

We build on this previous work, exploiting micro and grouped data to estimate Engel elasticities for many more countries. However our method relies only on the stability of the Engel curve *within* countries and we never explicitly calculate income differences or prices across countries. We are proposing an additional alternative *to* estimating PPP rather than an alternative estimate *of* PPP or a *substitute* for PPP. Our comparisons and PPP have different strengths and weaknesses and, while we will compare our estimates to PPP there is no default assumption that PPP comparisons are the "gold standard" which we are trying to achieve nor, conversely, do we attempt to make generalizations about the validity of PPP.

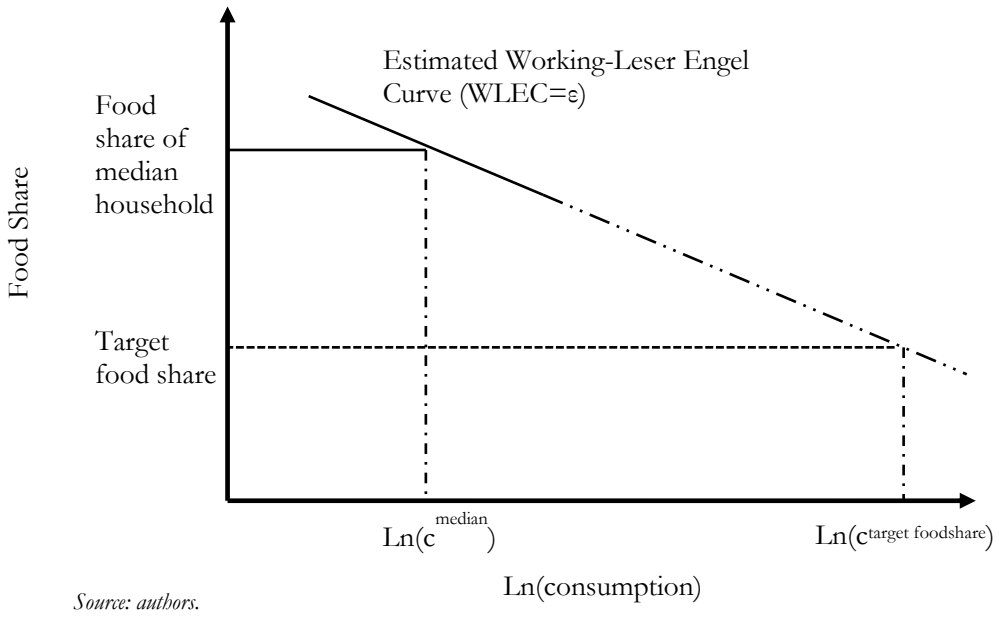
2.2 The calculation

Since proposed by Ernst Engel in 1857 the conjecture that more prosperous households spend a lower fraction of their expenditures (or income) on food (or, alternatively, that the income/consumption elasticity of food expenditure is less than one) has become the most widely replicated empirical relationship in all of the social sciences. Moreover, an extremely simple specification of Engel's Law—that the household share of expenditures on food is linearly related to the natural log of total consumption expenditures (or income) known as the Working-Leser form—has been shown to be robust and reliable functional form. Whether data across households within a country/region, across income or consumption groups within a country/region, across time in a country/region, or across countries/regions is used the estimated WLEC is consistently centered between -.1 and -.15.

Our new fun with the old Engel Law is to simply "invert" it. Usually one thinks of the Engel curve as "predicting" the food share for a given level of expenditures but we use the same linear relationship to "estimate" the difference in expenditures implied by differences in food shares. As simplicity and straightforward intuition are two desirable features we want to stress how stubbornly simple our calculation is (while acknowledging the sacrifices for this simplicity) using Figure 2. In a standard Engel graph with food share on the vertical axis and natural log ependitures on the horizontal the difference in food shares between the actual of some group (e.g. the median in Rural India or 95th percent of Peru) and a "target"

food share is just the vertical "rise." We want to know the "run"—the difference in (ln) expenditures that along a given Engel relationship would produce a "predicted" at that level of expenditures equal to the target. In the linear case this not calculus, or even algebra, it is just simple arithmetic: the "run" is just equal to the "rise" (difference in food shares) times the "run over the rise" which is just the inverse of the linear slope. This gives the difference in natural log units. Then by the properties of natural logs (that the difference in natural logs is the log of the ratio) the ratio of the levels of expenditures is just *e* (≈2.714, the base of the natural log) raised to that power.

Figure 2. Graphic illustration of the calculation of the Pritchett-Spivack ratio



Source: authors.

The PSR formulation is general and can be calculated using any functional form of the Engel relationship, but in the PSR-WL specification it takes the very simple form (assuming in this case target is lower than actual so the numerator and denominator are both negative):

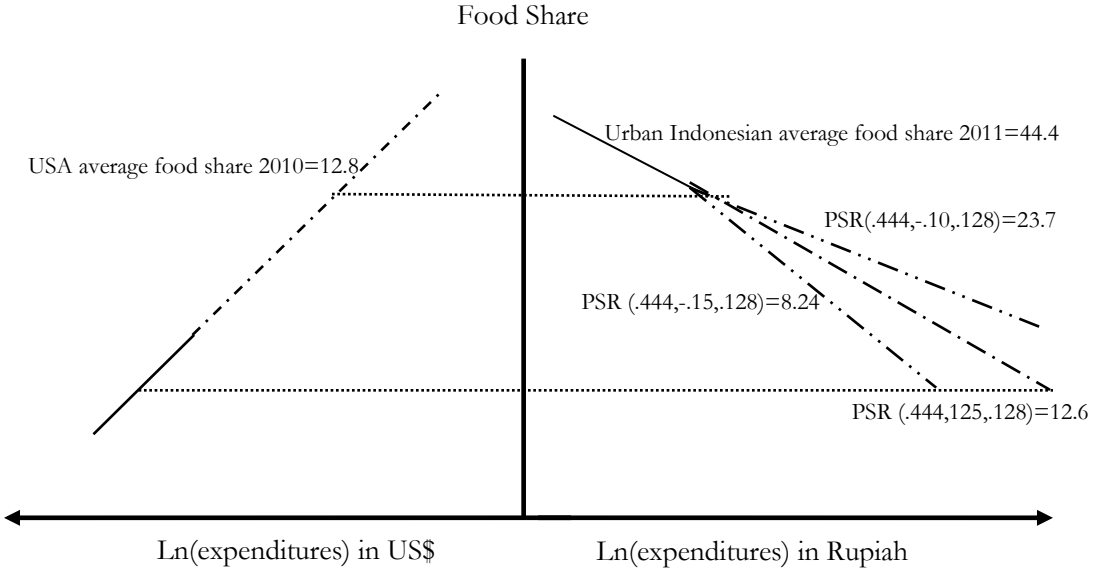
$$1)\ PSR - WL\left(\alpha^{Actual}, \varepsilon, \alpha^{Target}\right) = \frac{C^{Target}}{C^{Actual}} = \exp\left(\frac{\alpha^{\text{Target}} - \alpha^{\text{Actual}}}{\varepsilon}\right)$$

Whether expenditures are measured in rupiah, rupee, lira, or pesos doesn't matter as the PSR never transforms the units of expenditure. The counter-factual is "as a household expanded its consumption along a simple linear Engel relationship how much higher would consumption have to be *in those units and at the same consumption possibilities* before the predicted household food share reached the target?"

Figure 3 shows the calculation of the PSR between the average consumption in the USA and urban Indonesia using a range of Engel coefficients. The average food share was 44.4% in urban Indonesia and 12.8% in the US in 2010. The simple Engel coefficient estimated from grouped expenditure class data in urban Indonesia is -.125 and a two standard error confidence interval runs from -.10 to -.15. Since this coefficient is in the denominator and is small and the log difference is exponentiated the calculations are non-linear and sensitive to the Engel coefficient. If we take the actual estimate, -.125 the PSR=12.6. Obviously at a lower (in absolute value) WLEC the PSR is higher and at a larger (in absolute value) WLEC the PSR will be higher, so that the PSR at -.10 is 8.24 and the PSR at -.15 is 23.7.

As figure 3 illustrates, we never assert that expenditures are commensurate (as would be necessary in order to show both Engel curves on the same x-axis). Instead of attempting to say "this many Rupiah equals this many dollars" the PSR allows us to say "at nominal expenditures X times higher than their current level consumers would, if they moved along a fixed Engel relationship at given prices and possibilities, reach the target food share." We assume all people in the comparison group (e.g. urban Indonesians) face the same relative prices as they are in the "same" market and hence the counter-factual is an expansion of nominal consumption holding prices (both absolute and relative) constant. This may, or may not, be the relevant counter-factual but at least the counter-factual is clear, as we are never forced to compare relative prices and possibilities of urban Indonesia and the US.

Figure 3. Comparing the PSR of the average Urban Indonesian and average USA consumers at various elasticities



Source: authors.

2.3 Benefits of the PSR

The principal attractions of the PSR are four-fold. First, it makes intuitive sense to the "woman on the street"—if rich people spend less on food then we can compare who is rich and who is poor (and by how much) by comparing how much they spend on food. This does not depend on understanding or believing either national accounts or PPP comparisons. Second, the data on food shares from household surveys is widely available across countries. Since the weights in a consumer price index depend on consumption shares, nearly every country in the world has done an expenditure survey and many countries do them at frequent intervals. Third, since nearly all expenditure surveys are divided into income or expenditure classes the food share comparisons can be made at various points of the country income distribution. Fourth, the PSR is "plug and play" as we are not insisting that the PSR be used with any particular Engel coefficient—or even that one use a simple functional form of the Engel relationship. Just plug in any values of the three inputs, actual food share (of any percentile of the consumption distribution), a target food share (chosen in any way desired), and any functional form of the predicted Engel relationship and *viola* one has a PSR.

There are many, many limitations to the PSR and we are not overselling its value. First, we want to be clear we are not proposing that the food share is a well-defined measure of human well-being. However, the food share is a useful *proxy* for household consumption possibilities at an *aggregate* level. If we compare the food share at the 20th percentile of income in Colombia to the food share at the 20th percentile of income in Indonesia we have tens of thousands of households of different shapes and sizes smoothed together and aggregated, and we can reasonably compare the welfare of the aggregated 20th percentile households in Colombia and Indonesia.

The Engel curve is an empirically reliable tendency, which gives the food share a rough and ready usefulness, but the food share is not measure of human well-being that could be axiomatically derived and defended. In particular, we are not proposing the food share for comparisons across households within a population, as the differences in food needs of households of different sizes, demographic structures, etc. make the food share vary for reasons having nothing to do with ranking households' "true" income. We are proposing the PSR as a new simple calculation that, by taking advantage of the consistency of the elasticity of the Engel curve, allows us to make easy to understand and compute comparisons between groups, and draw useful conclusions about the differences in welfare between groups.

3. Estimating the simple Engel coefficient

The simplest form of the PSR-WL hinges on an Engel relationship in which the food share is linearly related to the natural log of expenditure and for which the slope (WLEC) can be known with some precision. Fortunately, the W-L Engel curve is one of the most widely estimated and one of the most remarkably stable empirical relationships in all of economics (indeed in all of the social sciences). This paper is not a contribution to the voluminous literature estimating Engel curves, with literally thousands of papers. We use three different

types of data sources to estimate Engel curves, household micro data, grouped data that has been compiled by international organizations, and group data accessed from country statistical office reports. We show elasticity estimates in this paper simply to show that the most straightforward ways of estimating the simple Engel coefficient, all, in spite of their several defects, produce estimates that cluster in the range of -.10 to -.15.

Estimates from household data micro data. We use household micro data from three sources: the Comparative Living Statistics Project, the Luxembourg Income Study, and the Indonesia Family Life Survey. These sources allow us to compute the WLEC using household data for 38 countries from various years. Table 1 (summarizing results reported in Appendix Tables A1, A2 and A3) show these household based estimates cluster around -.1.

Estimates from grouped/percentile data. The WLEC can be estimated using grouped data on food share and consumption expenditures, such as deciles, quintiles, or consumption/income brackets. The International Labor Organization (ILO) maintains a database of estimates of consumer expenditures used in estimating consumer price indices, and we use those data to estimate the WLEC for these countries. Similarly, a 1981 FAO publication includes grouped data for 27 countries for years ranging from 1969-1979. Country statistical offices also publish this data in statistical abstracts and online databases, which we gather for key countries.

Estimates across countries. At the 100 year anniversary Houthakker computed Engel elasticities for 31 countries for various years between 1853 and 1955, with multiple survey years for some. He found an elasticity slightly different from Engel's 1857 finding, but consistent in direction and magnitude. Houthakker did not use the WLEC functional form, but here we use the summary statistics reported in his paper to estimate the WLEC across the countries in his study. The cross national elasticity from this historical data is -.105 Later at the 150th anniversary of Engel's publication introducing the empirical law between income and consumption, Anker (2011) constructs a data set of food shares for 207 countries and uses this to estimate the WLEC across countries. His point estimate is -.109, a number which he shows is quite robust whether one allows for non-linearity or disaggregates the countries by income level. nearly

Estimates from over long periods. The WLEC can also be estimated over long periods of time, with historical data on household expenditures by categories. Japan publishes harmonized data on household expenditures by income groups for almost every year between 1926 and 2007, which we use to estimate the WLEC for the 38 years between 1955 and 1992.[6] The WLEC estimate across this seven decade period is -.175.

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[6] We begin the analysis in 1955 because that is the first year for which CPI data are available. We end in 1992 to leave out the years during and after Japan's economic crisis.

Table 1. Estimates of simple Working-Leser Engel coefficients (food share regressed on natural log of expenditure) from household, grouped, cross-national, and long-time series data are remarkably consistent.

Source of Data	Number of countries	Median of estimates of W-L Engel elasticity	One standard deviation interval around the median estimate
Household data			
CLSP (Table A.1)	21	-0.097	-0.047 to -0.146
Indonesia FLS (Table A.2)	1	-.082	
LIS (Table A.3)	16	-0.114	-0.0727 to -0.1549
Grouped data			
ILO (countries with food share above .25, recent data, Table A.4b)	27	-.114	-.06 to -.17
FAO (data from 1969-1981, Table A.5)	27	-.143	-.079 to -.21
Country Statistical Offices (Table A.6)	6	-0.140	-.1 to -.179
Cross national estimates			
Authors' estimate with Houthakker's (1957) data (Table A.7)	31	-.105	
Anker (2011) (includes controls for urbanization, transition economy, island economy) (Table A.8)	207	-.109	
Estimate over a long period of time			
Japan 1955-1992 estimate (Table A.9)	1	-0.1747	

See appendix tables for notes and sources.

Given the consistency of the WLEC, there is little reason not to use the same WLEC to make comparisons across countries and using a single elasticity ensures differences in the country ratios depend only on differences in the food share. The median of all of the elasticity estimates described in table 1 is -.114. However, as a "focal point" value we use -.125 as a "base case" because (a) since it is the inverse that matters this means one multiplies by 8 and (b) it is halfway between -.10 and -.15.

Using household data we test the Working-Leser function form by estimating an Engel curve with per capita consumption, natural log of per capita consumption, squared per capita consumption, and cubed per capita consumption. The fully flexible model rarely raises the R2 by more than .01.

Table 2. Difference in R^2 Between Restricted and Fully Flexible Model for the Engel curve

			R^2 restricted model	R^2 fully flexible model	Change in R^2	n
LIS (Table A.10)	Guatemala	2006	0.5601	0.5672	0.0071	13,664
	Estonia	2000	0.2671	0.2734	0.0063	5,601
	Mexico	2004	0.4142	0.4219	0.0077	22,595
	Peru	2004	0.3543	0.3596	0.0053	18,432
	Poland	2004	0.4439	0.4483	0.0044	32,214
	Slovenia	2004	0.0993	0.1104	0.0111	3,725
	South Africa	2008	0.3649	0.3701	0.0052	7,291
Indonesia Family Life Survey (Table A.11)	2007		0.1343	0.1378	0.0035	12,658
	2000		0.1393	0.1574	0.0181	
	1997		0.1782	0.1896	0.0114	
	1993		0.1184	0.1321	0.0137	

See appendix tables for notes and sources.

4. "Ground-truthing" the PSR with historical episodes

Since our thought experiment of how the food share would evolve with growth in expenditures is essentially dynamic while our calculations are essentially static (using a cross-section to predict along a given Engel curve), it will be reassuring to "ground-truth" that in observed episodes of increases in expenditures the fall in food share was roughly as predicted. We do this for two countries with large measured changes in real expenditures and with historical data on food shares, Japan and Indonesia.

Japan 1955-1992. Japan makes a nice test case as it had (a) rapid growth and (b) good historical data. We estimate an Engel curve using quintile data for each year of the data. The estimated Engel curve using the time series from 1955 to 1992 gives an elasticity of -.162 (with a standard error of .003). This almost exactly that of the average of the cross-sectional (quintile) estimates over time of .163.

The estimated PSR needed to reduce the food share from its actual 1955 level of 38.3 percent to its 1992 level of 15.7 percent based on the average of the estimated Engel elasticities from each year of -.163 is 3.78. The actual computed increase in real expenditures per household (using the CPI for deflation) was 3.72.

However, the close fit of the "predicted" PSR and the actual changes in real consumption expenditures comes from using the *average* Engel elasticity over time, which fell secularly as the food share fell from -.254 to -.103 for an overall average of -.163. The 1955 elasticity

would have understated the increase needed (PSR(.383,-.254,.157)=2.35) as it was the highest elasticity in all of our estimates. This very large elasticity was something of an anomaly as the WLEC in 1926 was -.179 and by 1963 the elasticity was at -.169 (Table A.12) both large, but within the usual range. Conversely, the 1992 elasticity would have overstated the increase needed (PSR(.383,-.103,.157)=8.25).

Table 3. The PSR of Japan 1955-1992: comparing actual fall in food share, actual rise in real total expenditures and rise in expenditures "predicted" by the PSR

Year	Food Share (excluding eating out)	Estimated Engel Elasticity (quintiles)	Pritchett-Spivack Ratio	Real Household Expenditure per Person
1955	.383	-.254	$PSR(.383,-.163,.157) = \exp\left(\frac{(.383-.157)}{-.163}\right) = 3.78$	1
1992	.157	-.103		3.72
Average of annual estimates		-.163		

See appendix table A.12 for notes and sources.

Indonesia 1978-2011. Indonesia also experienced rapid growth in GDP per capita and has reasonable household survey based estimates of consumption over a long span.

The share of food in consumption expenditures of the average household fell from 63.1 percent in 1978 to 49.4 percent in 2011. The estimates of the Engel elasticity for 1978 and 2011 based on grouped data are equivalent to three digits at -.122. The PSR suggests that to achieve this fall in food share would require a three-fold (3.06) increase in consumption. In this case the data suggest that household expenditures deflated by the CPI in fact increased by a factor of four.

This difference illustrates the sensitivity of *both* calculations of "real" expenditures and of the PSR. Monthly nominal expenditures per person increased from 5,568 Rupiah to 593,664 Rupiah. Much of this increase in nominal expenditures was due to inflation, but how much? The measured CPI increased from 100 in 1978 to 2,634 in 2011, an annualized average rate of 9.9 percent. Suppose that measured inflation understated the "true" inflation and "true" inflation was really 10.3 percent – .4 percentage points per year higher. Then "real" income grew by exactly the PSR predicted amount based on food share changes of 3.06. The point is that the CPI, while the standard, is not necessarily the gold standard, as its measurement is problematic in known ways. Of course, the PSR is also sensitive to the estimated Engel parameter and if that was -.097 instead of -.122 then the PSR would be 4.06, the exact ratio measured ratio of change in "real" consumption. Whether 3.06 is "close" to 4.05 is in the eye of the beholder.

Table 4. The PSR of Indonesia 1978-2011: comparing actual fall in the food share, actual rise in real total expenditures and rise in expenditures "predicted" by the PSR

Year	Food Share (excluding eating out)	Estimated Engel Elasticity	Pritchett-Spivack Ratio	Real Household Expenditure per Person, CPI deflated (1978=1)
1978	.631	-.122	$PSR(.631, -.122, .494)$	1
2011	.494	-.122	$= \exp\left(\frac{(.631 - .494)}{-.122}\right)$ $= 3.06$	4.05

Source: authors calculations from Indonesia SUSENAS reports.

5. Applications

5.1 How much growth is needed?

The question this section seeks to answer is: "How much would the expenditures of the *typical* (median) household in various countries need to increase to reach the food share of the *poor* households in the OECD?" In a discussion of global development it can hardly be contemplated that the typical person in every country is not at the very least to expect to attain a similar array of choices of at least those enjoyed by the poor in the OECD today. Perhaps the level of consumption of the rich in the OECD is neither achievable nor, in some deep and higher sense, desirable. But it is hard to see how a "development" agenda could not include a future which provides the typical person with at least the same chances and choices that the poor in rich countries now enjoy.

In this section we do three things. First, we calculate the typical food share of households that are considered "poor" in the OECD. Second, we use data from a variety of countries to calculate the Pritchett-Spivack ratio of the median household in the i^{th} country to the food share of the OECD poor at various Engel elasticities[7]:

7 We might be concerned about the comparability of household food consumption data in developing countries, and household food consumption data in rich countries. In poor rural areas, households tend to grow a large portion of their own food. For households like these, surveyors must ask respondents to impute the value of food produced at home for personal consumption, a difficult calculation that may be imputed inaccurately or inconsistently across households and countries. Since households that produce their own food make up a much greater share of the population in developing countries, this inaccurate imputation may introduce some bias. However, when we compare the median food shares in urban and rural areas (see appendix table 14) we find that they are similar, which suggests that this type of systemic bias need not be a major concern.

$$PSR - WL(\alpha^{i}_{Median}, \varepsilon, \alpha^{OECD}_{Poverty})$$

Third, we then calculate how many years of rapid (e.g. 4 percent per annum) growth would be needed for the typical household to reach the food share of the OECD poor.

Food share of the rich OECD country poor. In Table 6 we calculate the food share of "the poor" in rich OECD countries in three different ways. First we use food share data by quintile the food share to interpolate the food share at the poverty rate in these countries. A second, quick and dirty, calculation is to just calculate the food share at the 20th percentile. A third is to adopt a common poverty definition as those at less than 60 percent of median consumption. While each of these methods produces slightly different results for each country, the typical food share for a "poor" household in a rich OECD country is very robustly right around 15 percent.

PSR of median in poor country to the rich OECD country poor. Table 6 shows the PSR calculations for the collection of countries for which we had household data and hence could match WLEC estimates with estimates of the PSR. We find that the PSR ratios show that, for the typical (median) household to choose the same food share as that of the rich OECD country poor the total expenditures in most poor countries would have to expand by at least *an order of magnitude*. For countries where the current food share is one half or higher the PSR using a WLEC of -.125 is over 15 (exp((.15-.5)/-.125))=exp(.35*8)=exp(2.8)≈16.4). Even for "upper middle income" countries like Argentina and South Africa the PSR is over 5.

Table 5. The typical share of food in consumption of the poor (estimated with three methodologies) in the rich OECD countries is about 15 % (ranging from 12%-24%)

	Food share at poverty incidence	Food share at the 20th percentile of consumption	Food share at 60% of median consumption
Australia		0.183	0.182
Austria	0.156	0.157	0.196
Belgium	0.154	0.156	0.169
Canada	0.151	0.148	0.144
Denmark	0.138	0.137	0.140
Finland	0.153	0.152	0.157
France	0.148	0.148	0.158
Germany	0.149	0.148	0.154
Greece	0.197	0.205	0.229
Ireland	0.161	0.168	0.166
Luxembourg	0.130	0.128	0.127
Netherlands	0.121	0.122	0.139
Norway	0.135	0.137	0.141
Portugal	0.203	0.211	0.209
Spain	0.229	0.236	0.268
Sweden	0.115	0.118	0.120
UK	0.119	0.123	0.142
USA	0.157	0.153	0.153
median	*0.151*	*0.150*	*0.156*

See appendix table A.13 for notes and sources.

Table 6: The Pritchett-Spivack Ratio shows that expenditures of the median household in most developing countries would have to expand by at least a factor of 5 to reach the food share of the poor in rich OECD countries

	Country	Year	Median food share	PSR(Country median,-.125,OECD poor)	Ratio of 60 percent of American GDP per capita in 2010 to country PPP consumption	Years of rapid (4 ppa) growth for median household to reach food share of OECD poor
ten largest non-OECD countries	Bangladesh*	2007	0.62	42.95		96
	Philippines*	2009	0.5861	32.75		89
	Rural India	2009-10	0.58	31.19		88
	Ethiopia	2004	0.57601	30.21		87
	Indonesia	2007	0.57451	29.85		87
	Pakistan	2010-11	0.55	24.53		82
	Vietnam	2010	0.52079	19.42		76
	Urban India	2009-10	0.51	17.81		73
	Rural China	2011	0.43	9.39333		57
	Urban China	2011	0.38	6.30		47
	Brazil*	2008-09	0.16682	1.14		3
ILO	Armenia	2003	0.736	108.64		120
	Moldova	2004	0.64	50.40		100
	Nepal	2003	0.59	33.78	20	90
	Azerbaijan	2003	0.58	31.19		88
	Uganda	2003	0.53	20.91	27	78
	Lithuania	2003	0.4648	12.41		64
	Serbia and Montenegro	2002	0.44	10.18		59
	Bulgaria	2004	0.438	10.01		59

	Belarus	2004	0.39	6.82		49
	Latvia	2003	0.383	6.45		48
	Argentina	1996	0.38	6.30	3.1	47
	Iran, Is	2003	0.29	3.06	3.9	29
	Turkey	2005	0.29	3.06	6	29
	Macau	2002-03	0.263	2.47		23
	Korea, R	2004	0.26	2.41	3	22
	Hungary	2005	0.25	2.23	2.9	20
	Malta	2005	0.21	1.62	2.2	12
	Singapore	2004	0.19	1.38	2.1	8
	Iceland	2001	0.17	1.17	1.6	4
	Cyprus	2005	0.16	1.08	1.8	2
CLSP	Tajikistan	2003	0.71	88.87		114
	Nepal	1996	0.63	46.01		98
	Ghana	1998	0.62	41.50		95
	Malawi	2004	0.61	40.84		95
	Albania	2005	0.60	35.79		91
	Nepal	2003	0.59	34.47		90
	Vietnam	1997	0.58	31.29		88
	Bulgaria	2001	0.56	25.70		83
	Pakistan	1991	0.53	20.10		77
	Ecuador	1998	0.51	17.84		73
	Ecuador	1995	0.49	14.71		69
	Guatemala	2000	0.49	14.61		68
	Panama	2003	0.41	8.23		54
	Bosnia	2001	0.36	5.16		42

	Romania	1995	0.57	28.79		86
	Guatemala	2006	0.45	11.02		61
	Estonia	2000	0.43	9.39		57
	Peru	2004	0.41	8.00		53
	South Africa	2008	0.38	6.30		47
LIS	Hungary	1999	0.36	5.37		43
	Poland	2004	0.32	3.90		35
	Taiwan	2005	0.23	1.90		16
	Ukraine	1995	0.2	1.49		10
	Mexico	2004	0.2	1.49		10
	Slovenia	2004	0.18	1.27		6
median			*0.45*	*10.60*	*3.00*	*60.17*

notes: ILO & country office medians are food share of median consumption group. LIS and CLSP data are median food share.
**the national statistical agency does not report data by decile or quintile, so these food shares are the average of the middle income or consumption bracket reported.*
sources: see appendix tables A.1, A.2, A.3, A.4, A.5, and A.6.

Historical data also offers a useful comparison. Between 1890-1891 the US Commissioner of Labor published two reports on costs of production and workers' costs of living in selected industries in the US and Europe. The data include detailed household expenditure information, which allows us to calculate the food share of these industrial worker's households. As table 7 shows, the typical, low and middle income country household today has a food share last seen in leading countries at the turn of the century.

Table 7. Typical households in developing countries have food shares similar to industrial workers in rich countries at the turn of the century

US Region	Median food share	n
New England	0.48	1,239
Mid-Atlantic	0.45	3,249
South	0.42	1,167
Midwest	0.41	1,154
Country		
Switzerland	0.52	52
Germany	0.5	200
Belgium	0.49	124
France	0.49	335
Great Britain	0.49	1,024

Source: Cost of Living of Industrial Workers in the United States and Europe 1888-1890.

Sensitivity analysis (see Table 8) shows that, not surprisingly, the PSR is sensitive to the exact value of the Engel coefficient used, but by the same token, over a wide range of Engel coefficients from -.10 to -.15 the basic results—that the total expenditures of median households in typical developing country households could have to expand between 7-fold and 20-fold is completely robust[8].

These results reemphasize what others have found looking at cross-country comparisons based household data and PPP calculations (Milanovic 2013a) but underline three key points about the development agenda.

First, it is obvious that "targeting" of transfers or programmatic interventions will play little to no role in helping the median consumer expand their consumption possibilities by a

[8] Since the PSR formula is doubly non-linear (e.g. divided by WLEC and then exponentiated to get a ratio) the PSR is very sensitive to the WLEC—particularly when the food share gap is large and when the WLEC becomes low. So, for instance if the food share gap is .3 (.45-.15) and the WLEC is .125 the PSR is 11 but if the WLEC is -.10 the PSR is 20 and if the WLEC is as small as -.075 the PSR is 54 and at a WLEC of -.05 the PSR is 403. This is one reason we prefer to choose a common WLEC rather than country by country as measurement error in income or consumption can produce attenuation bias which produces very small WLEC.

factor of 10. This has to come from sustained increases in income and that has to come from sustained improvements in productivity.

Table 8. Robustness of the PSR to the W-L Engel coefficient used

	Average food share	PSR at WLEC= -.10	PSR at WLEC= -.125	PSR at WLEC= -.15	Estimated country elasticity	PSR using each country's estimated WLEC
Median of 82 countries with average food shares over .15		18.5	10.32	6.99	-0.104	8.33
Country examples:						
Uganda	0.49	29.61	15.04	9.57	-0.083	60.46
Guatemala	0.43	17.49	9.87	6.74	-0.158	6.11
South Africa	0.39	11.16	6.89	4.99	-0.102	10.65

See appendix tables A.1, A.2, A.3, A.4, A.5, and A.6 for notes and sources.

Second, the first word that comes to mind about consumption of people who spend 40 to 50 percent of their total resources on food is "inadequate" not "unsustainable." The development challenge is not about achieving "sustainable" consumption (although the environmental consequences of increasing consumption need to be considered) at their *current* levels but reconciling the need for adequate and globally fair consumption possibilities across people on the planet today with not jeopardizing the possibilities for future generations.

Third, "broad based growth" has to be (on) the development agenda. In a 2013 paper Branko Milanovic uses PPP exchange rates to show that more than half of the variation in an individual's position on an international income distribution can be explained by GDP per capita and income distribution in their country of origin (Milanovic, 2013a). The PSR makes this point without relying on PPP calculations, GDP, or national accounts. In order for the median household in poor and middle income countries to reach the consumption possibilities the poor households in the rich countries enjoy today, poor countries will have to expand their consumption by a factor of 5 or more. Suppose that happens through sustained growth in their consumption that is rapid by current standards (e,g, 4 ppa). How long will it be, not to convergence of average incomes between countries but until the typical developing country household gets to *today's* rich OECD country poor? Even with rapid growth of 4 ppa (one standard deviation above the historical mean for developing countries) it will take 50 to 100 years of growth (see column 7 of Table 6). So "growth" is not a passé agenda, it is the agenda of the foreseeable (and longer) future.

5.2 Are the "rich" in poor countries rich?

In his 2011 book *The Globalization Paradox* Dani Rodrik has points out that, while students know that there are rich countries and poor countries, when asked to estimate the income differences of the "rich" of poor countries to the "poor" of rich countries they consistently get it wrong. Students often assume that the "rich" of poor countries are richer than the "poor" of rich countries when in fact most estimates using PPP suggest the 95th percentile of most poor countries is a large factor multiple lower than the rich country poverty line. Rodrik's 2007 calculations show that a poor person in a rich country is 3 times better off than a rich person in a poor country (see Table 9).

Table 9. PPP per captia comparison reveals that the poorest in rich countries are better off than the richest in poor countries

	Overall average GDP per capita	Representative per capita income of the top decile of a poor country and the bottom decile of a rich country
Poor country	$868	$3,039
Rich country	$34,767	$9,387

Notes: Values are 2004 PPP-adjusted dollars.
Source: Dani Rodrik's web blog "And the winner is...", 2007.

Nancy Birdsall makes a similar point in her 2010 study of the middle class in developing countries. She defines the global "middle class" as households making more than 10 PPP USD a day, and falling below the 95th percentile of the income distribution in their own country. She finds surprisingly, that many of the "middle income countries" do not have a middle class according to this definition. There are no households in India, Indonesia, or Ghana that both have consumption over $10 per day and are below the 95th percentile because the 95th percentile is below $10 per day. The "statistical rich"[9] in most poor or lower middle income countries – those in the top 20%, or 10% or 5% of their national income distributions – are globally poor in PPP terms. As Milanovic (2013a) points out, in a globalized world inter-country inequality is still the largest source of inequality.

The PSR can address this question by examining the food shares of the entire distribution of consumption expenditures and asking "At what percentile of the distribution of the 'rich' in a poor country does the food share of expenditure reach the food share of the typical poor

[9] As opposed to the individual rich. Of course there are many Indian and Indonesian individuals with very high net worth. Forbes estimates there are 55 Indian billionaires. And these billionaires may even control substantial fractions of national output/wealth. But the "statistical rich" are those in the upper percentiles.

household in a rich country?" As we showed earlier, the typical food share of the poorest households in rich countries is .15, so we will use that food share as the target here.

$$PSR\left(\alpha^{Pth\ Percentile\ in\ developing\ country\ i}, \epsilon, \alpha^{Qth\ percentile\ in\ rich\ country\ j}\right) \approx 1$$

The answer is that for most of the poor and even middle income countries is: "never." The observed distributions just never cross over the support of the distributions.

Figure 4. Food shares by percentile of the expenditure distribution for Indonesia 2011 (Rural and Urban) and the US quintiles of income 2010

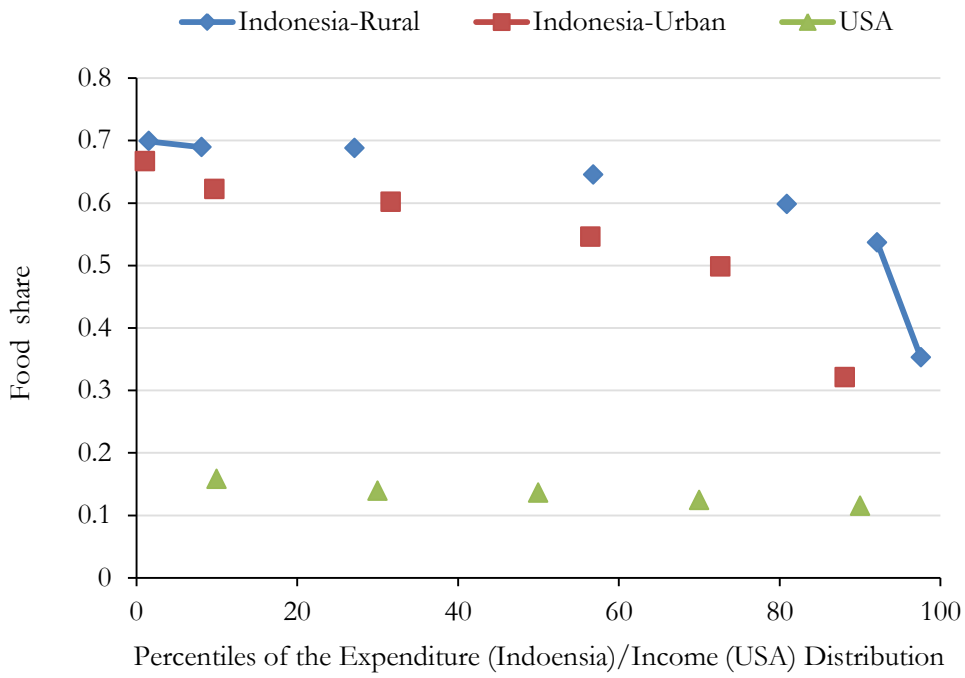
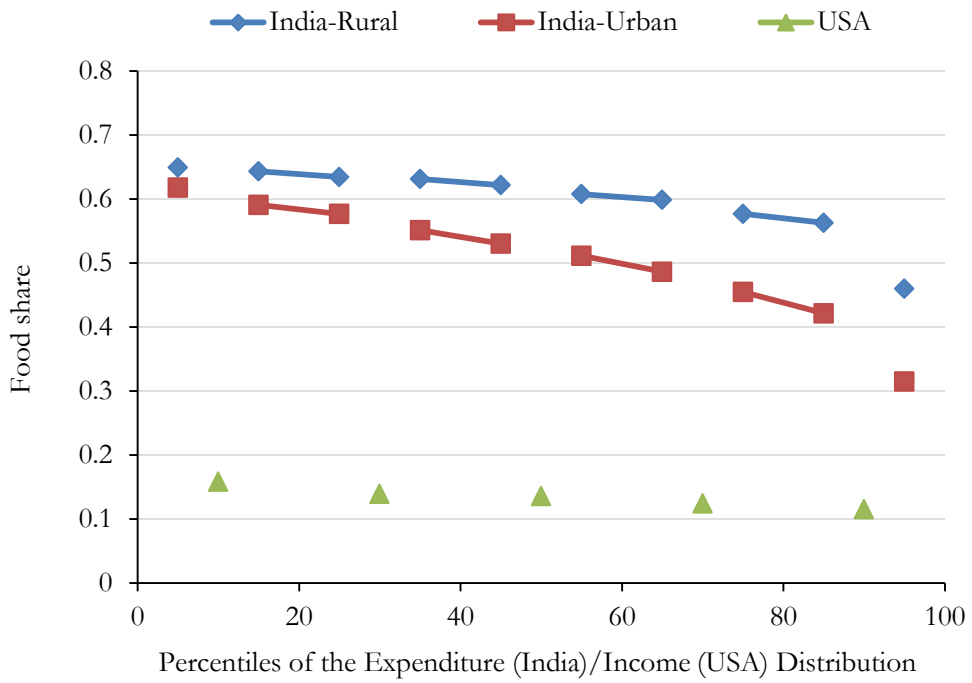


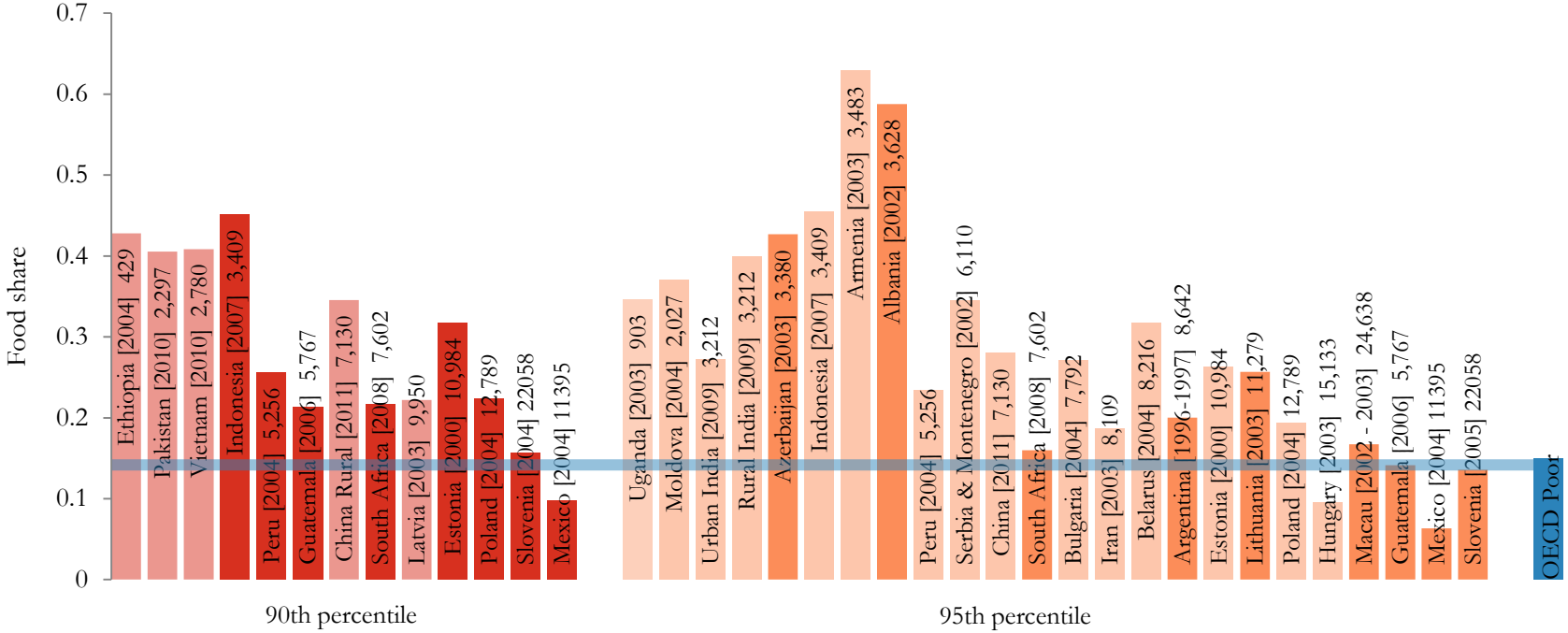
Figure 5. Food shares by deciles of consumption for India 2009-2010 and the US by income quintiles 2010.



We use both the simple and a fully flexible Engel estimation to predict the food share at the 90th and 95th percentiles. Both of these methods show that, even the richest households in poor and middle income countries devote a much larger share of their household budgets to purchasing food than the poorest households in the rich OECD countries (see Figure 6). As the PSRs in Table 10 show, even rich households in poor countries would have to see substantial expansion of their total consumption to reach the food share of the poor households in rich countries.

Of course in countries like India or China or Brazil there are billionaires for whom the food share is essentially zero. These are the rich that Fitzgerald recognized are different—in all countries. But the "statistical" rich of the 95th percentile in poor countries have food shares 5 to 15 percentage points higher than the poor in rich countries.

Figure 6. The weathliest households in poor and middle income countries have higher food shares than poor housholds in rich OECD countires



Percentiles are in terms of consumption. Within each category countries are ordered by per capita PPP GDP in constant 2005 price, noted in the labels. Dark bars indicate food shares predicted from micro data.

Notes: Food shares for the grouped data are predicted values from the engel elasticty of each country and the the average consumption for the tenth decile (approximately the 95th percentile) or fifth quitile (approximately 90th percentile) group. Food shares for the micro data are perdicted by determining the lower bound of the 90th and 95th percentile s and then predicting the food share using the fully flexible model. sources: table 10, Penn World Tables 7.1.

Table 10. Food share of rich in poor countries and PSRs compared to the poor in the rich OECD countries

			PSR restricted model (Q5, -.125,) OECD poor)	PSR restricted model (D10, -.125, OECD poor)
ILO (grouped data)	Albania	2002		33.16
	Argentina	1996-1997		1.49
	Armenia	2003		46.12
	Azerbaijan	2003		9.17
	Belarus	2004		3.80
	Bulgaria	2004		2.63
	Hungary	2003		
	Iran	2003		1.34
	Latvia	2003	1.78	
	Lithuania	2003		2.35
	Macau	2002 - 2003		1.15
	Moldova	2004		5.84
	Serbia & Montenegro	2002		4.74
	Uganda	2003		4.83
country offices (grouped data)	Ethiopia	2004	9.24	
	China	2011		2.83
	Rural India	2009		7.38
	Urban India	2009		2.67
	Pakistan	2010	7.73	
	Vietnam	2010	7.91	
			PSR (90th, restricted model elasticity, OECD poor)	PSR (95th, restricted model elasticity, OECD poor)
LIS (micro data)	Guatemala	2006	1.49	
	Estonia	2004	3.02	2.11
	Mexico	2004		
	Peru	2004	1.88	1.65
	Poland	2004	1.61	1.32
	Slovenia	2004	1.11	
	South Africa	2008	1.87	
IFLS (micro data)	Indonesia	2007	38.69	25.04
	Indonesia	2000	85.46	47.16
	Indonesia	1997	31.94	19.11
	Indonesia	1993	69.99	31.27

Notes: Grouped data food shares are predicted values from the restricted elasticity of each country at the average consumption of tenth decile or fifth quintile group. Food shares for the micro data are predicted by determining the lower bound of the 90th and 95th percentile s and then predicting the food share using the fully flexible model. sourcse: see appendix tables A.2, A.3, A.4, A.6, A.10 and A.11

6. Conclusion

Although the bulk of this paper is narrow and technical, we are making a broad and important point that is relevant to current discussions about the post-2015 development agenda. Strangely, in spite of the fact that the typical person in the developing world has a level of consumption possibilities that is roughly an *order of magnitude* lower than *the poor* in rich countries, the need for sustained growth in material standard of living of the typical person in the developing world is not the dominant theme of these discussions.

Intriguingly, the word seemingly most frequently modifying the desirable type of "consumption" is not "higher" but "sustainable." But who wants to merely "sustain" their current levels of consumption? This might be a goal for the world's doubly rich (rich in rich countries) whose consumption they might regard as high enough. However, from their current levels, the material possibilities of the typical individual in a typical poor country would have to grow at their recent pace for 100 years before they would enjoy the consumption possibilities that the current *poor* in rich countries enjoy today. We argue word that should be most associated with "consumption" is "inadequate" and the word that should be most associated with "growth" is "rapid."[10]

Moreover, there is a steady increase in the attention to inequality within countries as a development issue. There is a general sense among rich country residents and tax payers that "the rich" in poor countries are doing well, even better than "the poor" in rich countries and hence if resources could just be redistributed from "the rich" to "the poor" within poor countries that problems of poverty could be solved. As we show, almost nothing could be further from the truth. Of course, poor countries have a comparatively handful of the globally super-rich, but the richest 10% in poor countries have a food share that is typically *double* that of the *poor* in the rich OECD countries — suggesting the material standard of living of *the poor* in the OECD is *three times as high* as that of *the rich* in "middle income" countries like India or Indonesia.

[10] This is not to say that growth of GDP is itself a goal, it is just a means to the end of higher human well-being. But one can take any measure of well-being and expanding the productivity of individuals will be essential to broad based improvements in that measure.

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Appendix

A.1 Comparative Living Statistics Project - WLEC estimates, average food share & PSR

		Elasticity	Absolute value of t	R^2	n	Mean food share	PSR (country avg, -.1, OECD poor)	PSR (country avg, -.125, OECD poor)	PSR (country avg, -.15, OECD poor)	PSR (country avg, country elasticity, OECD poor)
Albania	2002	-0.0438	32.35***	0.0381	3,599	0.67	186.047	65.418	32.590	150089.819
Albania	2005	-0.0646	32.56***	0.0684	3,638	0.59	79.998	33.301	18.566	887.613
Albania	1996	-0.0999	29.49***	0.1648	1,503	0.6	88.323	36.046	19.833	88.632
Bulgaria	2001	-0.1034	40.01***	0.1242	2,500	0.56	62.302	27.265	15.716	54.295
Bulgaria	1995	-0.0317	22.10***	0.0173	2,460	0.62	111.609	43.467	23.181	2901848.339
Bosnia	2001	-0.0479	28.01***	0.0384	5,400	0.34	8.029	5.293	4.010	77.627
Ecuador	1995	-0.1152	54.95***	0.2298	5,661	0.48	26.549	13.780	8.900	17.216
Ecuador	1998	-0.1207	64.26***	0.2949	5,693	0.49	30.265	15.302	9.712	16.883
Ghana	1987	-0.0207	30.17***	0.0119	3,104	0.70	250.636	83.030	39.752	398314299913.121
Ghana	1988	-0.0348	32.41***	0.0314	3,181	0.67	181.817	64.225	32.094	3077285.357
Ghana	1991	-0.0528	39.58***	0.0652	4,523	0.61	99.683	39.710	21.499	6118.343
Ghana	1998	-0.0340	39.46***	0.0377	5,998	0.60	93.691	37.788	20.628	625475.877
Guatemala	2000	-0.0990	100.56***	0.3034	7,276	0.48	27.113	14.013	9.025	28.072
Malawi	2004	-0.0345	62.41***	0.0296	11,280	0.61	94.917	38.183	20.808	529011.672
Nepal	2003	-0.1922	98.54***	0.5578	3,912	0.56	59.086	26.133	15.170	8.348
Nepal	1996	-0.1591	75.19***	0.4016	3,373	0.6	85.370	35.079	19.388	16.372
Pakistan	1991	-0.0940	53.87***	0.1462	4,794	0.52	39.805	19.053	11.658	50.362
Panama	2003	-0.1320	115.29***	0.4325	6,363	0.43	16.412	9.378	6.458	8.331
Panama	1997	-0.1109	102.59***	0.3794	4,938	0.47	24.288	12.833	8.387	17.762
Tajikistan	2003	-0.0552	64.94***	0.0528	4,136	0.7	221.628	75.249	36.623	17607.785
Vietnam	1992	-0.1405	69.26***	0.3443	4,799	0.62	105.214	41.463	22.287	27.464
Vietnam	1997	-0.1572	92.91***	0.4629	5,999	0.57	65.694	28.446	16.281	14.340
Median		*-0.0965*					*82.684*	*34.190*	*18.977*	*65.961*
Standard dev		*0.0493*								

*Source: World Bank Comparative Living Statistics Project. *** p<0.001, ** p<0.01, * p<0.05*

A.2 Indonesia Family Life Survey - WLEC estimates, average food share & PSR

	Elasticity	Absolute value of t	R^2	n	Mean food share	PSR (country average, -.1, OECD poor)	PSR (country average, -.125, OECD poor)	PSR (country average, -.15, OECD poor)	PSR (country average, country own elasticity, OECD poor)
2007	-0.0824	44.30***	0.134	12,658	0.56	61.286	26.909	15.544	147.615
2000	-0.0824	40.68***	0.139	10,229	0.60	85.915	35.258	19.471	222.418
1997	-0.0942	40.41***	0.178	7,536	0.57	65.463	28.366	16.243	84.686
1993	-0.0747	30.95***	0.118	7,136	0.56	62.505	27.336	15.750	253.613
Median	*-0.0824*					*63.984*	*27.851*	*15.996*	*185.016*

Notes: The RAND cooperation provides access to cleaned standardized data files of these data. Estimates are based on this micro data analysis.
*Source: Indonesia Family Life Survey (IFLS). *** p<0.001, ** p<0.01, * p<0.05*

A.3 LIS - WLEC estimates, average food share & PSR

Country	Year	Elasticity	Absolute value t	R^2	n	Mean food share	PSR (country average, -.1, OECD poor)	PSR (country average, -.125, OECD poor)	PSR (country average, -.15, OECD poor)	PSR (country average, country own elasticity, OECD poor)
Israel	2005	-0.0642	201.99	0.4958	41,492	0.160				
France	2005	-0.0650	43.67	0.157	10,240	0.170	1.221	1.173	1.142	1.359
Germany	1983	-0.0627	89.72	0.1584	42,752	0.201	1.659	1.499	1.401	2.243
Slovenia	2004	-0.0567	20.26	0.0993	3,725	0.201	1.659	1.499	1.402	2.443
Ukraine	1995	-0.0935	63.15	0.3713	6,755	0.216	1.929	1.692	1.550	2.020
Mexico	2004	-0.0983	126.4	0.4142	22,595	0.223	2.083	1.799	1.631	2.109
Taiwan	2005	-0.1044	93.4	0.3894	13,681	0.237	2.398	2.013	1.791	2.311
Italy	2000	-0.1233	39.03	0.16	8,001	0.305	4.706	3.452	2.808	3.513
Poland	2004	-0.1555	160.34	0.4439	32,214	0.346	7.066	4.779	3.682	3.515
Spain	1980	-0.1512	108.6	0.3298	23,972	0.381	10.114	6.367	4.677	4.618
South Africa	2008	-0.1020	64.71	0.3648	7,291	0.391	11.163	6.890	4.995	10.645
Hungry	1999	-0.1240	10.83	0.0739	1,472	0.393	11.354	6.984	5.052	7.097
Peru	2004	-0.1672	100.55	0.3543	18,432	0.415	14.142	8.325	5.848	4.879
Guatemala	2006	-0.1581	131.89	0.5601	13,664	0.436	17.493	9.870	6.739	6.114
Estonia	2000	-0.1509	45.17	0.2671	5,601	0.444	18.872	10.487	7.088	7.008
Romania	1995	-0.1796	129.59	0.3472	31,571	0.574	69.162	29.641	16.849	10.573
Median		*-0.1138*					*7.066*	*4.779*	*3.682*	*3.515*
Standard dev		*0.0411*								

*Notes: *** p<0.001, ** p<0.01, * p<0.05*
Source: Luxembourg Income Study.

A.4a International Labor Organization - WLEC estimates, average food share & PSR (countries with food share below .25)

Country	Year	Elasticity	Absolute value t	R^2	N	Mean food share
Australia	1998-1999	-0.0575	21.72***	0.983	10	0.13
Belgium	2001	-0.0165	4.731**	0.737	10	0.14
Cyprus	2003	-0.0913	19.87***	0.980	10	0.18
Czech Republic	2003	-0.084	10.55***	0.933	10	0.18
Denmark	2001-2003	-0.0369	32.11***	0.992	10	0.08
Finland	2001	-0.117	24.10***	0.986	10	0.14
France	2001	-0.061	5.224***	0.773	10	0.21
Hong Kong	1999-2000	-0.0637	9.578***	0.920	10	0.12
Iceland	2001-2003	-0.0902	68.24***	1.000	4	0.16
Isle of Man	1995-1996	-0.0616	7.550**	0.950	5	0.20
Netherlands	2000	-0.0094	2.03	0.340	10	0.11
Norway	2002	-0.0437	11.98***	0.973	6	0.13
Singapore	2002	-0.0739	7.483**	0.949	5	0.24
Spain	2002	-0.116	22.83***	0.985	10	0.19
Switzerland	2003	-0.0344	15.30***	0.967	10	0.09
United Kingdom	2003-2004	-0.0677	15.66***	0.968	10	0.12
United States	2003	-0.0609	27.98***	0.990	10	0.12
Median		*-0.0616*				

Notes: estimates based on grouped data. Some country data is grouped by income or expenditure brackets others by expenditure quantiles.
*Sources: International Labor Organization Household Income Expenditure Survey database. *** p<0.001, ** p<0.01, * p<0.05*

A.4b International Labor Organization - WLEC etstimates, average food share & PSR (countries with food share above .25)

Country	Year	Elasticity	Absolute value t	R^2	N	Mean food share	PSR (country avg, -.1, OECD poor)	PSR (country avg, -.125, OECD poor)	PSR (country avg, -.15, OECD poor)	PSR (country avg, country elasticity, OECD poor)
Albania	2002	-0.0637	5.181***	0.770	10	0.64	138.858	51.7676	26.8152	2309.59
Argentina	1996-97	-0.173	25.98***	0.988	10	0.35	7.76649	5.15442	3.92178	3.27025
Armenia	2003	-0.0611	2.06	0.346	10	0.71	267.736	87.5316	41.5404	9404.43
Azerbaijan	2003	-0.222	28.98***	0.991	10	0.57	66.8502	28.8458	16.4716	6.63924
Belarus	2004	-0.113	9.507***	0.919	10	0.39	10.5525	6.58696	4.81102	8.04683
Bulgaria	2004	-0.204	12.63***	0.952	10	0.43	15.8142	9.10412	6.30036	3.87051
Croatia	2003	-0.0682	19.55***	0.979	10	0.29	4.06997	3.07378	2.54914	7.83121
Estonia	2004	-0.152	50.42***	0.999	5	0.32	5.74502	4.0498	3.2077	3.15888
Hungary	2003	-0.111	21.28***	0.983	10	0.27	3.37796	2.64804	2.25132	2.9941
Rural India	2003	-0.106	11.01***	0.924	12	0.57	68.6644	29.4704	16.7683	54.0463
Urban India	2003	-0.133	23.08***	0.982	12	0.49	29.6204	15.0408	9.57327	12.7779
Iran	2003	-0.0821	20.94***	0.982	10	0.29	4.0874	3.08431	2.55642	5.55596
Korea	2004	-0.0772	12.19***	0.949	10	0.26	2.88558	2.33446	2.02685	3.946
Latvia	2003	-0.184	16.53***	0.989	5	0.37	8.90548	5.75077	4.2964	3.28185
Lithuania	2003	-0.181	57.45***	0.998	10	0.45	19.5434	10.7845	7.25548	5.16725
Macau	2002-03	-0.062	20.63***	0.982	10	0.25	2.68391	2.203	1.93128	4.91541
Maldives	2002-03	-0.0055	0.219	0.004	14	0.28	3.57322	2.7698	2.33726	1.3E+10
Mauritius	2001-02	-0.126	21.13***	0.987	8	0.36	8.27027	5.4202	4.08959	5.34798
Mexico	2002	-0.0768	15.63***	0.968	10	0.27	3.47546	2.70901	2.29443	5.06341
Moldova	2004	-0.181	11.48***	0.943	10	0.60	91.1204	36.9566	20.2493	12.0965
Panama	1997-98	-0.145	21.80***	0.975	14	0.32	5.54373	3.93588	3.13233	3.25812
Poland	2003	-0.165	20.09***	0.993	5	0.33	6.08707	4.24157	3.3338	2.98813
Romania	2003	-0.272	24.20***	0.987	10	0.50	34.7564	17.0934	10.6502	3.68601
Serbia & Montenegro	2002	-0.114	18.00***	0.976	10	0.44	18.1247	10.1535	6.89996	12.6983
Sri Lanka	2002	-0.175	10.85***	0.936	10	0.54	49.6862	22.7504	13.5152	9.31703
Turkey	2003	-0.11	34.58***	0.993	10	0.32	5.58047	3.95673	3.14616	4.773
Uganda	2003	-0.0826	6.138***	0.825	10	0.49	29.6121	15.0375	9.57148	60.456
W. Bank and Gaza	2004	-0.029	3.109*	0.659	7	0.30	4.49853	3.33009	2.72509	178.635
Median		*-0.1135*					8.58788	5.58549	4.193	5.45197
Standard deviation		*0.06159*								

Notes: estimates based on grouped data. Some country data is grouped by income or expenditure brackets others by expenditure quantiles.
*Sources: International Labor Organization Household Income Expenditure Survey database. *** p<0.001, ** p<0.01, * p<0.05*

A.5 Food and Agriculture Organization - WLEC estimates and average food share

Country	Year	Scope	Type	Elasticity	Absolute value of t	R^2	N	Mean food share
Argentina	1969	Urban	Expenditure	-0.134	9.499	0.968	5	0.356
Australia	1976	National	Expenditure	-0.123	5.733	0.892	6	0.195
Austria	1974	National	Expenditure	-0.232	19.695	0.965	16	0.265
Bangladesh	1974	National	Expenditure	-0.081	4.343	0.632	13	0.710
Brazil	1974	National	Expenditure	-0.149	14.291	0.967	9	0.253
Canada	1976	Urban	Income	-0.183	8.931	0.899	11	0.152
Chile	1978	Urban	Expenditure	-0.150	6.799	0.939	5	0.511
Colombia	1972	National	Expenditure	-0.139	16.392	0.971	10	0.445
Fiji	1973	National	Expenditure	-0.093	2.302	0.726	4	0.389
Finland	1976	National	Expenditure	-0.153	4.813	0.743	10	0.257
Greece	1974	National	Expenditure	-0.116	11.355	0.942	10	0.370
Guatemala	1979	National	Expenditure	-0.143	12.775	0.959	9	0.541
Hong Kong	1980	Urban	Expenditure	-0.054	3.603	0.520	15	0.379
India Rural	1974	Rural	Expenditure	-0.117	7.397	0.820	14	0.749
India Urban	1974	Urban	Expenditure	-0.063	2.185	0.285	14	0.677
Indonesia	1978	National	Expenditure	-0.122	6.958	0.874	9	0.631
Indonesia	1980	National	Expenditure	-0.092	8.043	0.878	11	0.679
Japan	1974	National	Expenditure	-0.178	35.972	0.988	18	0.342
Kenya	1975	Rural	Expenditure	-0.039	2.442	0.544	7	0.752
Malawi	1980	Urban	Expenditure	-0.107	7.725	0.909	8	0.277
Mexico	1977	National	Expenditure	-0.172	15.765	0.958	13	0.366
Nepal	1975	Urban	Expenditure	-0.295	22.040	0.988	8	0.575
Pakistan	1979	Urban	Expenditure	-0.151	42.321	0.994	12	0.482
Senegal	1975	Urban	Expenditure	-0.176	18.993	0.986	7	0.439
Somalia	1977	Urban	Expenditure	-0.006	0.189	0.005	9	0.705
Sri Lanka	1979	National	Expenditure	-0.275	26.778	0.988	11	0.575
Sri Lanka	1982	National	Expenditure	-0.191	11.063	0.939	10	0.617
Sri Lanka	1981	National	Expenditure	-0.143	7.646	0.880	10	0.657
Sudan	1979	Urban	Expenditure	-0.228	5.119	0.897	5	0.526
Turkey	1979	Urban	Expenditure	-0.146	12.661	0.899	20	0.438
Median				*-0.143*				
Standard deviation				*0.064209*				

Notes: estimates are based on grouped data. sources: Food and Agriculture Organization, 1981

A.6 Various country statistical offices - WLEC estimates, average food share & PSR

Country	Year	Elasticity	Absolute value of t	R^2	n	Mean food share	PSR (country avg, -.1, OECD poor)	PSR (country avg, -.125, OECD poor)	PSR (country avg, -.15, OECD poor)	PSR (country avg, country own elasticity, OECD poor)
Bangladesh	2007	-0.123	8.804***	0.820	19	0.59	80.6956	33.5336	18.6738	35.5046
Brazil	2008					0.18				
Rural China	2011	-0.120	-42.31***	0.998	5					
Urban China	2011	-0.109	22.31***	0.990	7	0.38	10.0003	6.30971	4.64167	8.26879
Ethiopia	2004	-0.215	5.018*	0.894	5	0.54	49.5994	22.7186	13.4995	6.14602
Rural India	2009-10	-0.158	2.156	0.367	10	0.56	62.6247	27.3777	15.7699	13.7145
Urban India	2009-10	-0.156	36.77***	0.994	10	0.49	28.9515	14.7685	9.42861	8.64906
Pakistan	2010-11					0.53				
Philippines	2009					0.53				
Vietnam	2010	-0.114	17.68***	0.990	5	0.50	34.689	17.0669	10.6364	22.4412
Median		*-0.140*					*42.1442*	*19.8927*	*12.068*	*11.1818*
Standard deviation		*0.040*								

Notes: Brazil, Pakistan, and the Philippines report household expenditures but not per capita expenditures, so the Engel elasticity could not be computed. When computing total expenditure India National Sample Survey does not impute a value for owner occupied housing, but do include a value for rent. This raises the food share significantly on any Indian households who own their own home, the effect will be particularly pronounced for richer urban households. The Filipino National Statistics office and the Government of Pakistan Statistics Division include tobacco purchases in its total food expenditure calculation, raising the food share for Filipino and Pakistani households.

*Sources: Bangladesh Bureau of Statistics, Instituto Brasileiro de Geografia e Estatística, China Statistical Yearbook, The Federal Democratic Republic of Ethiopia Central Statistics Agency, National Statistical Organization, National Sample Survey Office, Ministry of Statistics and Programme Implementation Government of India, Government of Pakistan Statistics Division Federal Bureau of Statistics, Republic of the Philippines National Statistics Office, Vietnam Statistical publishing office. *** p<0.001, ** p<0.01, * p<0.05*

A.7 Houthakker Historical Cross National Data

Year	Elasticity	Absolute value of t	R^2	n	Mean food share
Various years between 1853-1955	-0.105	11.47	0.73298	50	0.47

Source: Author's analysis of data from table 4 of Houthakker (1957).

A.8 Anker Cross National Estimates

Year	Elasticity	Absolute value of t	R^2	n	Mean food share
Various	-0.109	23.43	0.73298	207	0.29

Source: Anker 2011 table 12 column 6. Mean food share, Anker 2011 table 6 column 1.

A.9 Japan Historical WLEC

Year	Elasticity	Absolute value of t	R^2	n	Mean food share
1955-2007	-0.1747	45.9	0.9764	53	0.21794

Notes: estimates are based on average food share and total expenditure from Japanese grouped data available for the 38 years between 1955-1992. Data are available from 1926 -2007, but we conduct the analysis only on the data from 1955- 1992, because CPI data are only available beginning in 1955 and we want to leave out years during Japan's economic crisis.
Source: Japanese historical house hold expenditure tables.

A.10 LIS - Restricted and Flexible Models for Selected LIS Countries

	Guatemala (2006)		Estonia (2000)		Mexico (2004)		Peru (2004)	
ln pc cons	-0.1580595	-0.1728373	-0.1508826	-0.0570048	-0.098315	-0.1149438	-0.167153	-0.1112333
	(.0011984)***	(0.0019322)***	(0033401)***	(.0152483)***	(.0007778)***	(0.0013452)***	(.0016623)***	(.0054383)***
pc cons		5.55E-07		-5.59E-06		3.16E-07		-0.0000278
		(8.43e-08)***		(1.04e-06)***		(2.66e-08)***		(2.37e-06)***
$(pc\ cons)^2$		-6.67E-14		3.09E-11		-1.21E-13		1.08E-09
		-1.38E-13		(8.03e-12)***		(1.75e-14)***		(9.33e-11)***
$(pc\ cons)^3$		-2.98E-20		-5.44E-17		1.21E-20		-9.39E-15
		-4.64E-20		(1.90e-17)***		(2.48e-21)***		(9.29e-16)***
constant	1.871898	1.996483	1.951418	1.1322	1.225425	1.379959	1.726858	1.360748
	(.0109536)	(0.0166439)	(.0334397)	(.1326503)	(.0079608)	(.0128843)	(.0130989)	(.0367881)
R^2	0.5601	0.5672	0.2671	0.2734	0.4142	0.4219	0.3543	0.3596
n	13,664	13,664	5,601	5,601	22,595	22,595	18,432	18,432

	Poland 2004		Slovenia 2004		South Africa 2008	
ln pc cons	-0.155549	-0.1954166	-0.0566805	0.0196097	-0.1020406	-0.0826984
	(.0009701)***	(.00321)***	(.0027971)***	(.0138973)	(.0015767)***	(0.0032129)***
pc cons		5.13E-06		-8.03E-08		-0.00000157
		(4.75e-07)***		(1.74e-08)***		(2.10e-07)***
$(pc\ cons)^2$		-3.69E-11		7.32E-15		5.64E-12
		(6.32e-12)***		(2.37e-15)***		(8.05e-13)***
$(pc\ cons)^3$		9.11E-17		-1.98E-22		-3.94E-18
		(1.98e-17)***		(8.05e-23)**		(6.33e-19)***
constant	1.731509	2.044694	0.9914122	0.0174445	1.301899	1.149156
	(.0086655)	(.0252243)	(.0390546)	(.1764177)	(.014188)	(.0264235)
R^2	0.4439	0.4483	0.0993	0.1104	0.3649	0.3701
n	32,214	32,214	3,725	3,725	7,291	7,291

*Notes: *** p<0.001, ** p<0.01, * p<0.05*
Source: LIS.

A.11 Indoensia Family Life Survey- Restricted and Flexible Models

	2007		2000		1997		1993	
	Per Capita Food Share		Per Capita Food Share		Per Capita Food Share		Per Capita Food Share	
ln pc cons	-0.0824233	-.0489683	-0.0824497	-0.0232033	-.0942007	-.0603283	-.0746772	-0.0274595
	(.00186)***	(.0066662)***	(.00203)***	(.00472)***	(.00233)***	(.00405)***	(.0024128)***	(.00565)***
pc cons		-6.21E-08		-2.27E-07		-2.12e-07		-8.33e-07
		(1.61e-08)***		(1.85e-08)***		(2.20e-08)***		(8.78e-08)***
(pc cons)^2		6.98E-15		3.65e-14		3.31e-14		7.12e-13
		(3.78e-15)*		(4.92e-15)***		(4.45e-15)***		(8.62e-14)***
(pc cons)^3		-3.03E-22		-1.47e-21		-1.31e-21		-1.13e-19
		(2.39e-22)		(2.41e-22)***		(2.11e-22)***		(1.60e-20)***
constant	1.637171	1.204434	1.598379	0.9330899	1.644245	1.28461	1.370862	0.9112596
	(.02432)	(.0865131)	(.02471)	(-0.0536)	(.0267)	(.04405)	(.0563566)	(.0563566)
R^2	0.1343	0.1378	0.1393	0.1574	0.1782	0.1896	0.1184	0.1321
n	12,658	12,658	10,229	10,229	7,536	7,536	7,136	7,136

*Notes: *** p<0.001, ** p<0.01, * p<0.05*
Source: Indonesia Family Life Surveys, Rand Cooperation. Standard errors in parenthesis

A.12 Japanese WLECs for 1955 - 1992

Year	Elasticity	Abs value t	R^2	Mean food share	Expenditure per capita	"Real" pc expenditure	Percent growth
1955	-0.254	23.881	0.995	0.374	5691.507431	32155.40921	
1956	-0.251	27.477	0.996	0.358	6182.102908	34927.13508	8.62%
1957	-0.244	25.660	0.995	0.357	6516.629213	35609.9957	1.96%
1958	-0.232	37.344	0.998	0.349	6881.838565	37812.29981	6.18%
1959	-0.227	32.290	0.997	0.339	7298.639456	39666.51878	4.90%
1960	-0.225	21.376	0.993	0.327	8104.816514	42433.59431	6.98%
1961	-0.209	28.855	0.996	0.318	9077.488152	45161.6326	6.43%
1962	-0.207	26.969	0.996	0.308	10387.52998	48539.8597	7.48%
1963	-0.169	211.149	1.000	0.306	10847.97136	46960.91498	-3.25%
1964	-0.176	89.987	1.000	0.301	11985.81731	49940.90545	6.35%
1965	-0.175	90.307	1.000	0.301	13181.06796	51690.46259	3.50%
1966	-0.178	27.315	0.996	0.291	14575.42998	54385.93274	5.21%
1967	-0.171	46.354	0.999	0.285	16216.83168	58333.92692	7.26%
1968	-0.177	44.126	0.998	0.277	18125.18892	61650.30244	5.69%
1969	-0.180	63.948	0.999	0.269	20496.6581	66118.25193	7.25%
1970	-0.177	73.473	0.999	0.262	23393.07692	70249.48025	6.25%
1971	-0.168	54.496	0.999	0.255	26113.17829	73975.00933	5.30%
1972	-0.166	48.810	0.999	0.247	28781.86528	77999.63492	5.44%
1973	-0.152	57.636	0.999	0.237	34329.87013	83324.9275	6.83%
1974	-0.178	92.723	1.000	0.244	41819.58225	81519.6535	-2.17%
1975	-0.176	50.219	0.999	0.237	48868.06283	85135.99796	4.44%
1976	-0.162	60.987	0.999	0.235	54205.5409	86314.55557	1.38%
1977	-0.160	42.433	0.998	0.225	60062.53298	88587.80676	2.63%
1978	-0.152	41.524	0.998	0.218	63478.27225	90296.26209	1.93%
1979	-0.139	65.716	0.999	0.206	68309.13838	93702.52178	3.77%
1980	-0.137	48.746	0.999	0.204	73697.91123	93644.10575	-0.06%
1981	-0.133	24.433	0.995	0.198	79238.68421	95930.61042	2.44%
1982	-0.131	35.085	0.998	0.188	85144.73684	100525.073	4.79%
1983	-0.120	37.889	0.998	0.184	88021.89974	101877.1988	1.35%
1984	-0.117	69.588	0.999	0.180	91659.1029	103804.1935	1.89%
1985	-0.114	79.091	1.000	0.175	95156.20053	105611.7653	1.74%
1986	-0.112	61.665	0.999	0.172	97103.7037	107415.6014	1.71%
1987	-0.109	46.436	0.999	0.167	97934.74801	108575.1087	1.08%
1988	-0.106	34.885	0.998	0.163	102277.2727	112764.358	3.86%
1989	-0.106	37.874	0.998	0.164	105081.7204	113234.6125	0.42%
1990	-0.108	180.149	1.000	0.161	111571.0811	116706.1518	3.07%
1991	-0.105	54.329	0.999	0.161	116005.3908	117414.3632	0.61%
1992	-0.103	2059.757	1.000	0.157	120037.1274	119558.8918	1.83%

Notes: estimates are on average food share and total expenditure from grouped data available for the 38 years between 1955-1992.
Source: Japanese historical house hold expenditure tables.

A.13 Poor of Rich OECD Country Food Shares

		Elasticity	Cons	Poverty rate	Food share at 10th percentile (avg Q1)	Food share at 30th percentile (avg Q2)	Slope	Food share at poverty rate	Food share at 20th percentile	Predicted food share at 60% of median consumption
				x	y^1	y^2	$m=(y^1-y^2)/-20$	$y=[m\ (x-10)]+y^1$	$avg(Q_1Q_2)$	
2009-10	Australia	-0.024	0.339		0.183	0.183			0.183	0.182
2005	Austria	-0.112	1.288	16.8	0.155	0.159	0.0002	0.156	0.157	0.196
2005	Belgium	-0.0626	0.782	22.6	0.161	0.150	-0.00055	0.154	0.156	0.169
2010	Canada	-0.0439	0.606	13.3	0.152	0.143	-0.00044	0.151	0.148	0.144
2005	Denmark	-0.0369	0.494	17.2	0.14	0.134	-0.0003	0.138	0.137	0.140
2005	Finland	-0.0501	0.636	17.2	0.156	0.148	-0.0004	0.153	0.152	0.157
2005	France	-0.0428	0.573	18.9	0.151	0.145	-0.0003	0.148	0.148	0.158
2005	Germany	-0.064	0.774	18.4	0.156	0.139	-0.00085	0.149	0.148	0.154
2005	Greece	-0.104	1.239	29.4	0.213	0.196	-0.00085	0.197	0.205	0.229
2005	Ireland	-0.0774	0.942	25	0.18	0.155	-0.00125	0.161	0.168	0.166
2005	Luxembourg	-0.0418	0.553	17.3	0.136	0.119	-0.00085	0.130	0.128	0.127
2005	Netherlands	-0.0545	0.668	16.7	0.119	0.125	0.0003	0.121	0.122	0.139
2005	Norway	-0.0459	0.591	16.2	0.133	0.141	0.0004	0.135	0.137	0.141
2005	Portugal	-0.0699	0.860	26.1	0.222	0.199	-0.00115	0.203	0.211	0.209
2005	Spain	-0.16	1.808	23.4	0.254	0.217	-0.00185	0.229	0.236	0.268
2005	Sweden	-0.0372	0.484	14.4	0.113	0.122	0.00045	0.115	0.118	0.120
2005	UK	-0.053	0.652	24.8	0.129	0.116	-0.00065	0.119	0.123	0.142
2011	USA	-0.0299	0.456	15	0.161	0.145	-0.0008	0.157	0.153	0.153
median								*0.151*	*0.150*	*0.156*

Notes: Australia does not publish an official poverty incidence rate, so poverty incidence method is left off for Australia. Canadian data are in nominal Canadian dollars. Canadian poverty incidence rate is for 2009, not 2010, a 2010 poverty estimate was not available, and 2009 consumption data were not available. Australia food shares are calculated from average weekly consumption data, and are in nominal Australian dollars. European data currency units are purchasing power standard currency, a PPP currency unit that is equivalent across all countries, and consumption data are per household, not per capita. US in nominal US dollars.
Sources: Australia Bureau of Statistics. CANSIM. Eurostat. Bureau of Labor Statistics Consumer Expenditure Surveys. United Kingdom Office of National Statistics

A.14 Median Urban and Rural Food Shares

	Median urban food share	Median rural food share
China	38.97	43.34
India	51.12	58
Pakistan	50.8	57.47

Sources: China Statistical Yearbook, Ministry of Statistics and Programme Implementation Government of India, Government of Pakistan Statistics Division Federal Bureau of Statistics