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## **Can Small Farmers Survive, Prosper, or be the Key Channel to Cut Mass Poverty?**

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**Abstract:** *The paper reviews the role of small farms in development and poverty reduction in countries (or regions within a country) with persistent mass poverty. It discusses the arguments supporting the importance of agricultural development for poverty and argues that initial success in reduction of mass poverty requires prior agricultural developments. It explores in particular the role of smallscale farming and policy requirements to ensure the competitive advantage of small farms.*

**Keywords:** *Poverty, agriculture, agricultural development, small-scale farming.*

## I. Introduction

This paper is confined to the role of small farms in development and poverty reduction in countries (or large regions within a country) with persistent mass dollar poverty – where, say, one-third or more of the population are below the PPP dollar-a-day poverty line. The conventional wisdom, set out with evidence in IFAD's 2001 Rural Poverty Report, is that in such places development with substantial, sustainable mass poverty reduction is achievable, but *initially* - save in very rare cases - only via rapidly accelerated productivity and income growth on small farms.

There are three reasons why this might be disputed.

(I) Non-farm growth might be seen as a more credible option; one might question whether - given past progress, environmental limits, world price trends, falling share of farm workforce, and so forth - agricultural growth, on small farms or large, is feasible in remaining mass-poverty areas, let alone promising against poverty.

(II) Alternatively, one might accept that accelerated agricultural growth is both feasible and a precondition for initial mass poverty reduction, but believe that *processes* of national poverty reduction are consistent with large-scale farming.

(III) One might claim that small farms in (some) developing countries (a) never were more equitable and efficient than large farms as a source of initial mass poverty reduction and development, (b) whether or not they were, are not now, because world-wide processes of farm change - commercialisation of increasing proportions of input and output; institutional developments such as supermarkets; privatisation of key aspects of technical progress, and of output and process grades and standards – now indicate a large-farm focus.

This paper concentrates on issue (II), but first briefly reviews the valid range of assumptions on issues (I) and (II) above, which are logically prior issues. Has 'agricultural progress' in developing countries still a big part to play in reducing initial, persistent mass poverty? If so, do the *processes*, by which agricultural progress can cut poverty, mandate small-farm focus, exclude it, or neither? Only after agreeing working assumptions on (I) and (II) can we proceed to our core question (III): what do theory, history and recent experience tell us about whether

small farms (to be defined) can, will, or should remain central to initial mass poverty reduction?<sup>1</sup>

## II. Is Farming a Route to Cutting Initial Mass Dollar Poverty?

Until fairly recently, most developing countries acted as if the role of agriculture in mass poverty reduction was quite small. Terms of trade were heavily turned against farming through selective industrial protection, subsidised food imports, compulsory procurement of farm products, and exchange-rate overvaluation. Public expenditure per person on health, education, and physical infrastructure was far higher in rural than in urban areas. Development was seen as requiring rapid industrialisation, even without and before significant agricultural or rural progress.

Two things have changed this perception. First, it became clear that price and expenditure policies to bias development towards industry-led growth delivered neither growth nor poverty reduction. Terms-of-trade and public-expenditure bias in favour of urban industry, while cutting farm growth and harming the rural poor, generated little industrial growth (at border prices) and very little extra employment per unit of output. Second, technical progress - irrigation, fertilisers, and new crop varieties (hybrid maize Latin America from the mid-1950s, semi-dwarf wheat and rice in much of Asia from the mid-1960s) - showed that, under the right conditions, agricultural growth could bring hundreds of millions of people rapidly and sustainably out of dollar poverty. This worked despite artificial measures to damage both price incentives and stability<sup>2</sup> for farmers in developing countries, both via developed-country farm subsidies and tariffs, and via developing-country policies biased, sometimes heavily, against the rural sector.

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<sup>1</sup>This paper draws, with regard to issues (I) and (II), on M. Lipton, 'The family farm in a globalising world: the role of crop science in alleviating poverty', International Food Policy research Institute, Washington, D.C., 2005; and, with regard to issue (II), on R. Eastwood, A. Newell and M. Lipton, 'Farm size', in vol. IV, Handbook of Agricultural Economics, ed. R. Evenson, P. Pingali and P. Schultz, Rotterdam: Elsevier, forthcoming. On all three issues, and related matters, see International Fund for Agricultural Development, Rural Poverty Report 2001, Oxford: Oxford University Press, 2001.

<sup>2</sup>EU long used a 'reference price' system so EU farmers, when world prices fell, were compensated by higher support per unit of output, and so did not cut output. Hence they fell further, destabilising returns for non-EU farmers. See U. Koester, Policy Options for the Grain Economy of the European Community: Implications for Developing Countries.(Research Report No. 35), Washington, D.C. : International Food Policy Research Institute, 1982.

Governments, analysts and the public in some developing countries now appear to accept, in principle, that mass poverty has initially to be, and can be, reduced by growth in agriculture. Globally, Ravallion has shown that over 70 per cent of the dollar-poor are rural and, on best projections of migration and growth, that the proportion will be over half until 2035. In the large majority of mass-poverty countries (and sub-regions):

More than two-thirds of the workforce has its main single income source in agriculture.

In rural areas, though recent research shows that the rural poor derive significant, growing parts of income from non-farm work,<sup>3</sup> agriculture is by far the main income source.

The few available studies show that 8-15 per cent of workers *classified as urban* have agriculture as the main income source; the proportion of the urban poor is higher.

Farming is what the great mass of the poor do. That, however, does not imply that poverty reduction should take an agriculture-first path (to raise poor people's income from what they mostly do) - any more that it implies an anti-agricultural path (to get the poor into activities where poverty is less). But it demands that we confront and specify the choices between those two routes.

The poor's *income* depends mainly on labour. To bid up demand for labour (and hence employment and/or the wage-rate) in capital-constrained economies, capital should go where capital costs per extra workplace - in self-employment or hired work - are relatively low, as in most agriculture. Though the response of employment to output growth has been falling in some poor areas (within India and China), it remains substantially larger than in other sectors.<sup>4</sup>

Except perhaps for owner-occupied housing, farmland is the dollar-poor's main *major asset type* (non-labour source of productive income) as well as the asset type of which they have the largest share. For reasons of arithmetic as well as of work experience, it is therefore credible

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<sup>3</sup>The same research, however, shows that rural non-farm growth and employment-intensity depend largely on expanded demand from prior, nearby agricultural growth. Further, while most poor farmers derive significant income shares from non-farming, it is often forgotten that the converse also applies.

<sup>4</sup>Recent time-series from India have created an illusion: that the *elasticity* of employment to output in agriculture has become very low or negative. Labour-displacing innovation (mainly tractors and weedicides) indeed cut the employment-intensity of farm output, during agricultural growth. However, the innovation produced almost no growth, but replaced labour on given land. With similar spread of tractors and weedicides but slower agricultural growth, employment losses would have been substantially more.

that more poverty reduction is likely to be achieved by achieve raising returns to farmland than to other assets - provided ownership of land is not more biased against the poor than of other assets.<sup>5</sup>

The dollar-poor typically spend over two-thirds of income on food and over half of income on *staples*. Large, though not well documented, proportions of the dollar-poor depend for these mainly on own or nearby farms. As long as internal or international transport costs for food (especially staples) loom large relative to value, local farming therefore restrains and stabilises the price of the poor's main consumables - which loom much smaller in the spending of the rich.

In assessing the case for or against small farms, we should ask whether the above three links from agricultural growth to poverty reduction – via labour demand, asset ownership, and food and staples prices – operate better through small or large farms, and (which is an overlapping issue, but not quite the same one) through more or less equal distribution of farmland.<sup>6</sup> These static links from agricultural development to mass poverty reduction are over and above the intersectoral connections spelled out in classic work by Mellor, Johnston, Kilby<sup>7</sup> and others. Theoretical links apart, recent empirical evidence that farm growth is more pro-poor than non-farm growth in mass-poverty heartlands is strong (fn 5). Historically, too, agricultural acceleration preceded non-farm growth, and accompanied initial mass poverty reduction, in developing Europe, America and Japan in the 18<sup>th</sup> and 19<sup>th</sup> centuries. This has also been true of late twentieth-century success stories, except a few unusually well-managed mineral economies and entrepot city-states.<sup>8</sup>

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<sup>5</sup>Latin America, where land Ginis are exceptionally high, does not clearly follow the pattern of Asia and Africa that farm growth is more pro-poor than is other growth - a pattern shown econometrically in international cross-sections, and in regional cross-sections and time series for China, India, Indonesia, etc. See review in R. Eastwood and M. Lipton, 'Pro-poor growth and pro-growth poverty reduction: meaning, evidence, policy implications', *Asian Development Review* 18 (2000): 22-58.

<sup>6</sup>Growth in poor countries may be slowed by very unequal income and (more clearly) assets (Eastwood and Lipton 2000).

<sup>7</sup> Johnston, Bruce F., and John W. Mellor, 'The Role of Agriculture in Economic Development' *American Economic Review* 51 (1961): 566-93; Johnston, B. F. and P. Kilby, *Agriculture and Structural Transformation: economic strategies in late-developing countries*, New York: Oxford University Press, 1975,

<sup>8</sup>Some countries once seen as exceptions have turned out not to be. For example, post-1945 Korea's manufacturing growth was not prior, but based on agricultural acceleration in the 1930s and 1940s.

Theory, history, and empirics cannot *disprove* that some part of Africa, or ‘inner’ South or East Asia, should attack mass poverty while bypassing agriculture (environmental constraints, or industrial opportunities, might require that). But they are not a good trio of enemies to choose.

Ironically, it is in the countries that have accepted the priority of agriculture for *initial* mass poverty reduction, and where governments have acted accordingly to achieve such reduction - China, India, much of the rest of Asia, some of Latin America - that *later* mass poverty reduction has come to depend increasingly on *non-farm* growth. Yet even in most of these successful countries there are regions with still high dollar poverty (i.e. low local income growth, insufficiently offset by high inward remittances). These poor regions within successfully developing countries - like the unsuccessful developing an poverty-reducing countries within a developing and poverty-reducing world - usually show weaker past agricultural performance and *more* present dependence on agriculture. Moreover, they feature faster population growth than surrounding regions or countries, so the concentration of the poor in these less successful areas is increasing.<sup>9</sup>

Unfortunately, while many poor countries have shifted their price policies away from agricultural and rural extraction, their public-expenditure policies have, if anything, shifted in the reverse direction, partly under fiscal stress, partly because the internal balance of rural-urban power requires compensation for the price-policy shifts. On most measures, for developing countries overall, the substantial rural-urban inequalities (in mean real income, poverty incidence, and health and education) show no downtrend since the 1970s.<sup>10</sup> This may be related to the fact that, while urban bias in developing countries, at least via farm price repression, has been forced down by economic realities, developed-country policies have *increasingly* discriminated against developing-country farm production.<sup>11</sup> This is shown both

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<sup>9</sup>T. Dyson, R. Cassen & L. Visaria, *Twenty-first Century India*, Oxford: oxford University Press, 2004.

<sup>10</sup>R. Eastwood and M. Lipton, ‘Rural-urban dimensions of inequality change’, in *Inequality, Growth and Poverty in an Era of Liberalization and Globalisation*, ed. G. Cornia (UNU-WIDER: Oxford: Oxford University Press, 2004).

<sup>11</sup>OECD farm subsidies rose from \$182 billion in 1995 (40% of production) to \$248 billion in 1999-2001 (de Moor, A.P.G. ‘Perverse Incentives - Subsidies and Sustainable Development: key issues and reform strategies’, Earth Council, 1996; R. Ricupero, Report of address to UN (ECOSOC), 30/6/2003. Third World Network <http://www.twinside.org.sg/title/twe309a.htm> These subsidies are claimed to help smaller OECD farms (which are relatively labour-intensive) to survive, so more people can stay in farmwork: the *peasant outcome*. Yet OECD farm support has not overcome the tendency of farm size to grow *in rich countries*, and of farm employment to decline – indeed, it may have *worsened* prospects for the peasant outcome. Between 1986-90 and 1996-7, farm employment fell from 7.1% per cent of

by the explosion of farm support in OECD countries, and by the collapse of international aid to agriculture, both in absolute terms (a fall of almost two-thirds since the mid-1980s) and as a share of sectorally allocable aid. In 1990-2015, the period in which developed countries purportedly prioritise halving world dollar poverty as the first MDG, they have so far slashed aid to agricultural development - and intensified farm support policies that discourage it by false incentives to glut world markets. These incentives misdirect not only developed-world farmers, but also scientists everywhere, who are increasingly stimulated to distort farm science to focus on increasing subsidised, capital-intensive competition *against* farms in the developing world, which is then lectured about free markets.

There are some signs of improvement in developed countries. Many committees and ministries promise modest reversal of the collapse of aid to developing-country farming, and modest reduction of trade discrimination against it (though we have heard such promises before). Whether this happens or not, more and more analysts and politicians in developing countries with mass poverty - say 30% or more of their people below a dollar a day - accept that faster growth of agricultural income, output and productivity are extremely helpful, and usually necessary, to *start* a sustainable process of mass poverty reduction.

### **III. Do Small Farms Fit *Processes* of Initial Mass Poverty Reduction?**

Suppose we agree with that. Suppose, also, that we believe, for most countries and regions, that substantial sustainable farm growth acceleration is feasible.<sup>12</sup> Do the likely *processes* of achieving this indicate a focus on small-scale or large-scale farming? Further, do world-wide *processes* of farm change - commercialisation of increasing proportions of input and output; institutional developments such as supermarkets; privatisation of key aspects of technical progress, and of output and process grades and standards – increasingly indicate large-farm focus? I suggest:

(1) Neither poverty-reducing nor farm-globalising processes either mandate or exclude small farms as the basis of agriculture-led, rapidly poverty-reducing development.

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workforce to 4.9% - numbers fell by 14% - in the EU-15 despite huge farm support, but fell much more slowly in Australia and New Zealand, with much less support per unit of output [ILOSTAT].

<sup>12</sup>For sub-Saharan Africa, and for water-scarce regions, there is a contrary view. The issues are too complex to discuss here; see International Fund for Agricultural Development, Rural Poverty Report 2001, loc.cit., ch. 4.

(2) However, credible processes of initial, rapid mass poverty reduction require rapid growth in demand for productive labour, and in its command over staples. Both requirements indicate a small-farm orientation, especially in very poor or remote countries or sub-regions.

Processes of farm commercialisation and globalisation make the small-farm route more difficult *if there are substantial intermediation failures* between small farms and the emerging customers and institutions of globalising farm change.

Issue (3) is dealt with in sec. III. How might it be reconciled with (2) in the context of an agriculture-led development policy? One might identify (a) efficient, affordable shifts in incentives or institutions so as to favour employment-intensity in a large-farm growth path;<sup>13</sup> or (b) efficient, affordable support for, or market development of, successful intermediation between small and family farms and growing, modernising export or supermarket outlets (see below), or (c) paths by which small farms can efficiently grow without such access – not absurd; I hypothesise that most rural poor, and the world’s ‘smaller half’ of farms, are in substantial food deficit, and can expand a good deal while achieving staples self-sufficiency.<sup>14</sup> Much progress has been made on (a), but it requires a higher priority; almost no progress on (b); and modest progress is beginning on (c) with spreading awareness that mass-poverty-reducing agricultural growth usually *starts* with staples for national, even local or domestic, use, not with export horticulture, and that, without decrying the medium-term need for smallholders to switch towards marketed crops in the medium term, ‘staples security first’ may well be the right sequence for smallholders in much of inner Asia and sub-Saharan Africa.

Why do credible processes of poverty reduction strongly indicate small-farm growth ((2) above)? The three arguments for *agriculture* as the main, normally the only, feasible source of processes of early, rapid mass early poverty reduction (pp. 2-3) re-emerge as arguments that

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<sup>13</sup>If advocates of such a path showed that it might, with stated policies, affordably create demand for the growing and under-employed poor workforce, it would be easier to take large-farm recipes for initial mass poverty reduction seriously. (Much the same can be said of proposed non-farm-led escape routes). Unemployment data in Africa are notoriously fraught, but (for example) ILO and other enquiries confirm genuine time-rates of adult unemployment over 30% in South Africa – more in rural areas.

<sup>14</sup>The common claim that poor deficit farmers who do not market have no cash to buy inputs, and therefore cannot much raise output, is incorrect. By definition such farm households buy staples. If they grow more, they can divert cash (from nonfarm activity, hired work on others’ farms, etc.) from staples purchases to staples-*input* purchases and will have cash in hand. There may, of course, be a first-year credit problem

such processes should have a *small-farm* focus. In that form, the ‘small-farm logic’ appears sound. The ‘stylised facts’ behind it are not very controversial. Yet evidence for or against them is surprisingly scarce. So it remains possible that, under conditions to be empirically established, large-farm agriculture might be a major source of mass poverty reduction. Because the ‘small-farm logic’ is rather strong, I hypothesise that such circumstances are rare, and cover only small proportions of persons in areas of mass initial dollar poverty; but the issue needs to be more fully explored.

The demand-for-labour argument: That the poor’s income depends largely on labour, and that agriculture has lowest costs per workplace and highest average and marginal capital/labour ratios in early development in poor regions, is a central argument behind the case for agricultural growth as the key to development that slashes initial mass poverty by bidding up the returns to (employment and/or wage-rate of) poor workers. This process applies more convincingly if such development is through small farms.

For example, in Pakistan in 1972 farms above 60.7 ha engaged 0.12 workers per hectare and farms of 20.2-60.7 ha 0.22 workers/ha – whereas farms below 0.4 ha engaged 9.15 workers/ha, and farms of 0.4-1.0 ha 3.32 workers/ha;<sup>15</sup> data for Bangladesh, Thailand, Indonesia and India were comparable. Simulations showed that egalitarian redistribution would raise labour demand and use: by only 9 per cent in Java, but by 19-24 per cent in Bangladesh, Pakistan, Thailand and the Outer Islands of Indonesia.<sup>16</sup> Plausible partial land redistribution on Brazil’s estate sub-sector would raise person-year equivalents of labour use in agriculture from 2.6 to 3.0 million over the 1978 base case; and World Bank evidence from the 1970s showed ‘employment per hectare higher .. in those countries that have .. more equal distribution of land ownership’.<sup>17</sup>

Most of these data are rather out-of-date. More recent data are scanty partly because higher labour-intensity on small farms, other things roughly equal, is not seriously contested, resting not only on widespread observation - some by sceptics who see small farms as sources of

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<sup>15</sup>For other size-groups, workers-per-hectare: 1-2ha, 1.72; 2-3ha, 1.12; 3-5.1ha, 0.82; 5.1-10.1ha, 0.52; and 10.1-20.2ha, 0.32 w/ha (A. Booth and R. Sundrum, *Labour Absorption in Agriculture*, Oxford University Press, Delhi, 1984: 101).

<sup>16</sup>*Ibid.*: 100-9, 279-80.

<sup>17</sup>G. Kutcher and P. Scandizzo, *The Agricultural Economy of Northeast Brazil*, Johns Hopkins, Baltimore, 1981: 201; 37.

'self-ex-ploitation' - but also on basic transaction-cost theory (sec. III below). It is often objected that many small farms owe part of their higher labour/land ratios to their better land or water resources, but this is itself in part a consequence of earlier choices of higher ratios, used to improve or maintain land/water resources (terracing, bunding, manuring, etc.) - often off-season, when family labour can be used to build up 'labouresque' capital more readily on small farms than on large.<sup>18</sup>

The demand-for-labour argument for small-farm emphasis in poverty reduction should not rest only, or in some regions mainly, on small farms' greater capacity to generate income-per-hectare for self-employed family farmers. For instance, in India, hired labour is the main income source of more rural households, and many more *poor* rural households, than is than own-account farming.<sup>19</sup> But, world-wide, most evidence is that smaller farm size goes with higher demand for *hired* labour per hectare, despite a lower ratio of hired to family labour. Further, better growth options on (or land transfer to) smaller farms provide incentives for farm families to withdraw labour *supply*, from hiring-out, into the family farm; this raises the proportion of work in the hired-labour market available to the landless, and thus their employment and/or wage-rate.

The reliance of the poor on rising demand for labour for poverty reduction – and also for bargaining power and dignity – is at the core of the case for agriculture as the leading source of initial mass poverty reduction. Setting agricultural growth mainly into a context of small, labour-intensive farms greatly strengthens that argument, and has been shown by abundant worldwide experience to be feasible. That does not imply, however, that large farms are not suitable for some purposes, even where capital/labour ratios are low, nor that large farms cannot be stimulated to be more employment-intensive and pro-poor. However, opponents of small-farm approaches have so far done little to show where, or how, this has been, or can be, achieved.

It is often mistakenly believed that slower population growth weakens the employment-related case for small-farm-centred poverty reduction processes. On the contrary: workforce

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<sup>18</sup>A.K. Sen, *Choice of Techniques* (3<sup>rd</sup> ed.). Cambridge University Press, 1968.

<sup>19</sup>K. Sundaram and S. Tendulkar, *The Working Poor in India: Employment-Policy Linkages and Employment Policy Options*, International Labour Office, Recovery and Reconstruction Dept (Geneva), 2002: 43.

grows rapidly well after child population growth has slowed or stopped, creating a 'demographic window' to work one's way out of poverty – but only if labour demand expands, affordably, at least as fast as workforce, as happened in East Asia in 1960-90 thanks mainly to small-farm-based growth. The effect of new farm technologies in reducing poverty incidence in 1965-2000 was much amplified by the falling dependency ratio. Lower *proportions* of dependents were supported by fast-rising numbers of workers, for many of whom the new farm technology provided rising employment income. The fertility reductions triggering this process<sup>20</sup> came somewhat later to South Asia and Africa, but are now sharply cutting dependency ratios for poor countries in these regions too. In 2000, there were 99 dependants for every 100 people of prime working age in Ethiopia; the projection for 2030 is 72. For Nigeria the dependency ratio falls from 99 to 67; for Bangladesh from 79 to 55; and for India from 71 to 58.<sup>21</sup> If physical conditions allow, and policies stimulate, small-farm-led poverty reduction in Africa and 'inner Asia', demographics makes 2000-2030 an ideal time for it. If those chances are not provided by crop science and appropriate policy, the extra workers will face downward pressure on rural wage-rates or employment, and the opportunity will be lost after 2030-50,<sup>22</sup> as rises in the proportion of over-60s put the dependency ratio into reverse (i.e. it starts to rise again).

Three challenges to the above 'employment-intensity' case for small-scale farming should be noted. First, some regions with high year-round average unemployment (and low wage-rates) nevertheless face extreme seasonal labour peaks, when wage-rates rise sharply and/or absolute labour scarcity (in some sense!) persists at low wage-rates. While research, extension, and water policy should certainly respond to such conditions, they do not justify (say) shifting agriculture, or its growth, towards larger and less labour-intensive farms. Second, large rural regions are afflicted by HIV/AIDS, reducing *effective* labour availability. However, it cannot ameliorate this temporary though tragic demographic situation by policies to reduce demand for, and hence wage-rates of, labour, for example by shifting agricultural growth away from small employment-intensive units. Third, artificial stimulation of farm output in OECD countries has induced technical change, and basic science, favourable to

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<sup>20</sup>Strictly, the process starts with big infant mortality falls during 1945-60 as malaria is controlled and nutrition improved. This first raises dependency ratios, but as the 'saved' infants age into the workforce, the process slows down and then reverses. Later, fertility decline strengthens the reversal (fall in dependency ratios).

<sup>21</sup>These data allow for HIV/AIDS. It hits mainly (i) persons aged 15-30, (ii) infants, with offsetting effects on dependency ratios.

<sup>22</sup>The dates of the turning point vary by country, as did the earlier changes (fn. 35) that set the process going.

farms of 'OECD' size and factor endowments, and thus to labour replacement in farms of all sizes, even in poor countries with plenty of labour per unit of capital and land. This, however, is anyway reflected in factor markets, and hence farm sizes, in developing countries. We shall see that these have nevertheless featured steady increases in the proportion of land in small farms. It is unappealing to suggest that developing countries should respond to rising world capital/labour ratios – given that lower ones will anyway be chosen by small farms than by large ones - with policies that increase market incentives to shift land towards large farms.

The assets argument: In China and Vietnam, and to a somewhat lesser extent in most of the rest of Asia and of central and western Africa, a large majority of the rural poor have, at least, usufruct rights to enough farmland to provide a significant proportion of household income. The absolute value of these rights has been reduced over time by declining farm size, but except in Africa this has been more than offset at national level, and in most regions, by offsetting rises in productivity of farmland.<sup>23</sup> Even where severe land inequality prevails, as in Southern and parts of East Africa and most of Latin America, many or most of the rural poor derive significant parts of income from owned, communal, or rented farmland.

In most areas where widespread poverty prevails, therefore, anti-poverty paths via enhancing the physical assets of the poor, as well as via employment income and via food entitlements, direct policy towards increasing the resources and technology base – and the land base – of small farms rather than large ones. Policies to enhance the poor's farm machinery or largestock run against the fact that in most countries the dollar-poor own a smaller proportion of such assets than of farmland, for good reasons (divisibility, collateral, risk). Smallstock assets are often distributed at least as equally as land, and pro-poor policy here has therefore some leverage, but the absolute value of the poor's smallstock is much less than that of their farmland. The poor do normally have some housing assets, but these are seldom (perhaps too seldom) seen as a part of pro-poor *production* policy.

The staples argument: Food staples comprise a substantially higher proportion, by value, of output growth on small farms than on large ones. So farm growth is likelier to restrain and stabilise the price of staples if it is concentrated on small farms. The dollar-poor spend a

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<sup>23</sup>Falling world staples prices since 1980 reduce the value of this offset, but were themselves partly offset by falling domestic policy bias against staples prices. Remaining net price falls are less harmful for food deficit farmers, including most small farms.

considerably higher *average* income share (typically well over half) on food staples than the non-poor. The poor therefore acquire a higher proportion of consumer gains, from a given absolute value of extra farm output, if it is concentrated in smaller farms. Also the poor have a higher *marginal* propensity to consume staples; therefore, as the poor's money income rises, their gains are increased to the extent that extra food production comes from small farms with higher staples focus. Freeing of global food markets (and large public foodgrain reserves, e.g. in India) may moderate the impact of domestic staples output growth – and hence of the small-farm share of such growth - on prices facing the poor, but only to a modest extent, due to the high ratio of staples transport costs to production costs.

The facts behind this logic, while perhaps not very controversial, are hard to verify.

(a) I can find no database, at FAOSTAT, the World Bank or elsewhere, collating estimates (let alone those from reliable nationwide, and/or successive, household surveys) of average or marginal staples/*consumption* (or even food/*consumption*, or food/*income*) ratios by income group.<sup>24</sup>

(b) There is limited evidence that staples/*production* ratios rise as farm size falls. It is familiar that labour-intensity of crop-mix rises, but that does not help much, because labour-intensity in staples is intermediate between that in other main land uses: more than in pasture/grazing, trees, and most fruit crops; less than in beverage crops, cotton, rubber, sugar and most vegetables. However, bitty data, and 'anecdotal wisdom', that smaller or poorer farmers are likelier to devote given land to staples is supported both by food security considerations (absolute aversion from hunger risk increases with the level of that risk) and by the fact that, in raising staples output, surplus farmers increase, but net food- buying farmers reduce, marketing transaction costs.<sup>25</sup>

(c) That the rural (urban) poor are likelier than the rural (urban) non-poor – and rural and remote people (with higher poverty incidence), than urban people – to source staples from own production or locally, and to face high unit cost of staples transport and distribution from central stores or ports, seems self-evident, but the evidence again is thin. It is important to pinpoint exceptions to any general rule that the poor are so placed, and therefore less

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<sup>24</sup>Grouping by income-per-household is useless. Income per consumer unit or adult equivalent is preferable to income per person.

<sup>25</sup>Price *risk*, too, rises with rising output of a main locally-consumed staple for surplus farmers (detering its production) but falls for deficit farmers (encouraging them to grow more of the staple): C. Barrett, 'On price risk and the inverse farm size-productivity relationship', J. Development Economics, 51, 1996: 193-215.

'delinked' than others, by easy access to local or global staples markets, from any effects of farm size on the price or reliability of their consumption due to local supply.

Crude absorption: A related point is that countries with initial, largely rural, mass poverty present a further crude demand-side case for concentrating agricultural growth on small farms. Such growth evades the demand/marketing problem to some extent, because much of small farms' extra output comprises staples consumed locally – often in the farm household, or by (extra) farm labour. The marginal propensity to consume farm products is high for small farmers and farmworkers, but low for large farmers and owners of substantial land or farm capital. Hence, for example, in India there is much potential for poverty-reducing growth through expanded, labour-intensive staples production on small deficit farms in the poorer States; but little, if anything, is gained when well-off surplus farmers in the Punjab (are subsidised to) grow extra wheat and rice capital-intensively. Absent much direct demand created by the incomes corresponding to the extra output - well-off farmers and tractor-owners do not use much of their extra income to buy food - it is then sold to the Food Corporation of India for long-term storage (and deterioration); India's poor have little extra income with which to buy such grain, and export markets are protected and/or, for large sellers, price-inelastic.

Agricultural priority and consistency of reducing poverty in all main poor groups: One criterion for good pro-poor policy is that it should not set large groups of the poor against one another by achieving poverty reduction at the cost of creating many losers who are 'stuck' in a particular group. The conditions for growing agricultural income, output and productivity to benefit *all* main poverty groups – those whose income derives mainly from small-scale farming, from rural labour or non-farm activity, and from urban work – are in fact rather tight. (We were fortunate that the green revolution largely met these conditions.) In particular agricultural growth - e.g. via new science, or applications of existing science - has to walk two tightropes, and this is much easier if the growth is concentrated on small farms.

The *price/total-productivity tightrope*: to help poor food consumers and poor farmers as marketers respectively, farm growth must cut staples prices, but must raise total factor productivity on small farms faster. If farm growth is concentrated on small farms, much of it comprises extra staples grown by poor households with a high marginal propensity to

consume them. Prices are still pressed downwards (the marginal propensity is less than one), but by less than if fare growth is on big farms in staples surplus, where farmers' extra self-consumption out of income is small and anyway can form only a small part of extra output.

The *wagerate-labour/land-productivity tightrope*: In early development out of mass poverty - in the increasingly universal condition that unused farmland is absent or very costly to develop - for farm growth to help poor farmers as employers and poor farm labourers<sup>26</sup> respectively, it must raise output per labour-hour, but output per hectare more. Such concentration on employment-intensive extra production – especially product-mixes but also product-specific technical choice – is much likelier on small farms, for familiar transactions-cost reasons (sec. III).

The case for small farms self-destructs, but only with success: It is, then, the very arguments for agricultural growth as the main channel of initial mass poverty reduction, that point to small, not large, farms as the main carriers of such growth. Agriculture *within mass-poverty economies* - and, for the same reasons, small farming *within agriculture* - is the most favourable sector for enhancing employment-intensity, (land) assets of the poor, (staples) consumption of the poor, demand absorption of the extra output, and consistency of progress among main poverty groups.

And just as the case for agriculture as the source of poverty-reducing growth, if successful, self-destructs, so does the case for small farms. In countries or regions that have succeeded in slashing mass dollar poverty, the above arguments for concentrating farm growth on small farms are weakened. On equity grounds, major initial success against mass dollar poverty induces urbanisation; shifts in rural and urban economic structure towards non-farm work and urban life; and demographic declines in workforce growth (eventually: pp. ), even for the remaining dollar-poor: all three trends, by cutting the dependency of labour on agriculture, shift the emphasis of anti-poverty policy away elsewhere, and hence away from farm size. On efficiency grounds (sec. III), initial success brings rising capital/labour ratios, so that transaction-cost reductions become more important for costs associated with capital acquisition and use, as opposed to those associated with labour search, screening and

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<sup>26</sup>The off-farm poor also suffer (wage-rates off-farm also fall) if this condition is not met.

supervision- i.e. for costs readily reduced by large units, rather than small ones. Both sorts of change shift the emphasis from smaller to larger scales of farming.

However, countries and regions where initial development has been attempted with land heavily concentrated into large farms - those with very unequal farmland, as in much of Southern and some of Eastern Africa, and much of Latin America - move from low-income to middle-income status, if at all, with severe, and still largely rural, unemployment, and dollar-poverty levels far ahead of what is normal for their levels of PPP-GDP per person. There has not been 'success', even in initial mass-poverty-reducing growth, and hence the case for small-farm-based development has not self-destructed. It remains to be seen whether this can be corrected without renewed emphasis on small-farm development and asset acquisition.

The countries, chiefly Asian, that have achieved initial success in sharply reducing mass poverty through farm growth – while they have largely maintained, or even accelerated, *growth* as it shifted to the non-farm sector – have been much less successful in maintaining the rate of *poverty reduction*. The responsiveness of poverty reduction to economic growth in China and India, for example, has been much less since the mid-1990s than was the case in 1970-85. Further, middle-income counties in Southern Africa and Latin America, despite quite low shares of agriculture in workforce and GDP, have been rather unsuccessful in bringing down mass dollar poverty, which is far above levels predicted from global regressions against PPP income-per-person; even after agriculture's share of workforce has fallen below 20-25%, inequality of farmland remains a strong predictor of overall inequality and absolute poverty – and presumably a fortiori, of weak transmission of growth into poverty reduction.<sup>27</sup>

So processes of mass poverty reduction through agriculture favour small farms (as more labour-intensive, as providing asset income to the poor, and as supplying locally available food staples), but do not mandate them. We defer to sec. III the issue of whether offsetting processes of liberalisation/globalisation processes undermine the small-farm case made by poverty-reduction processes.

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<sup>27</sup> A. de Janvry and E. Sadoulet, 'Growth, poverty and inequality in Latin America: a causal analysis', *Review of Income and Wealth*, 46 (2000): 267-87.

While initial success in economic growth and/or poverty reduction clearly reduces the role of farms, small or large, in carrying success further, experience in the successful developing countries suggests big knowledge gaps about how to continue, or revive, rapid poverty reduction that is *not* based on small-farm growth. More important, initial success in reducing mass poverty has not been achieved in large parts of the developing world; and the historical evidence is that it *cannot* be achieved without prior agricultural development, save in special cases such as city-states or (unusually well handled) mineral discoveries. But can that agricultural development be attained where it has not been attained so far? And can or should it be on small farms?

#### **IV. Can, Should, Will Small Farms Survive, Grow, Cut Poverty?**

All the above arguments would not ensure small farms' survival, let alone their growth or contribution to poverty reduction, if they were competitively inefficient. The first issue is whether small farms *have* survived – have shrunk or increased their share of farmland – in developing countries. We measure smallness by land area, rather than gross or net output or labour-input. The policy issue is what farm sizes to encourage (or stop discouraging) by public action, including price policy, incentive-compatible land reform and/or tenancy policy.

Note that large households tend to operate more land, and size inequality is usually much less per person than per household. In a study in the Indian Punjab, the per-person farmland Gini was half the per-household Gini.<sup>28</sup> It also matters whether land/water quality is factored in. In India (but often not elsewhere; certainly not in Southern Africa), smaller farms tend to have better-quality land/ water endowments, so the Gini is much smaller if farmland is quality-adjusted.<sup>29</sup> However, “discussions of empirical facts are driven by the available comparative data. In the FAO farm censuses, land area of holdings is available for most countries, but no other potential measure of scale is widely available”.<sup>30</sup>

Thus holdings with low area are “small farms”, given our concerns and the data limitations. In deciding whether small farms are competitive or efficient (not quite the same thing) in a country, the first task is to see whether the proportion of farmland, found in small farms, is

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<sup>28</sup>A. Julka and P. Sharma, ‘Measurement of land inequality in India: a revision of the Lorenz-Gini ratio’, Indian J. Agricultural Economics, 44, 4, 1989.

<sup>29</sup>S.Bhalla and P.Roy, ‘Mis-specification in farm productivity analysis: the role of land quality’, Oxford Economic Papers 40, 1988: 55-73.

<sup>30</sup> Eastwood, Newell and Lipton (forthcoming), loc. cit.

rising (falling). If so, it suggests either, dynamically, that small farms are becoming relatively more (less) efficient or competitive, or that farmers are steadily finding ways to approach a static farm-size optimum by evading or avoiding avoid laws or incentives impeding a move to optimal farm size. Suggestion is not proof; perhaps small farms' proportion of area fell because, for example, new laws, taxes or price-manipulations, artificially favouring small farms against large ones, were introduced and enforced, or old ones enforced, even though not incentive-compatible. However, such enforcement is usually very difficult in the long term. It seems likely that in a country or sub-region with substantial or steady falls in farm size – i.e. rises in the proportion of land operated in small farms – small farms were either statically more efficient (so land was being shifted into them by market forces such as sale and tenancy and/or by land reforms which 'stuck' ex post in the marketplace), or were dynamically becoming relatively more efficient.

Alternative explanations, commonly advanced for falling mean farm size, are unconvincing. Rural population growth, with non-partible inheritance, increases the number of owned farmholdings. However, if larger farm size is efficient (or becoming more so), one would expect many new owners, inheriting increasingly subdivided and tiny holdings, to sell, rent, or otherwise transfer and amalgamate them, so that land was increasingly operated in large holdings.

Technical progress in agriculture decreases the operated area from which a given household can achieve a given total household income (or a given proportion of it), but that does not explain why land owners and operators might increasingly choose smallness, unless it is efficient, or becoming more so. Of course land and other factor markets work imperfectly, and land laws constraining tenancy, sales, or farm size may be (partly) enforced. However, it is implausible -outside a Stalinist system - that low or falling levels of small-farm efficiency, relative to large farms, are consistent with long-term high and rising proportions of farmland in smallholdings.

Tables 1 and 2 (see pages 83 – 85) show such high and rising proportions in a very large majority of developing countries. Table 1, based on data so far released from FAO's 1990 and 2000 World Censuses of Agriculture, covers all countries with such data, with over 100,000 ha of farmland, and with more than one set of estimates of distribution of holdings and farmland by farm size groups between 1985 and 2003. In this period, accelerated

globalisation and commercialisation were allegedly shifting competitive advantage, even capacity to survive, from small to large farms. Yet in Table 1 (A) - for only eight developing countries, but including some with extensive agricultural area (Ethiopia, India, Pakistan, Thailand) - seven countries show a rise in the proportion of farmland in the lowest two size-categories of operation.<sup>31</sup> The changes in the proportions of area (and holdings) in different farm-size groups in these eight developing countries since 1985 are prima facie evidence against the view that globalisation, or anything else, made small farms less competitive or survivable. Note that the limited data for (five) developed countries show, if anything, declines in the proportion of farmland in the smaller size-groups.

Table 2 allows a longer view, for more developing countries, over Agricultural Censuses from the 1970, 1980 and 1990 rounds (in practice, from 1969 to 1993). These data are not yet available for the 2000 round of agricultural censuses, so they may exclude the impact on farm size of most post-1990, accelerated farm commercialisation and globalisation; but Table 1 showed that this was at least consistent with falling farm size. Care is needed in interpreting the data – wars and other sources of non-comparability abound – but the message from two columns of Table 2 is unmistakable. “Median size for number” is the size of the median holding, with all farms ranked in order of area. If instead we rank all farmed hectares, starting with each of the hectares in the largest holding and ending with those in the smallest, “median size for area” is the size of the holding in which the “median hectare” is located. The vast majority of successive Agricultural Censuses in both Asia and Africa between 1960 and 1990 show steep or very steep falls in both median farm size for number and median farm size for

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<sup>31</sup>The exception is Ethiopia, where the proportion of (private) land in holdings below 1 ha fell from 1989-82 to 2001-02. Continuing redistribution of collective and State lands after the 1989-92 Agricultural Census (in conjunction with population growth) raised private farm area 2.3-fold, but the number of holdings only 1.8-fold, so that many holdings in the smallest size category could be enlarged. Even in Ethiopia, the proportion of land in holdings below 5ha fell between successive agricultural censuses; the falling proportion of land in holdings below 1 ha was more than offset by the rising proportion of land in 1-5 ha holdings.

area. Thus a large and growing proportion of farmland is being cultivated in small holdings; and a large and growing proportion of farm operators is small.<sup>32</sup> Why is this happening?

First, there is no production-related reason why it should not. There is neither theory, nor a weight of evidence from developing countries, that suggests any of the following: economies of scale (output rising more than 1% when all producer inputs rise 1%); unit production costs falling as farm scale increases; or falling unit production costs as farm size (area) rises. A few studies in developing countries find significantly non-constant returns or costs, but in most such cases either returns increase (or costs decrease) uniformly as farm size falls, or there are increasing returns to farm size only up to a very small threshold level of holding size (say 0.5 or 1 ha) and mildly decreasing returns thereafter. Perhaps most important, a large balance of evidence, though not all, favours the existence of an “inverse relationship” between farm size and yield-per-hectare in developing-country agricultures.<sup>33</sup> Though this predicts, and in some sense “justifies”, the observed shift towards smaller farm size - especially where much land is concentrated in large farms - it tells us nothing about efficiency or economies/diseconomies of scale, any more than does the similarly large balance of evidence of a direct relationship between farm size and yield-per-labour-hour. For reasons discussed in the next paragraph, small farms are choosing to farm given areas with more labour and less capital than otherwise similar large farms. Given that both large and small farms select from the techniques and crop-mixes likely to be efficient in developing rural areas, this means higher average yields (and probably average productivity of capital) for smaller farms, and higher average labour-productivity for large ones.

Second, however, there is a credible account of transaction costs that explains the evidence in the above tables, and predicts small farms in developing countries (and large farms in developed countries) (see Eastwood et al., circulated). Unit transaction costs associated with labour search, supervision and screening normally decrease as farm size falls, because household/family members are a larger part of the workforce, because there are more

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<sup>32</sup> This is in sharp contrast to the trends in developed countries shown in Table 2. There, the size of farm containing the ‘median hectare’ is not only larger than in developing Asia or Africa, but (in contrast to these) is falling in most cases, often sharply.

<sup>33</sup> H. Binswanger, K. Deininger & G. Feder in *Handbook of Development Economics*, vol. IIIB (ed. J. Behrman & T. N. Srinivasan), North Holland, 1996; IFAD (2001), ch. 5; A. Berry and W. Cline, *Agrarian Structure and Productivity in Developing Countries*, Baltimore: Johns Hopkins, 1979; Booth and Sundrum, op. cit., 1985; Eastwood, Lipton and Newell, forthcoming Lipton, *World Development*, 1993.

household/family members to supervise each unit of hired labour input,<sup>34</sup> and because the farm operator has a smaller space over which to supervise. On the other hand, unit transaction costs associated with capital acquisition and use decrease as farm size rises: a loan of \$1000 costs less to negotiate than ten loans of \$100, and a tractor is somewhat cheaper to manage and schedule on a large holding than on many small ones. Therefore, where incentives lead farmers to choose high labour/capital ratios – in developing areas with initial mass poverty and, increasingly, land and/or water constraints in developed countries - smallness has net advantages because it cuts transaction costs associated with labour. Where farmers choose low labour/capital ratios – in developed countries where labour, especially rural labour, is more costly relative to capital, so that cutting unit transactions costs associated with capital matters more than cutting those associated with labour - largeness has net advantages because it cuts transaction costs associated with capital. This is consistent with the data in tables 1 and 2, and helps account for the tendency of farm size to be higher in developed than in developing countries. One needs, to factor in the effects of (a) ‘colonial land grab’ in creating and perpetuating above-optimal farm size in Latin America, Southern (and parts of Eastern) Africa, and plantation regions of the Caribbean and small parts of rural Asia, and of enforces State and collective farming in (more briefly) over-enlarging farms in communist agricultures; (b) land reform, partly to correct this, reducing median farm size in big areas of Latin America and Asia (and in transitional economies) – an effect far larger than suggested by popular accounts of the evasion and general unsuccess of such reforms.

A further transaction-cost effect, favouring small farms in early development and large farms later, concerns the transaction cost of disposing of output. There are economies of scale, off-farm, in processing and transporting cash crops. These need not be translated into much higher distribution costs for small farms (see below), but there are costs of transactions and/or intermediation if it is to be avoided. On the other hand, if self-consumption is a large part of total farm output, small farms have several transactions-cost and associated advantages over large ones. In farming, a household with a small farm escapes – as a large commercial farm operator does not – costs of purchasing much of its own farm needs, and also costs of marketing its product, in both cases especially if that product is a staple, where transport costs for marketed products are typically large relative to farm value-added. Large farms also incur

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<sup>34</sup> M. Taslim, 1989. ‘Supervision problems and the size-productivity relation in Bangladesh agriculture’. *Oxford Bull. Economics and Statistics*, 51.

price risk, as self-consumers do not, or to a much smaller extent. More subtly, as hypothesised by Srinivasan and later established empirically by Barrett, staples deficit farms reduce price risk by expanding production (because expansion cuts the effect on them of consumer price rises), while staples surplus farms increase that risk (because expansion raises the impact on them of producer price falls). These effects renders unit transactions costs likely to rise with farm size in rural areas where self-consumption is a big part of output, and to fall with farm size where marketings are overwhelmingly predominant in output – just as differential factor-specific transaction costs render total unit transaction costs likely to rise with farm size in rural areas where conditions favour techniques and crop-mixes with high labour/capital ratios, and to fall with farm size where low ratios are favoured.

But do liberalisation/globalisation processes undermine the pressures to small farms from transactions-cost theory and poverty-reduction processes? The data of Tables 1 and 2 suggest, but do not prove, that this undermining has, at least so far, not been predominant. However, it is not absent. The new institutions of farm-product exchange - supermarkets, national and foreign; grades and standards, often private ones, affecting process (e.g. pesticide application, child labour) as well as product; large horticultural export buyers – tend to favour overview, bulking-up and processing at a fairly large scale. Such institutions have spread since the mid-1980s in the developing world, far faster than historical precedent from the developed world would have led us to expect - first in Latin America and SE Asia, but later in China, Southern Africa, and recently some other parts of Africa and of South Asia. Some of these places include areas of mass dollar poverty. Do these new institutions of globalisation seriously impede a small-farm path to poverty-reducing agricultural development? Many papers identify possible paths, and point to success stories, though stressing the difficulties. The great successes in (for example) micro-scale sweet limes and pomegranates, following the spread of micro-drip irrigation in Western India, is only the most recent of many illustrations that, with appropriate initial information and support, extremely small farmers can hook onto, and meet standards for, complex and distant markets. The problems of intermediation between small farms and supermarkets, export horticulture, etc. are perhaps not so different from past, and often solved, problems of intermediation between small growers of tea, sugar, rubber and cotton and large processors, marketers and final users.<sup>35</sup>

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<sup>35</sup>T. Reardon, J. Berdegue & J. Farrington, 'Supermarkets and farming in Latin America: pointing directions for elsewhere?', *Perspectives*, 81, Dec. 2002; T. Reardon, T. J-M. Codron, L. Busch, J. Bingen & C. Harris, 'Global Change in Agrifood Grades and Standards:

These intermediation problems do, however, threaten the advantage of smallness in agricultures with high labour/capital ratios, viz. that it cuts the (transaction) cost of labour search, screening and supervision (see sec. III). That advantage can be outweighed by new requirements (e.g. grades and standards) for selling to wider markets, in commercialised or globalised agriculture. Such requirements create, for the (wholesale/supermarket) buyer, an extra unit cost of ensuring, say, non-excessive pesticide application, or for absence of child labour (e.g. to meet supermarket standards). The extra cost to the buyer of achieving a given degree of confidence that, say, pesticide use on 100,000 kg of a vegetable is not above a certain level is normally less if the purchase is from one big farm rather than 100, let alone 10,000, small ones. That excess may be more than the cost reduction from small-farm procurement due to the large farm's extra unit cost of labour supervision in direct production processes (ploughing, weeding, water management, harvesting and so on). Higher standards-ensuring transaction costs to a buyer can outweigh the lower unit costs of the small/family units in supervising direct production.

There are two ways to tackle this in modern enlarging, liberalising and globalising farm markets - and both call up analogies to earlier concerns that small farmers would be unable to compete in crops such as tea, rubber and sugar, requiring standardisation of product quality and timing by farmers, for synchronised and rapid crop collection and processing by or for wholesalers. First, intermediation: as has happened with tea, cotton, rubber and sugar over huge areas, intermediaries can find it profitable to check that grades and standards are attained by smallholders' products (with otherwise lower direct unit costs), and then to bulk up approved products for sale to the large buyer. Second, internalisation: as happened with micro-irrigated horticulture in Western India, smallholders may be able to acquire and internalise, on terms competitive with large farmers, the information, incentives and methods to supervise the new requirements of buyers for larger markets, so that buyers can check them

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Agribusiness Strategic Responses in Developing Countries', *International Food and Agribusiness Management Review*, 2(3), 2001; T. Reardon, S. Rozelle, P. Timmer & Honglin Wang, 'Emergence of supermarkets with Chinese characteristics', *Development Policy Review*, 2004; T. Reardon, P. Timmer, C. Barrett & J. Berdegue, 'The rise of supermarkets in Africa, Asia and Latin America', *American J. Agricultural Economics*, 85, 2003; Binswanger, Deininger and Feder 1996, loc. cit.; IFAD 2001, loc. cit., ch. 5; *Creating New Markets for the Poor with Micro-irrigation Technologies in Maharashtra, India: Final report to USAID*, International Development Enterprises (India), New Delhi, 2004.

with a lighter (and cheaper) hand. With internalisation, new markets with their associated standards can in principle favour smallness: pesticide and size control could have lower unit costs if done by motivated family farmers or closely supervised hired workers on small farms, rather than by employees and/or machinery or chemical tests applied by buyers or large farmers. With intermediation, new markets need not disfavour small farms; intermediation costs can be less than small-scale supervision savings.

While there are many instances of successful internalisation and/or intermediation - allowing smallholders to remain competitive in wider markets as supermarkets, grades and standards, and wholesaling to export horticulture spread - in East and South Asia (especially China and India), this appears to be much rarer, especially for fruit and vegetable markets, in Latin America and sub-Saharan Africa (Reardon et al). In some Latin American cases such as Chile, this may be because development has already raised capital/labour ratios enough to undermine the advantages of small farms. This is unlikely to be the explanation in sub-Saharan African countries, which are mostly starved of capital and with abundant labour at very low productivity or even unemployed. This may also be, or may become, relevant for smallholder involvement in poverty heartlands in South and Inner Asia, if there is a real prospect to enter into wider markets for cash crops.

The death of small farms has often been predicted. The evidence from the only source of large-scale, comparative data, the FAO World Census of Agriculture, is that, if anything, small farms are occupying increasing shares of farmland in developing countries, even during the period of (and in the areas exposed to) intense liberalisation and globalisation. Yet some of the institutions that grow alongside liberalisation and globalisation, unless accompanied by internalisation or intermediation, do reduce and can reverse the competitive advantages of small farms. The policy issue is what governments in developed and developing countries can and should do about this. For developed countries, accelerated reduction of farm tariff and subsidy, and other support is the obvious answer. It is less obvious that this will not favour large (as against small) farmers in developing countries. I know of no theory or evidence that explores this. However, theory generally concludes that liberalisation and globalisation, by raising demand for products incorporating a country's relatively plentiful factor, shifts income to labour – and to small farmers with higher labour/capital ratios – in developing countries. For this reason (and because of the effect on those with high ratios of food to total

consumption, normally the poor) I am doubtful about the suggestion, on its surface attractive, that developing countries should protect their agricultures against even subsidised competition from OECD. A better option is to provide far more rural and agricultural goods that are undersupplied by the market. This extends well beyond pure public goods. It includes (at least initially) support for the institutions to intermediate between smallholders and the larger national and global economy, and to internalise with smallholders the information and training required. It also includes agricultural research, roads, and irrigation in many cases. That seems a preferable option for developing-country governments faced with OECD countries that preach (and impose) liberalisation and globalisation, but practise the opposite. In such a context, however, even though small farmers have shown they can survive and grow, such a second best, for the world's poor, is very second indeed.

We also may need to ask: what are (region-specific) conditions where, to cut mass poverty via small farms, 'best strategy' is extra production for (a) 'subsistence'/extended subsistence, (b) local or nearby markets, (c) urban domestic markets, (d) exports; and extra production of (A) main staples, (B) fruit and vegetables, (C) beverage and fibre crops, (D) animal products? In practice, policymakers (and the set of small farmers, and like many individual small-farm households) mix strategies, and answers to the 'for' and 'of' questions interact, but – except that (a) induces (A) – most combinations are feasible. The outcomes, and the correct emphases, depend partly on evolving global and national market incentives and transport costs, but also on public policy, including both macro-policy and policies on irrigation, research, transport, and regional allocation of infrastructure and current public spending.

**Table 1. Small and medium farms: Agricultural censuses from 1985**

(Countries with &gt; 100,000 ha farmland &amp; censuses in 1990 and 2000 rounds with % area and holdings by size groups: FAO website))

**Table 1, Part A: Africa, Asia, and Central and South America**

| Country  | Year  | Holdings (m) | Ha (m) | < 1 Ha |       | 1–2 Ha |       | 2–5 Ha |        | 5–10 Ha |        | 10–20 Ha |      |
|----------|-------|--------------|--------|--------|-------|--------|-------|--------|--------|---------|--------|----------|------|
|          |       |              |        | %hdgs  | %ha   | %hdgs  | %ha   | %hdgs  | %ha    | %hdgs   | %ha    | %hdgs    | %ha  |
| Colombia | 88    | 1.45         | 36.03  | 14.1   | 0.3   | 21.5*  | 1.4*  | 13.0*  | 1.9*   | 16.0    | 4.4    | 12.6     | 7.0  |
|          | 01    | 2.02         | 50.71  | 18.1   | 0.4   | 23.0*  | 1.7*  | 11.7*  | 1.8*   | 14.4    | 4.0    | 11.1     | 6.2  |
| Egypt    | 90    | 2.91         | 3.30   | 60.6'  | 18.5' | 29.3'  | 30.4' | 6.8,   | 15.9,  | 2.1,    | 10.1,  | 0.9      | 9.8  |
|          | 99/00 | 3.72         | 3.75   | 81.1'  | 33.5' | 13.9'  | 24.0' | 3.3,   | 13.2,  | 1.2,    | 9.9,   | 0.5      | 8.8  |
| Ethiopia | 89/92 | 6.09         | 4.87   | 72.1   | 36.9  | 20.2   | 25.2  | 7.4    | 25.4   | 0.3     | 2.2    | ..       | ..   |
|          | 01/02 | 10.76        | 11.05  | 62.8   | 27.1  | 24.3   | 33.3  | 11.9   | 32.6   | 0.9     | 5.5    | ..       | ..   |
| India    | 86    | 97.16        | 164.56 | 57.8   | 13.4  | 18.4   | 15.6  | 13.6'' | 22.3'' | 8.1''   | 28.6'' | ..       | ..   |
|          | 91    | 106.64       | 165.51 | 59.4   | 15.0  | 18.8   | 17.4  | 16.8   | 30.9   | 4.4     | 19.3   | ..       | ..   |
|          | 95/96 | 115.58       | 163.36 | 61.6   | 17.2  | 18.7   | 18.8  | 14.8   | 31.5   | 3.7     | 17.7   | 1.0      | 9.2  |
| Nepal    | 92    | 2.74         | 2.60   | 69.8   | 30.5  | 19.4   | 27.6  | 9.4    | 28.0   | 1.2     | 8.1    | ..       | ..   |
|          | 02    | 3.34         | 2.65   | 74.7   | 38.9  | 17.6   | 29.8  | 6.9    | 24.0   | 0.6     | 5.3    | ..       | ..   |
| Pakistan | 90    | 5.07         | 19.15  | 27.0   | 3.7   | 20.4   | 7.6   | 37.5   | 27.6   | 12.3    | 21.6   | 4.7      | 15.8 |
|          | 00    | 6.62         | 20.41  | 36.1   | 5.8   | 21.5   | 9.7   | 28.1   | 27.9   | 8.8     | 19.1   | 3.9      | 16.3 |
| Panama   | 90    | 0.21         | 2.94   | 46.7   | 0.5   | 11.4   | 0.9   | 13.5   | 2.7    | 7.6     | 3.5    | 7.1      | 6.7  |
|          | 01    | 0.24         | 2.77   | 52.7   | 0.6   | ..     | ..    | ..     | ..     | ..      | ..     | ..       | ..   |
| Thailand | 88    | 4.88         | 17.46  | 14.4   | 2.5   | 12.3^  | 4.2^  | 59.7^  | 54.6^  | ..      | ..     | ..       | ..   |

|          |    |      |       |      |     |       |       |       |       |       |       |      |      |
|----------|----|------|-------|------|-----|-------|-------|-------|-------|-------|-------|------|------|
|          | 93 | 5.65 | 19.00 | 19.7 | 3.0 | 13.2< | 4.6<  | 45.0< | 36.1< | 17.2< | 32.0< | ..   | ..   |
| Turkey   | 91 | 3.97 | 23.45 | 15.9 | 1.4 | 19.0  | 4.3   | 32.1  | 16.5  | 18.0  | 19.0  | 9.7  | 21.0 |
|          | 01 | 3.02 | 18.43 | 15.5 | 1.3 | 17.9  | 4.0   | 31.5  | 16.0  | 18.5  | 20.7  | 10.8 | 23.5 |
| Uruguay> | 90 | 0.05 | 15.80 | >    | >   | 8.1   | ----- | 0.1   | 12.1  | 0.3   | 13.2  | 0.6  |      |
|          | 00 | 0.06 | 16.42 | >    | >   | 10.9  | ----- | 0.1   | 12.5  | 0.3   | 12.5  | 0.6  |      |

Notes: Holdings without farmland (Colombia 1988; Egypt, Nepal 2002; Panama 2001), area in them (Egypt), and government holdings (Pakistan) omitted. "m" = million.

\*: 1-3 ha and 3-5 ha, not 1-2 ha and 2-5 ha    ′: < 0.8 ha and 0.8-2.1 ha    ′: 2.1-4.2 ha and 4.2-8.4 ha    ′: 8.4-21 ha. ′′: 2-4 ha and 4-10 ha    ^: 1-1.6 ha and 1.6-6.4 ha    <: 1-1.6 ha, 1.6-4.8 ha and 4.8-9.6 ha    >: excludes holdings below 1 ha

**Table 2. Size (hectares) of (a) median farm and (b) farm with median hectare: Developing-country trends<sup>1</sup>**

| Country    | Date    | Med. Farm | Med. Ha |  | Country             | Date | Med. Farm | Med. Ha |
|------------|---------|-----------|---------|--|---------------------|------|-----------|---------|
| Africa     |         |           |         |  | <b>(Dvpg. Asia)</b> |      |           |         |
| Congo DR   | 1970    | 1.2       | 1.8     |  | Turkey              | 1980 | 3.6       | 13.0    |
|            | 1990    | 0.39      | 0.76    |  |                     | 1991 | 3.0       | 13.0    |
| Ethiopia   | 1977    | 1.0       | 2.3     |  |                     |      |           |         |
|            | 1989/92 | 0.54      | 1.3     |  | S/Cent. America     |      |           |         |
| Lesotho    | 1970    | 1.5       | 2.6     |  | Brazil <sup>3</sup> | 1970 | 0.4       | 520     |
|            | 1990    | 1.1       | 2.4     |  |                     | 1980 | 9.8       | 730     |
| Malawi     | 1969    | 1.2       | 2.1     |  |                     | 1985 | 8.6       | 670     |
|            | 1993    | 0.52      | 1.8     |  | Panama              | 1971 | 3.6       | 86      |
|            |         |           |         |  |                     | 1981 | 1.7       | 95      |
| Dvpg. Asia |         |           |         |  |                     | 1991 | 1.2       | 110     |

|                       |      |      |     |  |  |          |      |     |     |
|-----------------------|------|------|-----|--|--|----------|------|-----|-----|
| India                 | 1971 | 0.98 | 5.5 |  |  | Paraguay | 1981 | 8.2 | --- |
|                       | 1977 | 0.85 | 4.8 |  |  |          | 1991 | 6.9 | --- |
|                       | 1991 | 0.74 | 3.4 |  |  | Peru     | 1972 | 1.8 | --- |
| Indonesia             | 1973 | 0.56 | 1.8 |  |  |          | 1994 | 2.5 | --- |
|                       | 1993 | 0.54 | 1.8 |  |  |          |      |     |     |
| Korea, Rep.           | 1970 | 0.71 | 1.2 |  |  |          |      |     |     |
|                       | 1980 | 0.75 | .81 |  |  |          |      |     |     |
|                       | 1990 | 0.81 | 1.4 |  |  |          |      |     |     |
| Nepal                 | 1972 | ---  | 2.4 |  |  |          |      |     |     |
|                       | 1982 | 0.49 | 2.8 |  |  |          |      |     |     |
|                       | 1992 | --   | 1.6 |  |  |          |      |     |     |
| Pakistan <sup>2</sup> | 1980 | 2.9  | 7.8 |  |  |          |      |     |     |
|                       | 1989 | 2.1  | 7.2 |  |  |          |      |     |     |
| Thailand              | 1978 | 2.7  | 5.8 |  |  |          |      |     |     |
|                       | 1993 | 2.4  | 5.5 |  |  |          |      |     |     |

Source: FAO agricultural censuses, rounds for the 1970s, 1980s, and 1990s, at [www.fao.org/es/ess/census/gini/table2.asp](http://www.fao.org/es/ess/census/gini/table2.asp).

Notes: Countries with less than 25,000 hectares of farmland are omitted. The column headed "Med. Farm" shows the "median size for number," that is, hectare size of the median farm ranked by size. "Med. Ha" shows the "median size for area," that is, hectare size of the farm containing the "median hectare" of farmland, with hectares ranked in order of the size of the farm where they are found.

Notes (from original FAO source):

<sup>1</sup> Includes holdings without land [usually zero or very few]. Includes only countries with data for the 1990 census round and for the 1980 and/or 1970 census rounds.

<sup>2</sup> Data exclude 149 Government holdings with 103 035 ha for 1989, and 192 Government holdings with 49 995 ha for 1980.

<sup>3</sup> Due to lack of data for 1986–95, data from the 1985 Agricultural Census are presented

