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Something of a Paradox:
The Curious Neglect of Agriculture in Development[♠]

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Abstract

This paper argues that investment in agriculture has a large and continuing developmental importance in terms of both economic growth and poverty reduction. Moreover, targeted public resources have proven to be indispensable in achieving these results. Both arguments are supported with novel analyses which update and strengthen the traditional case for agriculture-led development with public-sector involvement. But despite the strong case for agriculture-led development strategies, the authors find that over the last three decades the financial resources allocated towards this sector have strongly declined. It is suggested that a shift towards new development paradigms since 1980 might be a significant explanation for this apparent Agricultural Paradox. This conjecture is tested with data on market reform impacts, PRSP contents and analyses of the intellectual resources devoted to the study of agriculture in development by both practitioners and researchers. The authors conclude with a critical discussion of these disturbing trends.

[♠] This paper has benefited from extensive discussions with Andrew Dorward, Tim Foy and Rachel Slater, but we are responsible for all opinions and any errors.

1. **Introduction**

This paper is an overt essay in persuasion. We attempt to persuade readers of the inefficient and systematic bias in the allocation of developmental resources over the last three decades, with the bias going against the agriculture sector. The bias is inefficient because no currently advanced country of substantial size became advanced without the agriculture sector achieving substantial productivity gains in the early stages of development. The bias is systematic because it has fundamental institutional causes grounded in both the political economy of developing economies and in theoretical views held within the development profession. In this paper we will make the case for the inefficiency of the bias, explore the systematic institutional causes of the bias, and strongly argue for its correction.

Numerous authors have observed this pervasive bias against agriculture. Biases against rural development were part of the backwash effects identified by Myrdal as early as 1957, by World Bank President Robert McNamara in several speeches in 1971, by Michael Lipton, who popularised the term “urban bias” in 1977, and in the widely read policy analyses of Little, Scitovsky and Scott (1970), Krueger, Valdes, and Schiff (1991) and Binswanger and Deininger (1997). Nevertheless, the bias against agriculture persists in contemporary development policy, a fact noted by other more recent works, referenced below. The objective of this paper is to update and synthesize these claims into a cohesive representation of the long, persistent and extremely harmful neglect of agriculture. We will use theoretical arguments and empirical analyses (using both primary and secondary data) to argue that investments in agriculture are both pro-growth (section 2) and pro-poor (section 3). Moreover, successful agricultural development requires active public sector involvement, especially at the initial stages. Yet despite this, we note that agricultural development has been increasingly under-funded over the last three decades (section 4). This paradox – the neglect of agriculture despite its obvious importance in economic theory and historical experience – is then explained in terms of a variety of biases: biases with LDC governments, aid donors and in OECD governments in general, and also within major developmental institutions such as The World Bank and the UN (Section 5). We conclude the paper with a critical discussion of recent developments in the bias against agriculture (section 6).

Several features of our approach should be noted at the outset. First, we paint our picture of the neglect of agriculture with a broad brush. With respect to public policies, for example, we do not discuss in any detail the type of agricultural policies which should be pursued, but instead focus on the overall efforts of LDC governments and foreign aid donors, rather than on the efficacy of their policies per se.[1] Secondly, our approach is distinctly empirical, attempting to extend measurement to some novel areas. In particular, we attempt to quantify the bias in financial and intellectual resources devoted to agricultural development as well as any bias in policy practice. In addition to the usual scientific benefits incurred by the rigour of empirical analysis, we hope that by letting the numbers do the talking we may persuade non-agricultural economists that this is not simply a case of agricultural economists feeling the neglect of their pet love. On the contrary, the neglect of agriculture is inextricably linked to the neglect of the poor, of the unhealthy and the uneducated, and even to the neglect of industrial and urban development, as we demonstrate in the next section.

2. Agriculture, Industrialization and Economic Growth

No currently developed country of some size has successfully industrialized without achieving substantial productivity gains in the agricultural sector in the initial stages of development. Economic development entails a structural transformation in the composition of production, in tandem with increased urbanization. This has seldom proceeded without substantial gains in the agricultural sector at early stages of development (the only exceptions being small city states such as Hong Kong and Singapore). Those theories of growth which are most relevant and applicable to the poorest countries, such as the two-sector Lewis model, give a good indication of how the agricultural and industrial sectors interact. Lewis (1954) himself identified the rural sector as a source of “cheap” labour, in the sense that because so much rural labour is surplus, the opportunity cost of its relocation to the modern sector is low or even zero. The rural sector is also capable of providing an expanded source of loanable funds to the infant modern sector, as well as inexpensive food (which helps to keep real wage inflation low in the modern sector), increased food security and an important source of domestic demand for modern sector goods. However, we also know from the empirical work of Adelman and Morris (1997), discussed in more detail below, that the Lewis model requires an open economy setting: the agricultural sector usually has a short run comparative advantage, so that agricultural exports may provide a vital source of foreign exchange for the purchase of capital inputs into the modern industrial sector, which is usually only a sector which has a long run comparative advantage.

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[1] In addition to some of the classic studies highlighted above, there are plenty of other recent studies which engage in quite detailed cross-country policy analyses. See Byerlee et al. (2005) for a recent example.

Many theoretical economists and applied policymakers, however, have ignored or underplayed the role of agriculture in economic development. Perhaps this is not surprising since the Lewis model can easily be misinterpreted as an industrialization model, while many other prominent models in the 1950s, with varying degrees of explicitness, emphasised a Big Industrial Push as the key to successful economic development following Rosenstein-Rodan (1944).[2]

Such plans and theories not only ignore the more realistic implications of two-sector models but also much contemporary evidence. It has been well established that the advanced Western countries had comparatively high levels of agricultural productivity before and during the Industrial Revolution. Indeed, some authors claim that a Green Revolution occurred before or contemporaneously to the Industrial Revolution (Rostow, 1960; Crafts, 1985a; Allen, 1994; Overton, 1996),[3] while Adelman and Morris (1988) also present evidence that it was the strong agricultural performers in the 19th Century that subsequently developed most rapidly[4].

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[2] This is not just intellectual history, as some topical examples discussed by Easterly (2005) show. The UN Millennium Project recommended in January 2005 "a big push of basic investments between now and 2015" while its Director suggests that "[A] combination of investments … can enable African economies to break out of the poverty trap. These interventions need to be applied … jointly since they strongly reinforce one another" (Sachs, 2005:208). British PM Blair's Commission for Africa launched a report that claims that "Africa requires a comprehensive 'big push' on many fronts at once." In July 2005 the G-8 Summit similarly considered an increase in aid to Africa to finance such a 'Big Push', and celebrities such as U2 singer Bono and actress Sharon Stone have been raising the money. It is the 'lamentable return of the Big Push' (Easterly, 2005).

[3] While this claim has recently been disputed by Clark (1999), he also presents evidence that the Western countries – especially the industrial leader, Great Britain, had achieved comparatively high levels of agricultural productivity before the onset of the Industrial Revolution. Maddison (2001) provides similar evidence that the Western countries were already considerably wealthier than the rest of the world in 1800.

[4] Adelman and Morris (1988) report the following results (p. 133-146): "Great Britain, France, Germany, the United States, Canada, Japan, and Sweden . . . For these countries, a substantial period of rising labour productivity in agriculture preceded the first sustained surge of modern industrial expansion. Then, as industrialization progressed, the agricultural sector played an important role in providing labour, raw materials, and/or capital to the industrial sector in providing a market for both industrial and agricultural products . . . . . Belgium, Denmark, the Netherlands, and Switzerland . . . whose agricultural sectors were radically transformed during the last quarter of the 19th century from

In Table 1 below we present evidence compiled by Clark (1999) on total factor productivity (TFP) levels in agriculture in 1850 relative to the United Kingdom (the industrial leader at the time), as well as subsequent TFP growth in agriculture. Countries are ranked according to their initial agricultural TFP levels. Two facts should be noted. First, the top four countries in terms of initial agricultural TFP, excluding Ireland, were the first to industrialize. Second, among the late industrializers, the countries which most successfully industrialized had the highest agricultural TFP growth (Germany, Austria, Sweden, Hungary, Denmark, Switzerland). Third, the late but successful industrializers had agricultural TFP growth rates higher than the early industrializers (unsuccessful Russia is excluded from this), indicating convergence. Thus we have strong evidence from the earliest developers that reaching a comparatively high level of productivity in agriculture was a necessary condition for successful industrialization and long run development.

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extensive cultivation to the production of human capital-intensive crops for export. Export markets became even more important to agriculture than domestic markets." All these countries went on to become advanced countries relatively quickly. In contrast, the other countries in their study were relatively slow to advance (Italy, New Zealand, Norway, Spain) and many are still not considered fully advanced economies (Argentina, Russia, Brazil, India, Egypt, Burma)." Moreover, Adelman and Morris argued that land abundance was a critical factor in determining successful subsequent development among these last two sets of classes.

Table 1. Agricultural TFP levels in 1850 and subsequent TFP growth

	Country	**TFP 1850**	**TFP growth**
Early industrializers*	United Kingdom	10	0.19
	Netherlands	76	0.82
	Belgium	73	0.83
	Ireland*	67	0.36
	France	66	0.46
Late industrializers	Germany	56	1.53
	Austria	50	1.21
	Sweden	49	1.03
	Hungary	41	1.11
	Russia	34	0.34
	Denmark	n.a.	1.31
	Norway	n.a.	0.48
	Switzerland	n.a.	0.78
	Italy	n.a.	0.37
	Poland	n.a.	0.90
	Correlation (TFP, TFP growth)	-0.42	

Notes: *Ireland was an exception, in that it was not a particularly early industrializer. Ireland's productivity may nevertheless have been distorted in 1850 because of high levels of rural emigration following the Potato Famine.

Sources: TFP 1850 = Clark 1993 Table 4.1; TFP growth = Van Zanden 1991 Table 4

Of course, that agricultural development was an initial condition for successful industrialization of the now advanced economies does not necessarily imply that this conditional also holds for modern developing economies, including the so-called 'miracles'. But empirical work in the identification of the causes and patterns of both short and long run growth also consistently identifies agricultural development as an important pre-condition of structural transformation. Adelman and Morris (1967), for example, in their cross-country study of the interdependent socioeconomic determinants of growth in contemporary developing economies, found that agricultural transformation was important both in the manner predicted by Lewis and in terms of breaking down the traditional social elements of the agricultural sector.[5] But at later stages of development the formal agricultural sector continues to serve important functions in sustaining industrial development, chiefly in the manner envisioned by Lewis.

Current 'Big Push' thinking not only contradicts economic history and development theory. It also ignores much contemporary evidence on the longer-term implications of agricultural development, compiled since the early work by Ranis and Fei (1961), Johnston and Mellor (1961), Adelman and Morris (1967) and Little et al. (1970). Follow-up research has also strongly confirmed the stylized fact that agricultural development precedes and feeds industrialization. Krueger et al. (1991) and Stern (1989) have argued that successful industrializers (including the East Asian 'miracles') had only modest discrimination against the agricultural sector (which also decreased over time) and high levels of productivity growth, whereas unsuccessful industrializers often heavily discriminated against the agricultural sector through trade and pricing policies, and had agricultural growth ranging from modest to very poor indeed. Timmer (1998, 2002) and DFID (2005a) summarise the key roles that agricultural growth has in enabling broader economic growth and development to occur. These are the 'transmission mechanisms' from agricultural productivity improvements to broader growth:

- generation of additional demand for goods and services produced outside of the agricultural sector as agricultural-based incomes rise – the size of agriculture and its multiplier effects is critically important here;
- generation of savings through increased farm incomes which can then be invested both in agriculture and in other sectors, thus enabling structural transformation;
- provision of an labour force available for the industrial sector;
- provision of affordable food which allows urban areas to develop and maintain wages rates at competitive levels; and
- provision of a raw material base to support manufacturing (the processing of agricultural commodities has often been the first activity to be industrialised in many countries).

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[5] The monetization of the agricultural sector, especially, serves an institutional purpose as well as an economic one.

Empirical work clearly illustrates the importance of these links. Timmer’s (2003) analysis of the Kenyan economy showed that between 1987 and 2001, the rate of growth of the nonagricultural sector depended strongly on growth in agriculture. Non-agricultural growth increased by 30% of the agricultural growth rate in the same year, and by 10% of the agricultural growth rate in the previous year. Stern (1996) found a similar and significant relationship between growth in the agricultural and non-agricultural sectors during 1965–1980 for a large number of developing countries. Bravo-Ortega and Lederman (2005) econometrically examine a sample of 128 developing countries for the 1960-2000 period and find that they have experienced positive effects from growth in agricultural GDP to the rest of the economy. This confirms Timmer’s (2002) report of positive correlations of agricultural growth and growth of national GDP per capita, but Bravo-Ortega and Lederman (2005) additionally employ various estimation methods and tests, confirming that causality runs from the agricultural sector to the rest of the economy. They also consider a broader measure for welfare incorporating GDP, the average income of the poor, macroeconomic volatility and environmental measures (air pollution, water withdrawals and deforestation). They find that in developing countries, a one per cent increase in agricultural GDP causes a welfare increase of more than one percent, varying over regions (and depending on the weight given to welfare components) between 1.15 % and 1.98 %.

Much of the previous cross-country work on agriculture and development is limited to studies on European development (by economic historians) or early post-colonial development (e.g. by Adelman and Morris (1967) for the period 1950-1963) and fairly conventional (linear) cross country studies. We therefore revisit the issue of whether substantial agricultural development is a necessary condition for sustainable development overall using a relatively novel technique. Rather than explaining growth in a linear regression model, we analyse the role of agricultural development by examining whether growth accelerations are sustained or not.

There are a variety of measures of agricultural and industrial development, but very few which are simultaneously comparable. Ideally we would like to measure agricultural, industrial and services output per capita, but labour force data on a sectoral basis is seriously incomplete for many countries. We therefore chose to measure “urban output per capita” defined as services and industrial output divided by the urban population, and “rural output per capita”, defined as agricultural output divided by the rural population. Both variables are measured in 1985 PPP dollars from the Summers and Heston (2002) tables, Version 6.1.

Clearly the measures in question are not perfect. For example, not all rural inhabitants work in agriculture, and the variables do not, strictly speaking, reflect labour productivity differences. However, it seems quite unlikely that these measurement errors will systematically bias our interpretations[6] so that we can reliably use these measures as broad indicators of the welfare and the productivity of rural and urban populations in an event analysis. The events we investigate are aggregate GDP growth accelerations, as identified by Hausman et al. (2004). Acceleration years are defined as those in which the growth rate increased by 2 percentage points and is sustained at 3.% p.a. or more for 7 years. Moreover, post-acceleration output must always be higher than the pre-acceleration peak. Among other things, Hausman et al. (2004) use this data to investigate whether accelerations are sustained or not, but they do not consider whether the sources of accelerations were urban/industrial or rural/agricultural.

In Table 2 we record our findings. The table groups countries according to their acceleration experiences, or what Adelman and Morris would term ‘alternative development paths’. The columns indicate the year of the aggregate output acceleration identified by Hausman et al. (2004), the aggregate average GDP per capita growth rate in the subsequent 20 years, average urban and rural output per capita growth in the 15 years around the acceleration, and rural output per capita at the time of acceleration.

The question we want to answer is ‘Is there a relationship between rural output per capita (levels and/or growth) and the sustainability of growth accelerations?’ To investigate this we group countries according to various dimensions of the initial level of rural output per capita, its growth rate, and whether or not accelerations were sustained or not. We also add two separate resource-rich groups. We discuss some particular cases below, but additional comments can be found in the last column in Table 2.

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[6] Two type of biases could be induced: biases in levels and biases in growth rates. Biases in levels are likely to exist because of different definitions of urban populations (minimum population sizes for the definition of urban centres differ across countries to some extent), and structural differences (some agricultural countries may have reasonably large rural service centres). The latter could also affect growth rates. If during transformation rural agricultural workers move to the rural services or light manufacturing sectors without actually becoming urban residents, then rural output per capita growth could be understated and urban output per capita growth would be overstated. However, it seems unlikely that that structural transformations are so significantly incommensurate to urbanization rates that these biases seriously affect our results. There are other biases too – such as the exclusion of informal markets – but these apply to all data, and not just the sectoral decompositions documented here.

Table 2. Rural development and the sustainability of growth, 1960 to the present, for 34 growth accelerators

Country	Year of acceleration (t)	Growth in aggregate GDP per capita (t,t+20)	Growth in urban output per capita (t-7,t+7)	Growth in rural output per capita (t-7,t+7)	Rural output per capita (1985 PPP$) (t)	Comments
Group 1. Resource rich countries in which the rural sector did well						
Group 1. Starting from low levels, with very strong rural output growth and sustained overall growth						
Tunisia	1968	4.2	3.0	4.4	705	Reasonable starting level of productivity accompanied by high levels of agricultural growth over several years.
China	1978	6.2	3.0	3.5	320	Growth in agriculture very high and was a major source of poverty reduction and reducer of regional inequality.
Korea, Rep.	1962	6.0	3.0	5.0	833	Reasonable starting level of productivity with high, sustained levels of rural output growth throughout industrialization.
Taiwan, China	1961	7.1	4.3	6.7	688	Data for Taiwan only relate to estimates based on sectoral shares; Data show similar pattern to Korea.
Group 2. Starting from low levels, with modest to strong rural output growth and mostly sustained overall growth.						
Egypt, Arab Rep.	1976	3.9	3.0	0.2	930	Growth around acceleration quite low, but solid growth before and after, and reasonably high initial level of rural output.
Dominican Rep.	1969	3.2	1.2	3.4	629	Mostly strong rural output growth throughout, although industrialization faltered in 1980s.
Syria	1974	3.4	4.4	5.4	797	Volatile rural sector, but with reasonably high initial productivity and strong average growth.
India	1982	3.9	3.1	1.2	579	Limited growth on the back of Green Revolution (mostly north-western states) but sustenance of growth mostly due to other sectors; poverty reduction quite low.
Pakistan	1979	2.8	2.9	1.9	454	Solid growth before 1990s when industrial growth collapsed; poverty reduction quite low.
Sri Lanka	1979	2.8	2.7	1.0	607	Fitful growth in agricultural sector, although rural output per capita was high and poverty quite low at time of acceleration.
Group 3. Starting from low levels, with modest, volatile or unsustained rural output growth and unsustained overall growth						
Algeria	1975	1.3	9.3	3.8	633	One year of large rural output growth, one year of large industrial growth.

Cameroon	1972	1.2	-1.9	3.2	662	Strong growth in rural output for 7 years after acceleration (4.69%), but not much in industry.
Chad	1973	0.4	-2.2	4.5	483	Several bumper crops in agriculture which were not sustained (growth close to 20%); no growth in industry
Ghana	1965	1.0	4.8	6.0	474	Reasonable growth in agriculture in 1960s before macroeconomic collapse in 1970s
Jordan	1973	2.2	2.9	6.3	473	Very volatile rural output growth.
Lesotho	1971	2.0	13.3	1.2	312	Starkly negative growth prior to acceleration (-8.4% in 7 years prior), and then a few bumper crops; volatile growth path.
Malawi	1970	1.2	0.2	3.0	208	Very low rural output per capita, and rural output growth volatile and never sustained.
Mali	1972	0.2	2.4	0.7	595	Low agricultural productivity and only a few bumper crops.
Rwanda	1975	0.1	4.2	-0.6	439	Low initial rural output and negative growth in 7 years before acceleration (-2.05), for several years after acceleration, which preceded decline in industrial output
Trinidad & Tobago	1975	1.4	3.8	2.5	644	Quite low initial rural output levels and very volatile growth.
Uganda	1977	2.3	1.6	0.2	487	Low rural output levels, and no real agricultural productivity growth; acceleration was caused by large but unsustained industrial growth
Zimbabwe	1964	4.2	4.5	8.3	331	Low initial level of productivity, but despite several years of strong growth both urban and rural output collapsed; growth also volatile.
Group 4. Starting from initially high levels of output, with sustained growth						
Mauritius	1983	4.3	4.0	-0.3	1680	Some rural output growth accompanying 5 years after acceleration.
Malaysia	1970	4.1	2.4	2.8	1287	High initial level of productivity and strong growth throughout industrialization period.
Chile	1986	4.0	2.6	6.1	2683	Productive agriculture to begin with and very high growth during and throughout acceleration.
Group 5. Starting from initially high levels of output, without sustained growth						
Paraguay	1974	2.5	3.7	1.6	1822	Solid rural output growth and reasonably high productivity before 1981, and volatile since.
Uruguay	1974	2.0	2.4	1.3	7528	Quite high agricultural productivity levels, but no real growth;

						industrial growth not sustained.
Brazil	1967	4.1	3.6	4.1	957	Strong growth in both sectors prior to collapse in early 1970s. Growth acceleration was considered anti-poor.
Colombia	1967	2.4	2.4	2.7	1758	Modest balanced growth in both sectors.
Ecuador	1970	2.8	4.3	1.5	870	Weak growth in agriculture (-0.72% in 7 years prior to acceleration); industrial output ended in abruptly in 1976.
Group 6. Resource rich countries in which the rural sector also developed rapidly.						
Botswana	1969	7.4	-4.6	4.5	466	Rural output was very low to begin with, but experienced high growth subsequently.
Indonesia	1967	4.7	3.2	0.0	561	Acceleration was due to industrial growth including oil production, but growth in rural output from 1976 to 1998 was high (3.1%): Indonesia translated petroleum revenues into poverty-reducing investments in the rural sector.
Group 7. Resource rich countries in which the rural sector did poorly.						
Congo, Rep.	1978	2.5	4.2	4.1	334	Growth collapsed in rural output per capita in the 14 years after acceleration was a mere 0.26%. Industry collapsed in 1985.
Nigeria	1967	0.4	2.7	-0.7	555	Low initial rural output levels and negative rural output growth around acceleration.
Correlation with GDP per capita growth	--	*1.0*	*-0.08*	*0.34*	*-0.05*	Aggregate growth in (t,t+20) period only positively correlated with rural output growth in (t-7,t+7) period.

The data quite strongly confirm previous findings on the important role of agricultural growth in successful transitions. In the first group are three countries regarded as economic miracles (South Korea, Taiwan and China), and Tunisia, which has also performed strongly in the last thirty years. These countries had reasonable rural output levels at the time of their takeoffs as well as very strong and sustained rural output growth. In the last 20 years, China stands out as the latest and perhaps greatest miracle. Rural output growth in China was actually stronger than industrial growth in the post-1978 period (chiefly due to the TVE reforms). This also led to a reduction in regional inequality and massive poverty reduction (Demurger et al. 2002). We contrast this to India, which is among group 2 members with mostly sustained accelerations and more modest rural output growth. India experienced modest agricultural growth thanks to its Green Revolution, which took place primarily in the North Western states, such as the Punjab. However, in the 1990s, especially, growth primarily occurred in the urban economy, including the services sector. The question of whether poverty has really decreased in India in the 1990s has been hotly debated but almost certainly it is modest at best (Deaton, 2003), with most estimates suggesting the absolute number of poor has actually increased. Other countries in this group have had also experienced mixed but generally modest agricultural performance, although Egypt, Syria and the Dominican Republic were the best performing countries among this group and also had the highest levels of agricultural development.

In the next group (3), takeoffs were unsustained. These countries are notably marked by low levels of initial rural output and although these countries experienced periods and pockets of strong agricultural growth, none of these were sustained, and many of their rural sectors eventually deteriorated markedly. A standard pattern, especially in Africa, is volatile rural sector growth unaccompanied by failed industrial takeoff. Many of these states also experienced political strife.

In group 4 we have three countries sometimes regarded as miracles. However, in all three countries, rural output was already quite high at the time of acceleration. Chile and Malaysia have long had well-performing agricultural sectors, although the Pinochet government additionally used targeted subsidies to boost agricultural performance. Chile’s growth should also be qualified, as land inequality, especially, prevented it from being pro-poor. Malaysia and Mauritius both had relatively well developed plantation economies with a strong presence of expatriate entrepreneurs so that these economies were well placed to launch industrialization strategies. The group 4 countries can best be compared to other Latin American economies with initially high output levels but failed industrialization processes. Growth in Brazil was particularly fast in both sectors in the 1960s, but was not pro-poor because government assistance favoured large farmers (World Bank, 1990).

The last two groups consist of countries which are notably rich in natural resources. But where Botswana and Indonesia have been successful, the Republic of Congo and Nigeria have been disasters at one time or another. In Botswana, strong agricultural growth accompanied development from the very beginning. In Indonesia, growth in the petroleum sector actually preceded agricultural growth but the Indonesian government - striving to pacify the rural population and to prevent a communist-inspired popular revolution - avoided the resource-corruption curse of other resource-rich countries by transferring massive resources to the rural sector whilst maintaining a stable political and macroeconomic environment (Pritchett, 2003; Timmer, 1994).

In conclusion, the data in Table 3 strongly confirm the stylized fact that agricultural development is necessary (but not sufficient) for industrial development and structural transformation. Although there are indeed countries in which agricultural growth did not translate into successful industrialization (e.g. Latin America), no successful country achieved structural development without either first reaching a reasonably high *level* of rural development (Mauritius, Egypt), or rapid and sustained agricultural *growth* (Tunisia, China, Korea, Taiwan, Indonesia, Botswana), or both high levels and high growth (Chile, Malaysia). Moreover, if we only consider the poorest countries, a club in which China, Korea, Taiwan, Botswana and Indonesia were recent members, it is immediately clear that rural development is an *essential* component of the first stages of economic progress.

Finally, these conclusions are in no way qualified by the well-known finding that the share of agriculture in national GDP declines with development (Chenery and Cherquin, 1975) or the related and more recent attention to the growth and poverty reduction potential of the rural non-farm economy (Lanjouw and Lanjouw, 2001). In and of themselves, these facts do not illuminate the important transmission mechanisms that link agricultural productivity improvements to broader growth, both in the rural non-farm economy (as Lanjouw and Lanjouw themselves point out) and in the urban economy. In other words, agricultural growth is an integral part of structural transformation, not its obstacle. Thus to argue for investments in agriculture, as we do, is not to favour agriculture over industry, or to practice some other form of agricultural fundamentalism. Growth strategies for low-income countries that aim to bypass agriculture will almost certainly fail to achieve their intended goal. Moreover, non-agricultural growth strategies are much more likely to neglect the rural and urban poor.

3. Agriculture and Poverty Reduction

The growth of agricultural output and agricultural wages is the most effective means of reducing poverty in the poorest countries. In this section we review a very large body of evidence which validates this conclusion.

A separate focus on poverty reduction is important for several reasons. First, it is the goal of most development agencies and policymakers to eliminate poverty in the short and long term, as well as achieve economic growth and other social goals. Second, it is theoretically possible that tradeoffs exist between poverty alleviation and economic growth in the short run, but as we have argued in the previous section and shall again argue here, in the poorest developing countries it is highly unlikely that such tradeoffs ever exist. Rather, it is much more likely that virtuous circles exist between agricultural development, poverty alleviation and long run growth and development. But even were this is not the case, eliminating poverty as comprehensively and quickly as possible is a pressing concern in its own right.

Assuming then that our desideratum is to eliminate poverty as efficiently as possible, how could we go about it? The first question of relevance is ‘Who are the poor?’ since this determines how policymakers should target them. The 2001 World Development report estimated that 1.2 billion people world wide live below a PPP $1 per day poverty line. The proportion of these people that are rural is estimated to range from 62% (CGIAR) to 75% (IFAD); that is, there are about 744 to 900 million rural poor worldwide. Most of the rural poor reside in South Asia, East Asia and sub-Saharan Africa, and while poverty has declined in much of Asia, Chen and Ravallion (2000) show that it has increased substantially in Africa. The second question is ‘Given that the majority of the poor are rural Africans and Asians, how should we target them?’ Even though the poor are chiefly rural, this does not necessarily imply that we should bundle more resources into agricultural development. After all, rich countries are industrial, and they have very few poor, so industrial development offers a viable alternative, in principle at least, to agriculture-led poverty alleviation.

But consider what an industrial poverty reduction strategy would necessarily entail. First, industrial development – by which we mean a strategy in which most developmental resources are devoted to industry – does not directly or immediately influence the majority of the poor, who are rural. If industrial development is to influence the rural poor, it must do so via increased demand for food, which will increase rural incomes only insofar as agricultural produce is non-tradable, and through urbanization and subsequent employment in the urban industrial sector. Let us examine these two mechanisms more thoroughly.

First, the partial (and perhaps increasing) tradability and the natural elasticity of demand for agricultural produce, together with falling food prices, renders the effectiveness of demand-driven poverty reduction highly uncertain. Second, urbanization can be motivated by rural *under*development rather than successful urban development, as Harris and Todaro (1970) illustrated many years ago. Fay and Opal (1999), for example, find that urbanization has occurred in Africa despite unsuccessful urban development. This is almost certainly because agricultural conditions were so poor in Africa that even urban un- or under-employment was an attractive alterative to rural poverty in most African countries. This type of urbanization is push-urbanization, because people are pushed off the land, rather than pull-urbanization, where people are pulled towards the cities by successful industrialization, as Lewis (1954) originally envisaged. The significance of push-urbanization is that it is unlikely to reduce poverty because it constitutes, in the short run at least, a mere translation of the poor from rural to urban areas. Indeed, De Janvry and Sadoulet (2000) present evidence that this was a common occurrence in Latin America where productivity growth has been low and uneven, and where land inequality is usually high. Although Fay and Opal (1999) do not directly present such evidence for Africa, the phenomenon is plausibly true there, too, given the evidence that urban poverty has increased in countries such as Burkina Faso, Nigeria, Zambia and Zimbabwe (World Bank, 2003). An industry-led poverty reduction plan is therefore risky and generally irrational when most of the poor are rural.

In contrast, agricultural-led growth immediately influences the incomes of the majority of the poor, empowers an often under-empowered group (which may reduce future urban biases) and also has stronger indirect effects on urban poverty via the reduction in food prices (again conditional upon the tradability of food) and the reduction of push-urbanization and its consequent urban unemployment. Thus agricultural-led growth strategies are always safer and sounder in countries where the majority of the poor are rural.

Turning to the facts to date, the evidence amply confirms theoretical reasoning: agricultural development is a consistently successful strategy for poverty reduction in those regions where the majority of the poor are rural. Numerous studies suggest that increasing agricultural productivity has been the single most important factor in determining the speed and extent of poverty reduction during the past 40 years. Datt and Ravallion (1996) showed that rural sector growth in India reduced poverty in both rural and urban areas, while economic growth in urban areas did little to reduce rural poverty. Warr (2001) provided evidence that growth in agriculture in a number of South East Asian countries significantly reduced poverty, but this was not matched by growth in manufacturing. Gallup et al. (1997) showed that every 1% growth in per capita agricultural Gross Domestic Product (GDP) led to 1.61% growth in the incomes of the poorest 20% of the population – much greater than the impact of similar increases in the manufacturing or service sectors. Ravallion and Chen (2004) find large spillover effects from agricultural development on poverty in China. Thirtle et al. (2003) review recent empirical work confirming the positive effects of sectoral growth on poverty reduction, including cross-country studies by Bourgignon and Morrison (1998), Timmer (1997), De Janvry and Saddoulet (1996) as well as nine case studies in India, greater South Asia, East Asia and Latin America . Thirtle et al. (2003) also conclude from fresh cross-country regression analysis that, on average, every 1% increase in labour productivity in agriculture reduced the number of people living on less than a dollar a day by between 0.6 and 1.2%. Timmer (2002) and Bravo-Ortega and Lederman (2005) establish econometrically that agricultural labour productivity significantly increases the incomes of the poorest (bottom-quintile incomes); Bravo-Ortega and Lederman additionally show that this result holds without heterogeneity across geographical regions[7]. More recently, 12 detailed case studies analysed by Byerlee et al. (2005) that increased agricultural productivity plays in promoting pro-poor growth. In sum, there seems to be very little doubt indeed that any other sector of the economy shows such a strong correlation between productivity gains and poverty reduction.

4. Agricultural Development and the Public Sector

Growth and poverty reduction via agricultural growth requires active and long-term involvement by the public sector in shaping and facilitating technological innovation and market development.

Many modern theories of growth identify technological progress (rather than mere accumulation) as the driving force of long run growth. However, insofar as we are interested in medium run growth, more realistic growth models identify the adoption of foreign technologies (technological catch-up) as the chief mechanism of growth, which very much requires the accumulation of savings and foreign exchange, as well as the optimal inter-sectoral allocation of public resources. Studies of successful East Asian development, for example, have shown that it entailed high investment in physical and human capital with relatively low levels of indigenous technological progress (Young, 1995), but high levels of technological adoption (Bosworth, 1996; Kim, 1997, 1999; Kim and Lau, 1994; see Timmer, 2002, for a good discussion of the debate between accumulists and assimilists).

Moreover, technological adoption theories are as relevant for LDC agriculture as they are for industrial development in countries such as Korea and Taiwan. Studies of the Green Revolution (GR) have frequently shown that genetically engineered crops have only been successful where their sowing has been accompanied by high levels of complementary input accumulation. Murgai (2001), for example, looks at the

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[7] Bravo-Ortega and Lederman (2005) is the only study we found which is critical of the pro-poor potential of agriculture (but not on the growth impact), claiming their ‘econometric evidence refutes the conventional wisdom’. Closer scrutiny calls this claim into question as it is based on regression coefficients for their whole sample of 84 countries, including high-income countries which exhibit negative effects of agricultural productivity on incomes in all quintiles. When correcting for this in table 4 in Bravo-Ortega and Lederman (2005), it seems that in the sample of low-income countries (especially those outside Latin America) agricultural productivity has a larger positive effect on incomes in all quintiles (including the poor) than non-agricultural productivity, as all studies quoted by us show. Thus Bravo-Ortega and Lederman’s ‘refutation’ appears to be based on data from high-income countries only, where there never was a ‘conventional wisdom’ that agriculture causes growth

GR in India’s bread basket, the Punjab, from 1960 to 1993, and finds that, contrary to most views, productivity growth was surprisingly low during the GR years, when modern hybrid seed varieties were adopted, but increased in later years after adoption was essentially complete. Murgai concludes that the underachievement in initial productivity growth was substantially due to the delayed investment in complementary inputs, such as in improved resource management and public infrastructure.

This is equally relevant to Africa. Mosley (2001) contends the notion that a GR is destined to fail in Africa because of inherent technological barriers. Rather he views the barriers to agricultural development as resource-related (especially low levels of investment in rural infrastructure) and policy-related, since many African countries faced distortionary trade policies at home, while all of them effectively faced distortionary policies abroad. Similarly Dorward et al. (2003, 2004, 2006) note that many technological solutions to Africa’s productivity problem currently remain ‘on the shelf’ due to institutional bottleneck factors related to failing states and lack of attention to institutional design by the development community (see also Wiggins, 2000). DFID (2005a) notes that a common characteristic of successful Green Revolution adopters was the primacy awarded to agriculture in national development efforts, and the role played by the state in supporting agriculture by providing (and often subsidising) key inputs, general and sector-specific infrastructure (notably irrigation) and product market interventions to ensure stable, predictable and remunerative prices. Through such instruments, governments have created a lower risk environment for agricultural innovation and increased its affordability for small-scale farmers with considerable success.

This arguments fits in with the wider recognition that historically successful development has been predicated on ‘developmental states’ providing public goods and co-ordinating market processes (e.g. Stigltz, 1998). However, it is not simply the usual publicly provided goods – roads, rail, electricity, water - which require government resources. Market failures which are mostly particular to the underdeveloped rural sector often necessitate government intervention of one form or another. Incomplete or missing markets due to information asymmetry, high transaction costs, labour market distortions, extreme volatility and covariance of

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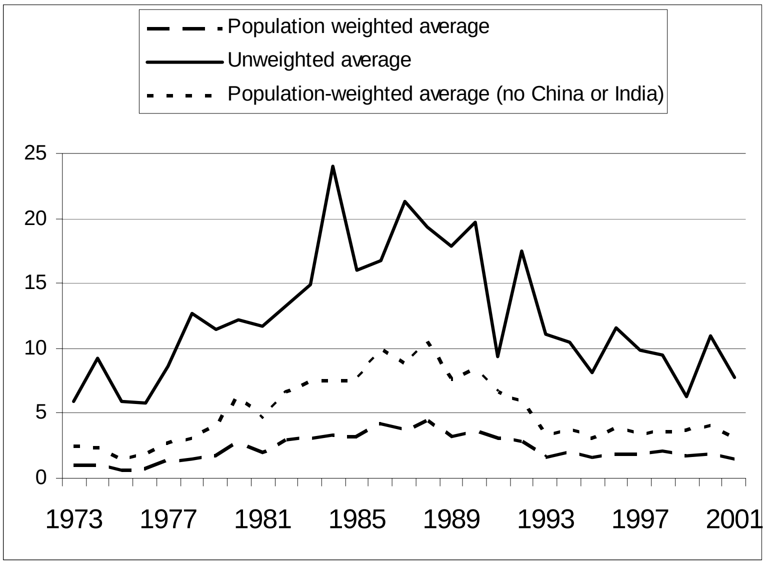
and poverty reduction.

incomes (resulting in missing agricultural insurance markets), and the indivisibility of many rural investments (Binswanger and Deininger, 1997) all imply that governments are justified in executing Second Best (e.g. in the provision of rural finance) or even Third Best policies (e.g. in the direct provision of capital if financial intervention fails).

Despite these solid theoretical grounds for government intervention in the sector, agriculture has received a disproportionately small allocation of public resources over the last three decades in low-income countries. Public resource allocation to agriculture has declined as a proportion of total aid, especially in the 1990s (World Food Summit, 1996; World Bank, 2003; DFID, 2005b). This trend is true of a variety of donors (multilateral, bilateral, OECD donors, all donors) and in all regions of the globe. DFID (2005b) reports, based on OECD DAC figures, that the global volume of assistance to agriculture (expressed in 2002 prices) decreased by nearly two-thirds from US$ 6.2 billion to US$ 2.3 billion between 1980 and 2002. Most of this decrease occurred during the 1990s. Over the same period, however, total aid flows provided by all donors (again measured in real terms) increased by 65%, from US$ 37.1 billion in 1980 to US$ 61.4 billion in 2002. Most of this increase resulted from a jump from 45.8 to 61.4 billion US$ during 1999–2002. So, while the total volume of assistance provided to agriculture has decreased in real terms, its share of total aid has fallen even more, from a peak of 17% in 1982 to 3.7% of total aid in 2002. In many cases, the proportion of agricultural aid in total aid virtually halved in just five years from 1993 to 1998. In Sub-Saharan Africa, where the agricultural sector is still very large indeed, the reduction was less dramatic but still very large, with agricultural aid levels halving between 1980 and 2002 (from 1,450 to 713 million dollars in constant 2002 terms).

There are two caveats to interpreting this trend as an indication that real public resource flows to the agricultural sector have indeed declined. First, given urbanization, and given that total aid has increased over the years, it is probably more relevant to measure trends in real agricultural aid per rural inhabitant, as we do in Figure 1 for the total period 1973 to 2001, again using OECD DAC data on aid commitments. Since a measure of average aid per rural inhabitant could be biased by demographic differences between countries, we compute rural population weighted averages (with and without China and India) as well as simple averages. But the conclusion that agricultural aid per capita has markedly declined since 1985 is entirely robust to these different measures (Figure 1). Moreover, if one excludes China and India, then population-weighted rural output per capita has also declined over this period by some 26%, so that decreasing agricultural aid and rural output have declined more or less contemporaneously.

Figure 1. Agricultural aid commitments, all countries, 1973-201 (1995 $US)



A second caveat is that foreign aid flows are not an ideal measure of public resource allocation. Since 1980, an increasing proportion of foreign aid is delivered in terms of program or multi-sector aid, which may then be allocated towards the agricultural sector, while there have also been changes in the definition of agricultural aid.[8] If aid in general is highly fungible, then considering aid allocation to individual sectors can be quite misleading. In order to address this we have analyzed data on central government resource allocation to the agricultural sector from the IMF's

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[8] The OECD's DAC statistics on a sectoral basis from 1973 onwards only covers aid commitments, not aid disbursements. Nevertheless, although commitments are only typically turned into disbursements in the next one to three years and may be a biased measure of actual disbursements in the presence of natural disasters and political changes (Headey, 2005), there are no other reasons to suspect that they are not an accurate indicator of real resource transfers at an aggregate level. Of more interest, forestry and fishing were included in earlier data, but identified as separate sectors from 1996 onwards. These two sectors may constitute as much as 20% of total agricultural aid, but in most countries the proportion would be significantly less. Also, the current definition excludes: some 'rural development' which may be classified as multi-sector aid; food aid; and, sometimes, assistance provided through NGOs since this is not always 'sector coded' in as much detail as project and programme aid. While these important caveats apply to foreign aid flows, they do not apply to government expenditure flows, which are discussed below. Moreover, the decline in agricultural aid preceded the 1996 change in definition.

Government Finance Statistics. We attempt to incorporate all central and regional government expenditures where possible for a broad range of developing countries. Due to the incompleteness of the data we look at broad trends rather than exact measures or complete time series. Table A1 in the appendix documents agricultural expenditure and some other trends for a large number of countries; table 3 below provides summary statistics by region. Column 2 indicates the number of countries in the region, columns 3 and 4 indicate average labour productivity in the agricultural sector and its average annual growth rate over the period 1970-2001, respectively. Columns 5 and 6 show public agricultural expenditure as a percentage of total government expenditure and per rural worker. The last column defines the correlation between the trend in agricultural expenditure per worker (levels and trends) and labour productivity growth into one of five levels: strong (++), moderately strong (+), no correlation (0), moderately negative (-) or strongly negative (--). Because of two-way causality between output growth and agricultural expenditure we report only associations here.

Table 3. Regional labour productivity and public expenditure: levels and trends

Sample		Labour productivity (LP)		Public agricultural expenditure (AE)		
Region	Obs	Average Level (1990$) (LP)	Average growth 1970-01 (LPG)	% total govt. exp. (AEGE)	Per worker (1$985) (AEPW)	Correlation (LPG, AEPW trend & level) (++, +, 0. -. --)
South America	7	3327	2.6	4.0	416	0
South Asia	5	382	1.3	8.6	78	+ (except Pakistan)
Central America	6	180	1.6	6.4	249	++
Middle East & North Africa	6	140	3.7	5.6	417	++
sub-Saharan Africa	11	338	0.5	7.5	31	+
East Asia	7	870	4.4	8.8	291	++

Sources: Labour productivity data is from Alauddin, Headey and Rao (2005). Government expenditure data is from the IMF's Government Finance Statistics (various years) and was compiled by the authors.

Our findings can be neatly summarized on both an inter- and intra-regional basis and are as follows. First, resource accumulation matters as much as or even more than technology driven growth in the agricultural sector, and is probably best described as a necessary complementary input to technological factors, be it internal technological progress or technological adoption of foreign techniques. This seems to be especially true for the Green Revolution countries, the most successful of which poured significant resources into agriculture (Mexico, Malaysia, Indonesia, Thailand, China, Korea, with Middle Eastern and North African countries arguably constituting a second group). Other low-spending GR countries floundered (India, Sri Lanka, Nepal, Bangladesh, Colombia, Ecuador). Although this hypothesis warrants further corroboration at an international level, the limited analysis conducted here seems to confirm the insights of Murgai (2001), Mosley (2002) and others who argue that the main reason the Green Revolution failed to spark rural development in many countries was due to insufficient public investment.

A second conclusion relates to aggregate trends in public resource flows to the agricultural sector, which have generally decreased, either in terms of foreign aid flows per rural worker, or in terms of domestic government expenditure figures. Unfortunately this trend is especially strong in regions where agricultural progress is the main weapon in the war against poverty and stagnation.

5. Understanding the Paradox: Urban Biases and Shifting Paradigms

So far, we have posed what might be termed an Agricultural Paradox in development: publicly financed agricultural investments are of large and continuing developmental importance for growth and poverty reduction (sections 2 and 3), yet development resources devoted to such investments have generally been small and have largely been decreasing in recent years (section 4). In this section we attempt to explain the Paradox in terms of (i) long-standing political economy factors which fall under the broad umbrella of “urban biases” and (ii) a more recent shift in development thinking and practice, away from sectoral issues and structural change and towards concerns with markets functioning (the ’Washington Consensus’) and with poverty reduction (as expressed in the Millennium Development Goals).

5.1 The Political Economy of Urban Biases

As we noted in our introduction, economists have been aware of urban biases since Myrdal's *Economic Theory and Underdeveloped Regions*. The term was first used and popularized by Michael Lipton (1977), who went further than most in identifying this bias as probably the single greatest institutional impediment to economic development of the least developed countries. The concept itself is multidimensional, and there may be many ways in which urban biases evolve and express themselves.

Byerlee et al. (2005) argue that there are two broad interpretations. The first type of bias is manifested in an explicit, *autonomous* industrialization strategy that favours urban areas.[9] Such a strategy is generally justified by what we view as misinterpretations of stylized facts, such as the structural transformation identified by Chenery and Syrquin (1975), and early economic theory, especially the Lewis theory of growth. As we noted earlier, the Lewis model identified the traditional agricultural sector as a source of cheap (low opportunity cost) labour, savings and demand for modern goods. Although the original Lewis model was more nuanced than the industrialization strategies which claimed to follow it – Lewis, for example, did not claim that the modern sector could not be agricultural, nor that agricultural development was not necessary to keep food prices low – the model ignored several important issues. First, labour was homogenously *un*skilled, so that the importance of human capital was clearly overlooked. In fact, a reasonably educated labour force appears to have played an important part in the development of both the agricultural and industrial sectors of the East Asian miracles (World Bank, 1990). Second, the model ignores or at best glosses over other conditions for successful industrial development, such as a sufficient supply of entrepreneurship, macroeconomic stability, public infrastructure and a sufficient degree of labour-intensity in industrial production techniques. Third, and most importantly, the model ignores the other kind of urban bias, one derived from political economy factors.

This second bias *endogenously* evolves out of social and political factors, Political factors include the lower costs and greater effectiveness of urban political mobilization (Lipton, 1977; Lal and Myint, 1998; Bates, 1988; Binswanger and Dieninger, 1997), as well as the small short-run supply elasticity of agriculture which allows short-sighted politicians to tax the sector at a seemingly low expense (Johnston, 1960). Social and institutional factors include race and caste differences between the elite and the rural poor, and attitudes derived from colonial institutions which often favoured urban elites and fostered elitist attitudes towards the working masses (Myrdal, 1957; see also Binswanger and Deininger, 1997).

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[9] The bias is autonomous in the sense that an industrialization strategy may result from the discretionary choice of policymakers. As the we allude to below, however, what constitutes an autonomous decision and what constitutes an endogenous result of socio-political forces is never clear, for even when policymakers cite a formal growth model as the justification for a policy decision, there always remains the possibility that such a theory is chosen to rationalize socio-political goals. So in some sense, if one believes that the second bias exists pervasively, then the first bias may be regarded as irrelevant.

These political factors and cultural allegiances may be just as strong in democracies as in authoritarian regimes, especially when politicians are short sighted, when ideological rhetoric can be used to distract voters from the development priorities, and when the rural poor are illiterate and generally misinformed. India, for example, is a democracy in which the urban bias has existed (and arguably still does) in all its forms: as a formal development strategy, as a post-colonial institution, as a manifestation of race and caste differences, and as a manifestation of a wide variety of political failures.

The interactions between the two kinds of urban biases – the autonomous and the endogenous - are very important for understanding the initial trend of increasing neglect of agriculture in the 1950s and 1960s, and its persistence despite an increasing awareness of that neglect, chiefly due to the work of Little et al. (1971), Lipton (1977) and Krueger et al. (1993). In retrospect it should be no surprise that urban elites adopted industrialization strategies which heavily favoured their own interests as well as the interests of the rural elite.[10] As we suggested above, Lewis unfortunately ignored the possibilities for urban biases, even though such biases were likely to be manifest in the dualistic societies which were precisely the subject of his model.[11]

There still remains something of a paradox, however. Since numerous prominent economists have identified these urban biases, why haven't these biases been broken down? A first answer is that if urban biases are primarily of the second, endogenous kind, we should not be surprised that breaking them down is a difficult task (even if the international development community actively addressed the problem) precisely because an endogenous urban bias is a stable socio-political equilibrium in that it is consistent with the desires of those who hold economic and political power. Moreover, market failures in the agricultural sector can strengthen the stability of this equilibrium through a vicious circle: market failures inhibit agricultural development, low growth in the agricultural sector appears to justify the allocation of resources to other sectors, so the market failures are never corrected by Second Best government interventions, and so on.[12]

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[10] As Lipton noted, biases against traditional agriculture need not necessarily be urban biases. In countries with dualism within the agricultural sector, it invariably seems that owners of large farms, plantations or *haciendas* are invariably able to extract a disproportionate amount of government resources (Binswanger and Deininger, 1997). In many cases, urban biases and rural or land inequality go hand in hand, and such connections are again strengthened by political economy and cultural factors.

[11] In fact, Lewis was well aware of the demographic dimension of dualism, noting that the urban elites were often racially distinct from the working classes, and frequently expatriates. Despite this, Lewis did not identify institutional dualism as a significant obstacle to development of a dualistic economy.

But the tragedy of the urban bias in primarily agricultural LDC economies is matched by the equally tragic and rather ironic bias in favour of agriculture in primarily industrial OECD countries. In these countries the development of primarily federalist democratic institutions means that, if anything, the agricultural sector is over-represented in political decision-making. Thus, agricultural sectors in many OECD countries have been able to extract high levels of effective protection for their sector. Although this is to the obvious detriment of LDC agricultural exports, in practice it is impossible to accurately predict how large the benefits of redressing this situation will be. They depend very much on reforms within LDC countries and compatible investment in rural infrastructure in tandem with the timing and pattern of a possible reduction of subsidies and protection in OECD agriculture. But where such studies have been undertaken, the estimated benefits for LDC agriculture are almost invariably hypothesized to be large, if unevenly distributed.

An ABARE study analysed the impacts of agricultural trade liberalization using a computable general equilibrium (CGE) model, with dynamic and static gains estimated (ABARE, 2001). It found that global GDP would increase by US$123 billion relative to the base case, with more than half these gains going to developing countries that are either producing or are capable of producing the commodities that are currently most heavily supported in the developed countries such as livestock products, grains, oilseeds, sugar, fruit and vegetables. Many developing countries could step up their production of the aforementioned commodities and increase exports (Thailand (rice and sugar), China (fruit and vegetables), Brazil (sugar),

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[12] Moreover, land inequality is unlikely to change without direct government intervention since land also serves as collateral in information-asymmetric financial markets. In fact, in areas with initial inequality and reasonably high population densities, the value of land often easily exceeds the income stream resulting from agricultural production. When this is the case, land inequality is likely to increase still further.

Malaysia, Indonesia and Argentina (vegetable oils), Zimbabwe (tobacco) and Pakistan (cotton)). Whilst sub-Saharan African countries are certainly underrepresented in this list, these countries nevertheless contain much of the rest of the world's rural poor. Thus, rural biases within OECD countries are still a formidable source of underdevelopment in LDC agriculture.

Urban biases are frequently talked about, but rarely measured except in an indirect manner, in terms of trade biases as in the works of Little et al. (1970) and Krueger et al. (1991) or, as in the previous section, by analyzing trends in agricultural aid and government expenditure. But an obvious problem with looking at agricultural expenditure is that it describes a potential input to agricultural development, but tells us nothing about the outcomes achieved (which is important since the composition and efficiency of government expenditure is likely to vary considerably), whilst trade biases against agricultural are difficult to measure for a large cross-section of countries. We therefore attempt to measure urban bias outcomes to match the theoretical discussion above. Our general proxy for the degree of urban biases is the percentage of the urban population with access to safe water less the equivalent rural percentage circa 2000, based on data from WDI (2004). This variable was successfully used in Alauddin, Headey and Rao (2005) to explain agricultural productivity trends.

Table 5 documents these urban-rural infrastructure differences for a wide range of countries. Table 4 validates the measure by explaining it in terms of some of the theoretical causes of urban biases (expected signs in parenthesis): initial labour productivity (-), land inequality (+), land area (which proxies for the political isolation of rural pressure groups) (+), the strength of democratic institutions (-), and a sub-Saharan Africa dummy (-). All the variables have the right signs and are significant at conventional levels, and the R-squared is a high 0.60.

Table 5 indicates several observations of note. The difference between urban and rural safe water infrastructure is remarkably large on average (with a mean of 27 percentage points), indicating that urban biases are indeed highly prevalent around the developing world. However, the measure is also dispersed (a standard deviation of 14 percentage points). Countries with very low urban biases include many fast growing agricultural economies as well as agricultural economies that are already quite developed, not all of which are explained by high agricultural expenditure levels (Malaysia, Egypt, Iran, Philippines, Pakistan, Thailand, Uruguay). The next group of moderately low discriminators against agriculture includes some success stories (Korea, Indonesia, Syria) and many moderately successful performers (India, Ecuador, Burkina Faso (with high growth by African standards), Argentina). The final two groups includes mostly poor or moderate performers, although there are two or three potential exceptions, such as admittedly highly unequal Brazil, Mexico and Chile, but also relatively egalitarian Tunisia and Chile. However, each of these anomalies is arguably explicable in one way or another, and we acknowledge that this proxy is far from perfect.[13]

To summarize, there is a robust theoretical basis and significant empirical evidence which suggests that urban biases are as persistent as ever, and manifest themselves in a highly unequal distribution of public resource outcomes.

Table 4. Explaining an urban bias proxy*

Sample: Variable	40 LDCs
Labour Productivity, 1970	-2.41
	5.49
Land Area	6.96
	2.40
Democracy (1-10)	-2.56
	4.21
Land inequality	0.66
	6.59
Sub-Saharan Africa dummy	10.59
	2.48
R-squared	0.59
Adjusted R-squared	0.53
Notes: White Heteroskedasticity-Consistent Standard Errors & Covariance	

*The urban bias proxy is the proportion of the urban population with access to safe water less the equivalent rural proportion. The source of both variables is the WDI.

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[13] Chile, Mexico and Brazil all have high levels of inequality, so that their growth has not been substantially pro-poor. Mexico, China and Tunisia have had very high expenditure per capita, and China's result is somewhat inconsistent with other measures of urban-rural differentials, such rural illiteracy rates (only 26%, about half the average of a sample of 20 developing countries). A better measure of urban biases would incorporate educational and other rural-urban differentials, but such data does not exist for such a large range of countries. The absence of important measures such as rural-urban differences in infrastructure, education and health is arguably another manifestation of an urban bias. The WDI, for example, contains many more measures in the male-female dichotomy (around 26) than the rural-urban dichotomy (5).

Table 5. Comparisons of an urban bias proxy*

Low		Moderately Low		Moderately High		High	
Iran	15.0	Vietnam	30.5	Cameroon	42.5	Ethiopia	66.0
Venezuela	15.0	Syria	30.0	Brazil	40.5	PNG	56.0
Guatemala	14.5	Burkina Faso	29.0	Nicaragua	40.5	Madagascar	54.0
Niger	14.0	Senegal	28.5	Tanzania	40.5	Kenya	53.0
Pakistan	13.5	Sri Lanka	28.5	Mozambique	40.0	Malawi	49.0
Mali	13.0	Zimbabwe	28.5	Ghana	39.0	Iraq	48.0
Honduras	12.5	Cambodia	28.0	Morocco	39.0	Chile	45.0
Algeria	12.0	Korea, Rep.	26.0	Nigeria	37.5		
Philippines	11.5	South Africa	26.0	Bolivia	37.5		
Thailand	11.5	Indonesia	25.5	Saudi Arabia	36.0		
Costa Rica	7.0	Argentina	24.0	Guinea	36.0		
Chad	5.0	Cote d'Ivoire	24.0	Peru	35.5		
Uruguay	5.0	Myanmar	23.0	Tunisia	35.5		
Bangladesh	4.0	Burundi	21.5	Paraguay	34.0		
Egypt	4.0	Colombia	21.5	China	33.5		
Turkey	3.0	India	21.5	El Salvador	33.5		
Malaysia	0.0	Sudan	21.5	Mexico	32.0		
		Ecuador	19.5				
		Nepal	18.0				

*The urban bias proxy is the proportion of the urban population with access to safe water less the equivalent rural proportion. The source of both variables is the WDI.

5.2 The Washington Consensus

Whilst biases against agriculture within LDC governments are understandable in light of political economy theory, this cannot fully account for the bias against agriculture amongst foreign aid donors noted in section 4. This should be regarded as especially surprising give that, in the development consensus view loosely known as the 'Washington Consensus' (Williamson, 1990), intervention in favour of industry at the expense of agriculture has been deemed especially deleterious to LDC growth prospects (Little et al., 1970; Krueger et al., 1991). Thus we have a paradox within a paradox.

Understanding the paradoxical neglect of agriculture by the Washington Consensus requires a brief consideration of the historical determinants of its evolution. In the 1970s and early 1980s, agricultural development was very much on the development research agenda after the surmised failure of import-substitution industrialization strategies (which biased resources away from agriculture) and the early success of the Green Revolution. However, a greater shift in this period towards a more comprehensive intellectual consensus on the importance of agriculture in development was obstructed by several factors, all of which were especially prominent within the Washington Consensus. Criticisms of the urban biases inherent in import-substitution industrialization strategies were intimately tied to the neoclassical, public choice-theoretic criticisms of government interference in general; for example, Anne Krueger's work embodies both (Krueger, 1974; Krueger et al., 1993). This meant that although the Washington Consensus called for the reduction of effective taxes on agriculture, it also reduced government support for agriculture.[14] In the current perspective that was throwing away the baby with the bath water: the important objective of agricultural development, an objective in which government investment was absolutely critical, took a backseat to the total reduction and restructuring of the role of LDC governments. This Washington Consensus approach was most influential in the heyday of political neo-liberalism from the mid-1980s to the late 1990s but continues to dominate development thinking[15]. Our first aim in this section is therefore to explain the effective bias against agriculture that has come to dominate development – as evidenced most clearly in aid figures – by considering its dominant paradigm on economic polices, the Washington Consensus.

In the development community, the most active and powerful proponent of 'Washington Consensus' style policies has been The World Bank (WB). A good illustration of its stance in the case of agriculture is its 1996 report titled 'The World Bank Goes to Market'. Our focus on the WB is motivated by is role as the long run development arm of the WB-IMF partnership and a leading research institution in which development practice and practical research are intimately linked. Our second aim in this section is therefore test whether such a effective bias against agriculture bias exists operationally within its most influential institution and long-run development arm, the World Bank.

We have already noted that agricultural aid declined across the board, and not just for WB or IMF aid, grant or loan recipients. The more specific hypotheses we wish to test here is that Washington Consensus efforts to promote development via market-oriented reforms ('liberalization') in LDCs directly led to reductions in agricultural expenditure and that intellectual priorities within the WB have shifted away from agriculture.

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[14] In fact, it is also possible that agricultural expenditure may have decreased even more than other forms of expenditure as the result of reform. However, to our knowledge, such a claim has not yet been tested.

For an empirical assessment of the first claim we studied agricultural expenditure trends in nine countries which are argued to have engaged in Washington Consensus Style reforms. Figures A1 to A9 in the appendix present the findings. The year of greatest reform is defined as that in which the economy became "open" as defined by the Sachs and Warner (1995) openness index. In all nine countries, agricultural expenditure decreased after reform. However, the net benefits of reform appear to have been quite varied. In Mexico and three South American countries (Chile, Bolivia and Peru) labour productivity in agriculture increased after reform, so that the net benefits of reform appear to have been positive.[16] However due to high inequality and weak linkages in South America, there are no clear benefits to broader growth and poverty reduction in South America from agricultural productivity gains in the region (e.g., Bravo-Ortega and Lederman, 2005). In the other countries in the sample, reform did not alter the stagnating or declining growth paths of these countries. Thus Washington Consensus reforms in agriculture in this sample appear to have brought sectoral productivity improvements without broader growth benefits in some cases, but reforms mostly have had neither pro-growth nor pro-poor impacts. Thus it was not simply the case that World Bank aid to agriculture declined along with the broader decline in agricultural aid. The World Bank and IMF were also instrumental in forcing or persuading LDC governments to reduce their own expenditures across the board, with the agricultural sector apparently being especially hard hit.

We now turn to test the second claim that intellectual resources devoted to agriculture have also declined. Despite the strong intellectual case for the developmental importance of agricultural investments (and therefore for contemporary research into it), there seem to be good *a priori* reasons to expect that agriculture has been receiving less attention in World Bank research, and perhaps even in general academic research, given the strong connections between the two. Such factors include the shift away from urban bias critiques (e.g. Little et al., 1970) towards general market fundamentalism, the decline in state financing of independent research institutions within OECD countries, as well as the general tendency

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[15] Although currently widespread talk of the 'Post Washington Consensus' (Stiglitz, 1999; Rodrik, 2003) suggests that this liberal approach is on the wane no economic development paradigm has yet emerged to replace it.

[16] Moreover, Chile can not really be regarded as a Washington Consensus 'star student' as its policy reforms were primarily internally driven.

throughout the economics profession to favour fads over fundamentals, a factor whose influence should not be underestimated.[17]

We test the claim that agricultural research has declined in relative terms for both World Bank research and general academic research by conducting systematic word searches of World Bank working papers, World Bank *World Development Reports*, and finally, for four major general academic journals on development. In Figure 1 we examine World Bank Working Papers by searching the World Bank's e-Library. Data cover the period 1994 to 2005.[18] We derived two figures measuring the importance of agriculture in the World Bank's working paper research agenda: the proportion of papers with words containing the letters "agricultur" in the paper's abstract; and the proportion of papers classified by the World Bank as "agriculture and rural development" papers. In Figure 1, we do indeed see a quite dramatic trend of decreasing emphasis on agriculture as a subject of World Bank research. In the period 1994-98, around 14% of World Bank working papers dealt with the agricultural sector, but in the period 2003-2005, this declined to around half that, or 7%.[19] Thus, the intellectual resources devoted to agriculture in the World Bank roughly declined by about the proportion as World Bank IDA aid to agriculture over the 1990s, which decreased from 19.7% in 1990 to 10.3% in 2000 (see also Section 3). Finally, we note very little difference between agricultural research and broader rural research, with the sole exception being the period 1999-02.

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[17] This latter factor may be especially significant. Professional economists of all persuasions generally hope to achieve career goals by adding something new and novel to the existing body of knowledge, and this is no less true of development economists, however worthy their rhetoric. This thirst for novelty, whilst arguably being the very source and motivation for scientific progress, can also cause problems when fads replace or obscure fundamental truths (Turnovsky, 1991). Such 'fad fetishism' should be distinguished from other sources of disagreement between economists (Duhs, 1982) which also have at their root ideological and methodological differences (though these also play a role in the debate at hand, especially the influence of the Washington Consensus). Also, fad fetishism is partly justified. There are indeed a bewildering array of obstacles to development. However, the point made throughout this essay is that many obstacles to development can be viewed as sector-specific – that is, influencing agriculture or industry/services – and that the neglect of agriculture occurs at an aggregate level, through substantially underemphasising agricultural development as one of the fundamental objectives during the early stages of development.

[18] Data prior to 1994 are available, but the total number of publications is well under 100 for all these years and could therefore be misleading for a number of reasons. The period 1994-2005 excludes data for 1999, in which about 7 times the normal number of working papers were published, for reasons not yet established. Inclusion of 1999 data did not radically change the trend in the data, but did mean that 1999 data were constituted a large outlier for the "agriculture and rural development" category, since this proportion was only 7.0%, a much lower value than 1998 (14.7%) or 2000 (15.4%). It was therefore excluded on this basis.

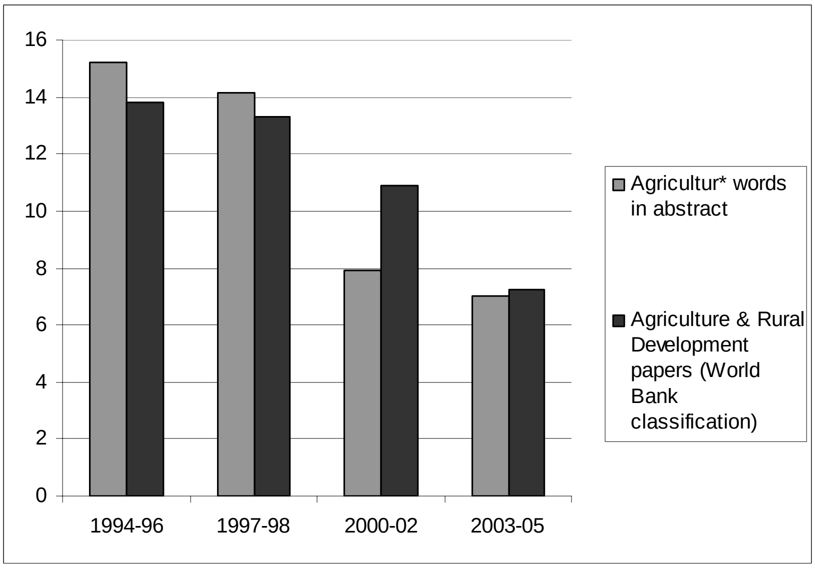
[19] Although we note that in absolute terms the number of papers on the agricultural sector in 2005 was quite high relative to previous years. However, the total numbers of working papers had obviously risen proportionately.

Working papers are one means of gauging World Bank output, but another important source of World Bank influence are the *World Development Reports* (WDRs). These are also more indicative of the large emphasis on fads and novelties in development research, rather than on fundamentals. The Reports purport to review "major development issues", which according to the titles change on a yearly basis. Figure 2 lists the titles of all World Development reports from 1978 to 2006 along with average "agricultur*" words per page counts which we take as a proxy for the importance of agriculture in these reports. The measure appears to be a good one, as noted by the correlation between the title of the report and the word counts. Looking at the data, there are several facts of note.

Firstly, the importance of agriculture varies tremendously from report to report - word counts per page range from 1.24 to 0.01, or a ratio of 124 to 1 - indicating the degree to which the reports focus on topics of contemporary appeal. Secondly, many of the topics one would expect to have been more closely connected to agricultural development actually score very low: health (0.04), infrastructure (0.06), investment (0.04), the State (0.09) and even the topic of the most recent 2006 Report, equity and development (0.16). But thirdly and most importantly, we once again observe a strongly declining trend in the importance of agriculture over this period. The heyday of agriculture in development (at least in theory, but also in terms of aid and direct government finance), the late 1970s and early 1980s, was a period in which agriculture received substantial prominence in the WDRs. The period 1978-1986 stands out in particular, with an average word counts score of (0.51), which compares favourably indeed with the remainder of the period (1987-2006), with an average word count of just 0.18 (the one exception in this trend being the 2002 "Building Institutions for Markets" report).

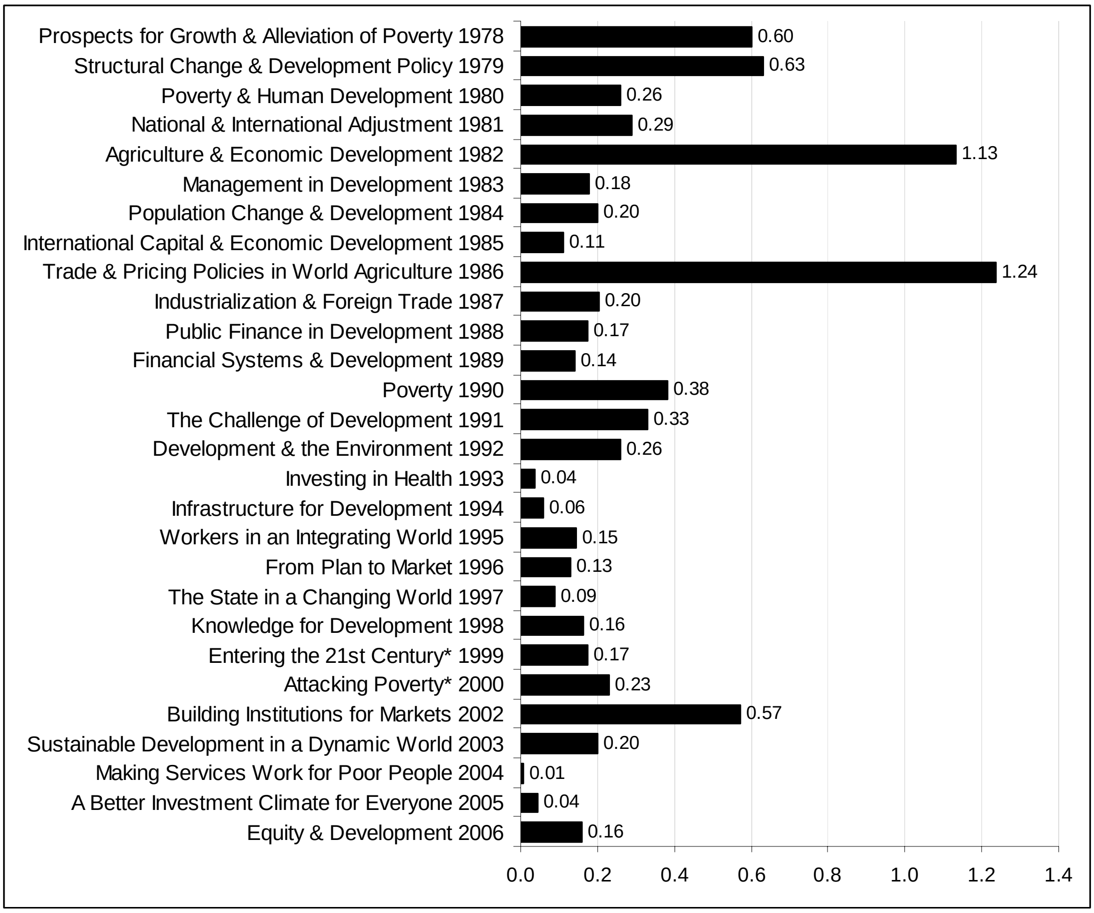
To what extent these disturbing trends apply to other donors is difficult to judge, but Mosley (2001) points out that the 2000 DFID White Paper discusses smallholder agriculture, "on which 900 million poor people globally depend", in a "mixed two-page section on natural resources as a whole . . . which is much less space than is allocated to the internet, on which no poor people depend at all." Moreover, the MDGs make no specific references to agricultural development, while the MDGs Project Director, Jeffrey Sachs (1997), has suggested that African countries abandon the attempt to develop a comparative advantage in grains crops. We discuss the MDGs in more detail below.

Figure 2. The Percentage of World Bank Working Papers Discussing Agriculture



Source: The World Bank e-Library

Figure 3. World Development Reports and the Frequency of Agricultur* Words/Page



* These reports actually cover 1999/2000 and 2000/2001 respectively.

The next question is 'Are academic economists as prone to neglect of agriculture as professional development practitioners?' On the one hand, academic economists surely face many of the same incentives to strive for novelty as World Bank researchers, and arguably with greater intensity. But on the other hand, their research interests are less likely to be influenced by bureaucratic forces, and may therefore be regarded as more independently determined.[20] We therefore expect to find some shift from agricultural research to more broadly defined rural research but not as large as is the case for World Bank writings. Such a finding would be in keeping with the general trends we noted in aid delivery, which has seen a reduction in agricultural aid in favour of general program and multi-sector aid.

In a manner similar to analysis of World Bank research, we again analysed the prominence of topics related to agriculture and rural development in the academic development economics literature. Using the combined literature database of 'EconLit', we conducted a search for book entries and articles which appeared in four prominent development journals over the last quarter century which had "agricultur*" or "rural" in their abstracts.[21] Specifically we focussed on four leading development journals - *World Development, Journal of Development Economics*, *Journal of Development Studies,* and *Economic Development and Cultural Change* - separately for the five five-year periods from 1980 to 2005, and again calculated percentages of agriculture and rural development related items in the totals.

Tables 1 and 2 in the Appendix present the count and percentage data on articles and book entries on agriculture and rural development in all articles and book entries, per journal and over time[22]. Figure 1 below depicts the development of the percentages for the four journals taken together. Figure 2 presents percentages, taken over the entire period 1980-2005.

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[20] Naturally, of course, there is some overlap between World Bank Working Papers and published academic articles, as the former often end up as the latter, but we do not expect this to seriously confound our results.

[21] We considered that examining abstracts would strike a good balance between keyword searches within titles (which would be too narrow) and searching full texts (where 'agriculture', 'agricultural' or 'rural' might be mentioned without any real analysis). Also, we note that this is only a subset of all relevant writings, as some unsystematic searches also turned up items without our keywords but with 'farming' or 'smallholder' in their abstracts, which clearly should have been included. However their numbers seem sufficiently small to still trust that their inclusion would lengthen the presentation of findings but not significantly change the present search results.

[22] The search results slightly overstate the number of articles. Some articles are listed twice in the EconLit database, for instance 'The Impact of "Market-Friendly" Reforms on Credit and Land Markets in Honduras and Nicaragua by Steven R Boucher in World Development of January 205, Vol. 33 Issue 1, p107-128, 22p which once appears with the addition '(*AN 15669597*)' and once without it. We considered but did not find evidence that such double listing is biased towards books and articles on rural and agricultural topics, or that it is more common in some time periods or some journals than it is

The findings are interesting primarily for how different they are to those of our World Bank analysis. First, academic interest in agriculture and rural development has been increasing rather than declining, in contrast to World Bank research in the 1990s. The share of articles and book entries on ‘green’ topics in the four leading journals nearly doubled between 1980 and 2005, from 8% to and 14 %. Nevertheless, the emphasis on agricultural development in academic journal is now no larger than it was in World Bank working papers in the mid 1990s, around 14%. Third, since 1990 there is a marked decrease in writing on agriculture relative to publishing on broader rural topics. The latter category increased its share in all writings by about a third, from 6.6% to 9.7%, while the former decreased by a quarter from 6.1% to 4.6%, in keeping with our secondary hypothesis. Most of this divergence occurred after 1995. Finally we also note considerable variation between the four journals, with the *Journal of Development Studies* having about twice as many articles and book entries on (particularly) rural topics compared to the *Journal of Development Economics*, relative to their total outputs.

In summary, academic economists have actually increased their emphasis on agricultural development in the last twenty years (albeit marginally), whilst the relative importance of agriculture in World Bank research has substantially decreased since 1994. This divergence probably reflects several factors, including the extent of disagreement between the relatively homogenous views of World Bank researchers and the more heterogenous paradigms of academic economists, as well as important differences in their research environments. Unfortunately, it is unlikely that these two divergent trends in any way cancel out. The World Bank is singularly important both as a provider of aid, as a policymaker, and as a major influence on other donors and policymakers. Thus, it should hardly be surprising that we have noted a declining trends in agricultural aid, a declining trend in most LDC government’s agricultural expenditure budgets, and a declining trend in the intellectual resources devoted to agricultural research within what is arguably the most important aid donor and development research institution.

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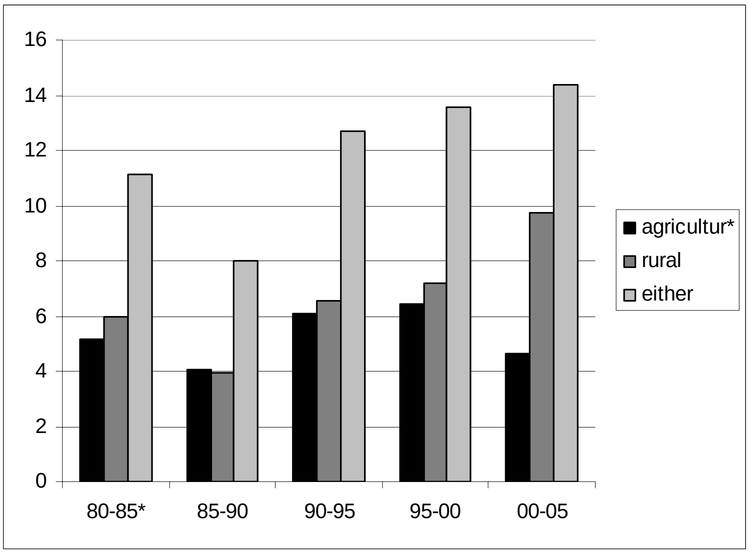
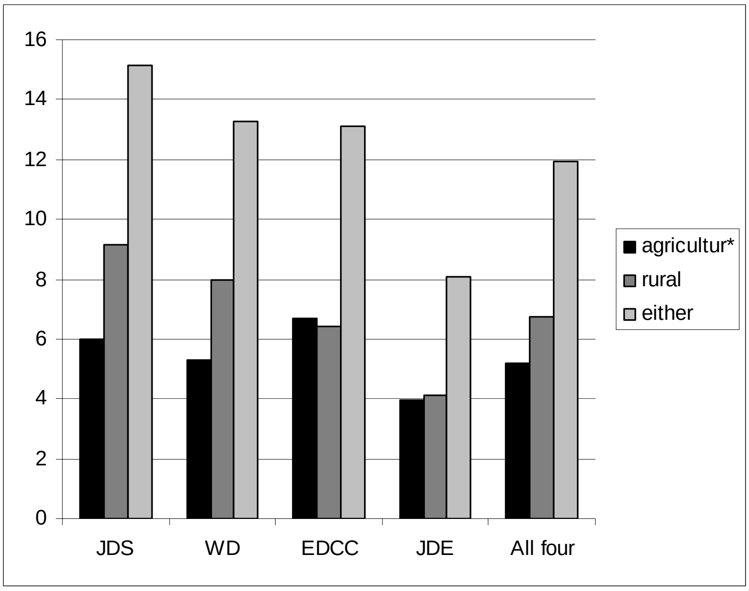
in others. Therefore we did not go through the exercise of identifying and removing all such double listings.

Figure 4: Percentages of all book entries and articles on agriculture and rural development for four development journals, 1980-2005, by time period.



Notes: *The 1980-85 data are for keywords in the title since the search in abstracts does not work for this period. Source: ECONLIT

Figure 5: Percentages of all book entries and articles on agriculture and rural development for four development journals, 1980-2005, by journal.



Source: ECONLIT

5.3. Millennium Development Goals and Poverty Reduction Strategy Papers

With the increasing criticism on the Washington Consensus since the late 1990s (e.g., Stiglitz, 1999) the paradigm has been augmented in the familiar Kuhnian process of adding ‘protective belts’ to ‘normal science’ without adapting its core assumptions. Rodrik (2003) terms this augmented paradigm the Washington Consensus Mark II, the key feature of which is the increased emphasis on short-term poverty reduction in addition to economic rationalization goals.

This augmented paradigm finds its most cogent expression in the UN’s Millennium Development Goals (a project directed by a neoclassical economist, Jeffrey Sachs) and the Poverty Reduction Strategy Process (administered by the World Bank). The Poverty Reduction Strategy Process requires governments of developing countries to formulate poverty reduction policies in line with achievement of the Millennium Development Goals (MDGs) and to monitor and report on progress in Poverty Reduction Strategy Papers (PRSPs). The MDG/PRSP approach to development is very much micro-economic, focusing almost entirely on factors that directly and immediately affect the lives of poor people (health, education, sanitation, discrimination, and so on). Unlike the original (Mark I) Washington Consensus, it does not argue for a consensus view on economic policies but instead focuses on social outcomes. Laudable though these objectives are in themselves, the new focus serves to divert attention away from the challenges to the Washington Consensus, allowing Washington Consensus policy practice to continue in tandem with the MDG/PRSP project. Indeed Washington Consensus (Mark I) style polices and pursuance of MDG objectives are frequently portrayed as complementary and their joint pursuance is even invoked additional justification of the familiar market-oriented reforms by Sachs (2005). Thus the MDG/PRSP project in development practice is not a replacement of the original Washington Consensus, but an augmentation of it.

Our hypothesis is therefore that also this second and more recent paradigmatic shift, towards the MDGs/PRSPs, does not favour investments in agriculture. The main reasons are:

(i) its inherent neglect of agricultural growth issues

(ii) its institutional identification with a Washington Consensus style approach to economic policies; and

(iii) its lack of focus generally (one criticism, at least, which could not be made of the original Washington Consensus).

We briefly expand on each of these points. First, one should note that the MDG/PRSP project is focused on short-term (pre-2015) improvements in a large number of well-being indicators, ranging from poverty headcounts to infant mortality to education enrolment rates. Since most of the poor are rural, the MDG/PRSP project is perhaps implicitly concerned with rural well-being broadly defined. However, this concern does not necessarily imply an emphasis on investments in – still less public support programs for - the agricultural sector, for two reasons. First, the full benefits in terms of poverty reduction via agricultural investments and its linkages to the wider economy materialize over the course of decades, not years. Agricultural sector programs do not provide guarantees of delivering improvements in most of the 48 indicators monitored in the MDG project within the nine years until 2015. Yet this is precisely the avowed aim of the project, and thus there is an incompatibility in timeframes between agriculture-led and MDG/PRSP development paradigms.

Second, even if MDG/PRSP aims would occasionally be seen to require agriculturally focused polices, the endorsement of a sectoral and state-led development emphasis would clash with continuing support of Washington Consensus style ‘market-compatible’ policies. Since the same institutions – notable, the World Bank – endorse and implement both the MDG/PRSP and the Washington Consensus, such a clash would be difficult to manage and therefore less likely to occur. This conflict still exists precisely because the MDGs and PRSPs are politically convenient appendages to the existing neo-liberal paradigm, rather than corrections to the original Consensus that go the heart of its problematic theoretical assumptions and weak empirical foundations.

Third, another reason why substantial investments in agriculture have been unlikely in the current development climate is the sheer fragmentation of its development objectives. The evidence we documented above suggests that the most successful agricultural transformations - as well as graduations to middle-income countries - have been preceded and accompanied by a focus on agricultural investments that absorbed a substantial part of a country’s resources and was consistently sustained over a number of years (most often, decades). Case studies of most NICs make this clear (e.g., Rodrik, 2003). Such focus and stamina is precluded by a simultaneous focus on 48 short-term development indicators inducing a thinned spread of limited development resources. (Quite apart from that, none of the indicators is directly connected to the agricultural sector.)

Summing up, inherent in the current MDG/PRSP development paradigms there are reasons of political ideology, of policy scope, of institutional implementation and of policy time frame that preclude the focused and sustained investments necessary for an agricultural transformation. In order to assess these claims empirically, we study rural development aspects of 32 Poverty Reduction Strategy Papers (PRSPs). The rural focus is justified since comparing only rural to urban issues would still leave us with the problem that any broad rural poverty concerns need not imply any serious attention to agricultural transformation issues as also argued in our literature analysis. We therefore look directly *within* the rural content of the PRSPs. Our propositions are twofold: (a) that the rural content in PRSPs is typically concerned with broader rural well-being, not about the agricultural sector per se; and (b) that PRSPs will not accord primacy to any single goal or even to a limited set of goals. Both propositions follow from MDGs-inspired development practice, as described above.[23]

In order to gauge how resources are distributed and how agriculture fares in actual practice, the analysis of PRSPs is carried out on two dimensions. It considers two indicators of policy making quality, for each of nine issues in the rural economy. The policy quality indicators are: (i) the formulation of targets or indicators and (ii) the formulation of policy actions. The nine rural issues are: farm income, non-farm income, gender, human development, economic infrastructure, natural capital & productivity, financial assets, social capital and finally macro-micro linkages. For each issue, one or several topics were studied in a reading of the 32 PRSPs[24]. For instance, the issue of ‘human development’ was detailed into three topics: education, health and the labour market. An assessment of these three human development issues was captured in a brief summary. These summaries were then reflected in a score on a 0-3 scale, where score 0 indicates that the issue is not mentioned in the PRSP, score 1 indicates that the issue is mentioned in the PRSP but not elaborated, score 2 indicates that the issue is also elaborated, and a 3 score indicates that the issues is discussed in line with internationally accepted standards ('good practice'). Dividing actual scores by maximum scores (three times the number of questions on the topic) produces 'relative scores' fractions comparable over issues (there were between one and five topics per issue).

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[23] In studying these documents, we are aware of the possible gap between actual practice and policy intentions articulated in PRSPs, partly due to tensions between the goals of the International Financial Institutions and those of domestic policy makers, partly also to the normal rift between policy documents and policy implementation. Still, we would argue that studying PRSPs is the closest one can come to a standardised observation of intended development practice under the MDGs/PRSP paradigm, while still yielding findings that are comparable over countries.

[24] The PRSPs we consider are on Albania, Azerbaijan, Benin, Bolivia, Burkina, Cambodia, Cameroon, Ethiopia, Gambia, Georgia, Ghana, Guinea, Guyana, Honduras, Kyrgyzstan, Malawi, Mali, Mauritania, Mongolia, Mozambique, Nepal, Nicaragua, Niger, Rwanda, Senegal, Sri Lanka, Tajikistan, Tanzania,

We study how much weight PRSPs give to the presence of targets and indicators and the formulation of concrete policy actions for the issue most directly related to agriculture, which is farm income, in comparison to the other issues relevant to broader rural development. We also consider what PRSPs suggest on policy resources being concentrated or thinly spread.

Table 6 summarises the findings on agriculture versus broader rural development. The left-hand columns present the simple mean of scores by rural issues, averaged over all 32 PRSPs. The right-hand columns present the percentage of the sample of PRSPs in which concrete policy and targets & indicators towards the issue are even mentioned (i.e. with positive scores). The findings indicate that farm income scores lowest of all on all four counts with the exception of social capital, which scores lower still. In contrast, both 'policies' and 'targets & indicators' on natural capital and productivity (other than related to farm income) score highest.

The results in Table 6 are also consistent with our second hypothesis, that the MDG/PRSP-style approach to policymaking will spread resources thin across all the goals, and not accord primacy to any particular goal. The mean relative scores indicate that the average across all targets is low (0.3 out of 3) and no target scores higher than 0.49 out of 3. This finding was also confirmed by calculation of Herfindahl concentration indices (data available on request).

To summarise, the PRSP approach indicates that LDC policymakers are likely to both neglect agricultural development and generally spread resources too thin; our reading of 32 actual PRSPs supports this. Thus, even the most recent development paradigm still effectively embodies a bias against agriculture.

Uganda, Vietnam, Yemen and Zambia. We thank World Bank staff for making these data available. A full description of the analysis and an overview of findings is in World Bank (2006).

Table 6: The Rural Content of PRSPs

	(Mean relative scores)		*(% of sample)*	
Rural issue	Policy action formulation	Targets & indicators	Policy actions mentioned	Targets & indicators mentioned
Farm income	**.16**	**.08**	**34**	**19**
Non-farm income	.23	.08	47	22
Rural gender	.34	.14	63	31
Human development	.34	.17	91	63
Economic infrastructure	.27	.19	94	84
Natural capital & productivity	.49	.30	100	94
Financial assets	.35	.13	97	59
Social capital	.16	.03	26	9
Macro-micro linkages	.34	.13	100	75
Average	**.30**	**.14**	**72**	**51**

6. Conclusion

This paper has attempted to persuade readers of the inefficient and systematic bias in the allocation of developmental resources over the last three decades, with the bias running against the agriculture sector in the least developed countries. We have shown that a large mass of historical evidence suggests that such a bias is detrimental to economic growth and structural transformation, as well as poverty reduction. Moreover, the most successful developing economies – as gauged by high rates of equitable growth - are those in which the government played a very active role in the agricultural sector. Despite this weight of economic theory and historical evidence, however, foreign aid and domestic government expenditures to this sector have declined remarkably in the last twenty years, while harmful OECD trade practices also persist. This Agricultural Paradox – the importance of, but simultaneous neglect of LDC agriculture – is not explained by any single factor. Certainly there are urban biases in LDC governments, but these are also manifest within foreign aid agencies.

Perhaps the most disturbing conclusion in this study is that the deeply harmful biases against agriculture are still not being redressed. In fact, if anything the key failures of the original Washington Consensus – especially its failure to live up to its self-stated objective of redressing the bias against agriculture – have not been addressed by the Mark II form of the Consensus, which chiefly just appends a greater focus on poverty reduction – embodied in the MDGs and PRSPs - to the old neo-classical workhorse. Instead, this augmented Consensus simply threatens to repeat the mistakes of the past and moreover spread developmental resources uncomfortably thin in the years to come. Unfortunately, it is the poor – rural and urban – who will ultimately pay the price for this continued neglect.

Appendix A. Tables and Figures

Table A1. Agricultural output per worker and agricultural expenditure per worker trends, all LDCs, various years

Country	Timeframe	1. Labour productivity in agric. (1990 PPP$)	2. Growth in labour productivity 1970-2001	3. Estimated agric exp. as % of govt exp.	4. Agric exp. per agric worker (1985 PPP$)	5. Trend in agricultural expenditure per worker
Bangladesh	1973-1985	20	0.9	12.1	28	No trend
Bolivia	1972-201	1018	2.1	1.9	87	Declining
Brazil	1972-1999	2710	6.3	4.3	302	No obvious trend
Burkina Faso	1976-1994	146	2.8	4.8	6	Increased until 1988
Burundi	1991-200	230	-0.6	4.8	15	Heavily declining
Cameroon	1976-200	474	0.9	4.7	32	Declining
China	1990-1999	427	4.7	5.7	286	Increasingly rapidly
Costa Rica	1972-201	3303	3.0	3.8	199	Increasing until recently
Dominican Republic	1973-1997	1968	3.1	13.4	467	Increasing in 1990s
Egypt	1975-1997	804	3.7	4.5	162	Increasing significantly
El Salvador	1972-201	1065	1.1	5.0	94	Increasing from 1972-1982, decreasing since, now at 1972 level
Ethiopia	1982-200	201	-0.2	9.3	19	Increasing
Ghana	1972-1994	457	-0.1	6.8	33	Rapidly decreasing since 1981

Table A1. continued

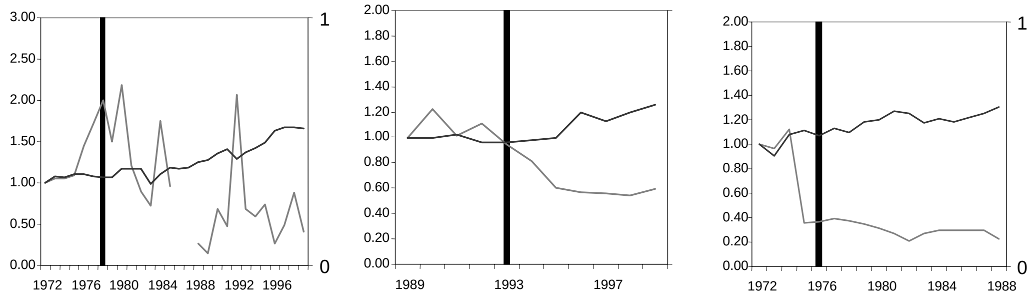
Country	**Timeframe**	**1.**	**2.**	**3.**	**4.**	**5.**
Guatemala	1972-1979; 1988-1994	763	0.4	4.0	51	Decreasing
India	1974-201	382	1.8	6.6	41	Increasing 1974-1984, no trend thereafter
Indonesia	1976-200	514	2.1	8.4	121	Slightly increasing trend until 1997, when it decreases markedly
Iran	1980-1997	1604	4.3	5.0	412	Slightly increasing
Kenya	1972-1999	330	-0.1	8.3	48	Slightly increasing until 1989, decreasing thereafter
Korea	1972-1998	1099	14.0	7.2	723	Rapidly Increasing,
Madagascar	1988-200	389	-0.7	11.0	6	Decreasing until 1993, increasing back to original levels thereafter
Malawi	1972-1988	252	0.3	13.5	42	No trend
Malaysia	1972-1981; 1986-1998	2217	5.4	6.2	623	Rapidly increasing until 1981, steady thereafter
Mexico*	1972-200	2025	2.1	7.5	501	Declining significantly from very high starting values.
Morocco	1972-200	962	2.0	4.1	192	Increasing until 1978 then steady
Myanmar	1973-1995	30	1.5	17.2	41	Increasing until 1985 then decreasing to original levels
Nepal	1972-201	206	1.1	13.1	42	Increasing until 1983 then decreasing markedly
Nicaragua	1972-1980; 1990-1995	1675	-0.1	4.8	179	Decreasing

Table A1. Continued

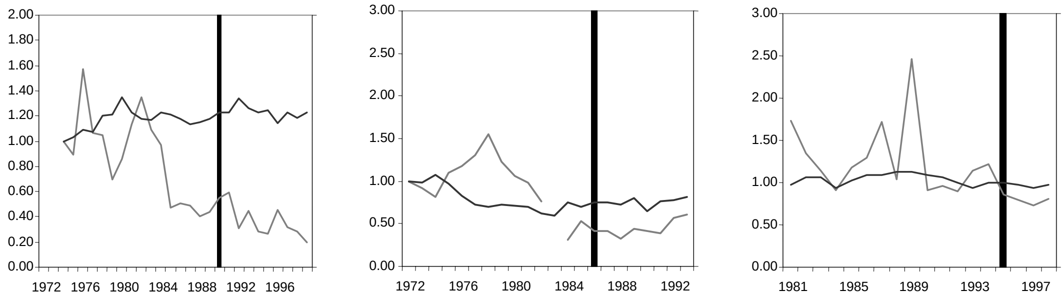
Country	**Timeframe**	**1.**	**2.**	**3.**	**4.**	**5.**
Nigeria	1972-1978; 1984-1988	430	5.0	5.0	50	Slightly higher in second period.
Pakistan	1973-1987	534	2.9	2.1	17	No trend
PNG	1975-1999	725	0.1	6.1	85	Mostly decreasing trend
Paraguay	1972-1993	2601	2.1	3.2	45	Strongly decreasing until 1989, increasing markedly thereafter.
Peru	1972-1985; 1999-201	937	0.9	8.4	330	No trend in first period, indications of declining trend from 1985 to 2001.
Philippines	1972-201	987	1.2	7.7	113	Trough from 1980 to 1988.
Sri Lanka	1972-201	586	0.0	9.1	261	No trend except for massive surge in 1980s
Syria	1972-200	2173	4.2	8.3	913	Increasing trend
Thailand	1972-201	545	2.0	9.5	133	Strongly increasing trend
Tunisia	1972-1999	1580	5.9	10.0	775	Strongly increasing.
Turkey	1988-201	1278	1.9	2.0	47	No strong trend
Uganda	1976-1986; 1999-201	412	-0.9	6.6	11	No difference between earlier and later periods.
Uruguay	1972-1994; 1999-201	10,888	1.8	1.4	276	Mostly increasing trend.
Venezuela	1972-1987	3074	3.0	6.1	1745	Decreasing until 1993, increasing back to original levels thereafter
Zimbabwe	1976-1989; 1993-1998	394	-0.5	8.1	84	Mostly decreasing trend

Appendix Figure A1-A9. Agricultural expenditure per worker (grey line), output per worker (black line) and liberalization episodes (black column)

Bolivia Cameroon Chile



El Salvador Ghana Kenya



Mexico Nepal Peru

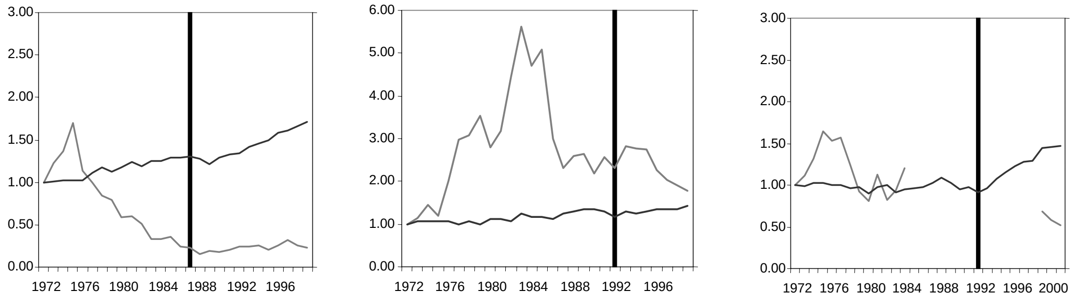


Table A2. Articles And Book Entries On Agriculture And Rural Development In Four Development Journals, 1980-205 (Counts)

years		80-85	85-90	90-95	95-0	0-05	80-05
journal	keyword			(counts)			
JDS	agricultur*	21	19	32	39	27	138
	rural	18	27	47	64	55	211
	either	39	46	79	103	82	349
	all	278	40	467	594	562	2301
WD	agricultur*	17	8	54	99	67	245
	rural	25	9	67	108	157	366
	either	42	17	121	207	224	611
	all	414	590	917	1407	1274	4602
EDCC	agricultur*	26	30	22	20	31	129
	rural	37	24	17	18	28	124
	either	63	54	39	38	59	253
	all	408	406	370	349	398	1931
JDE	agricultur*	17	27	32	32	11	119
	rural	14	22	20	22	45	123
	either	31	49	52	54	56	242
	all	476	678	541	609	695	2999
All four	agricultur*	81	84	140	190	136	631
	rural	94	82	151	212	285	824
	either	175	166	291	402	421	1455
	all	1576	2074	2295	2959	2929	11833

Source: Literature databases *EconLit* and *EBSCO Business Source Premier* and authors' calculations.
Notes: (i) WD= *World Development, JDE = Journal of Development Economics*, JDS =*Journal of Development Studies,* and EDCC =*Economic Development and Cultural Change.* (ii) Keywords were searched for in abstracts only except for WD 1980-1985, which reflect title searches. (iii) 'agricultur*' refers to all keywords starting with 'agricultur'- most probably, either 'agriculture' or 'agricultural'.

Table A3. Articles And Book Entries On Agriculture And Rural Development In Four Development Journals, 1980-205 (percentages of totals)

years		80-85	85-90	90-95	95-0	0-05	80-05
journal	*keyword*			*(percentages)*			
JDS	agricultur*	7.6	4.8	6.9	6.6	4.8	6.0
	rural	6.5	6.8	10.1	10.8	9.8	9.2
	either	14.0	11.5	16.9	17.3	14.6	15.2
WD	agricultur*	4.1	1.4	5.9	7.0	5.3	5.3
	rural	6.0	1.5	7.3	7.7	12.3	8.0
	either	10.1	2.9	13.2	14.7	17.6	13.3
EDCC	agricultur*	6.4	7.4	5.9	5.7	7.8	6.7
	rural	9.1	5.9	4.6	5.2	7.0	6.4
	either	15.4	13.3	10.5	10.9	14.8	13.1
JDE	agricultur*	3.6	4.0	5.9	5.3	1.6	4.0
	rural	2.9	3.2	3.7	3.6	6.5	4.1
	either	6.5	7.2	9.6	8.9	8.1	8.1
All four	agricultur*	5.1	4.1	6.1	6.4	4.6	5.3
	rural	6.0	4.0	6.6	7.2	9.7	7.0
	either	11.1	8.0	12.7	13.6	14.4	12.3

Source: Literature databases *EconLit* and *EBSCO Business Source Premier* and authors' calculations.
Notes: (i) WD= *World Development, JDE = Journal of Development Economics*, JDS =*Journal of Development Studies,* and EDCC =*Economic Development and Cultural Change.* (ii) Keywords were searched for in abstracts only, except for WD 1980-1985, which reflect title searches. (iii) 'agricultur*' refers to all keywords starting with 'agricultur'- most probably, either 'agriculture' or 'agricultural'. 'All' refers to the total number of articles and book entries. (iv) The 'either' categories may slightly differ from the sum of the ''agricultur*' and 'rural' categories due to rounding. The same applies to the periods total.

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