

## Labour

In developing regions, especially those least developed and those experiencing rapidly rising populations, employment growth is driven mostly by demographic changes. The majority of workers of these regions do not enter into formal wage employment, but instead are engaged in self-employment or unpaid family work, such as in agriculture, and especially subsistence farming. Consequently, economic downturns tend to have only a limited impact on overall employment growth in these economies, in contrast to industrialized economies where employment growth is closely linked to the business cycle. Considering that the large share of the working poor are engaged in **agriculture**, developments in that sector have a major impact on welfare throughout much of the world.

Until 2000, agriculture was the mainstay of employment around the world. Since then, the services sector has assumed this mantle and the gap between the two has widened. Although employment growth in agriculture has slowed, the number of workers in this sector reached over one billion in 2009.

In sub-Saharan Africa, growth in agricultural employment accounted for half of all employment growth between 1999 and 2009. In South Asia, nearly 33 per cent of all employment growth since 1999 was in agriculture. By contrast, agricultural employment is falling in the developed economies, East Asia and Latin America and the Caribbean regions. At the global level, **women** are more active in the agricultural sector than men – some 38 per cent versus 33 per cent.

**Labour force participation** rates are usually highest in the poorest countries. More people are employed out of necessity than by choice, as only a fraction of the working-age population can afford not to work. In these countries, low unemployment figures in conjunction with high labour participation rates result in large swathes engaged in vulnerable employment and many in working poverty. This holds for many economies in sub-Saharan Africa, where female participation rates feature among the highest in the world.

Poverty is the principal driver of the high rate of child labour in agriculture. Around 60 percent of all child labourers – 129 million girls and boys – work in agriculture. More than two-thirds of them are unpaid family members. The agricultural sector has the highest incidence of both unpaid child labour and early entry into the workforce, which often occurs between the ages of five and seven.

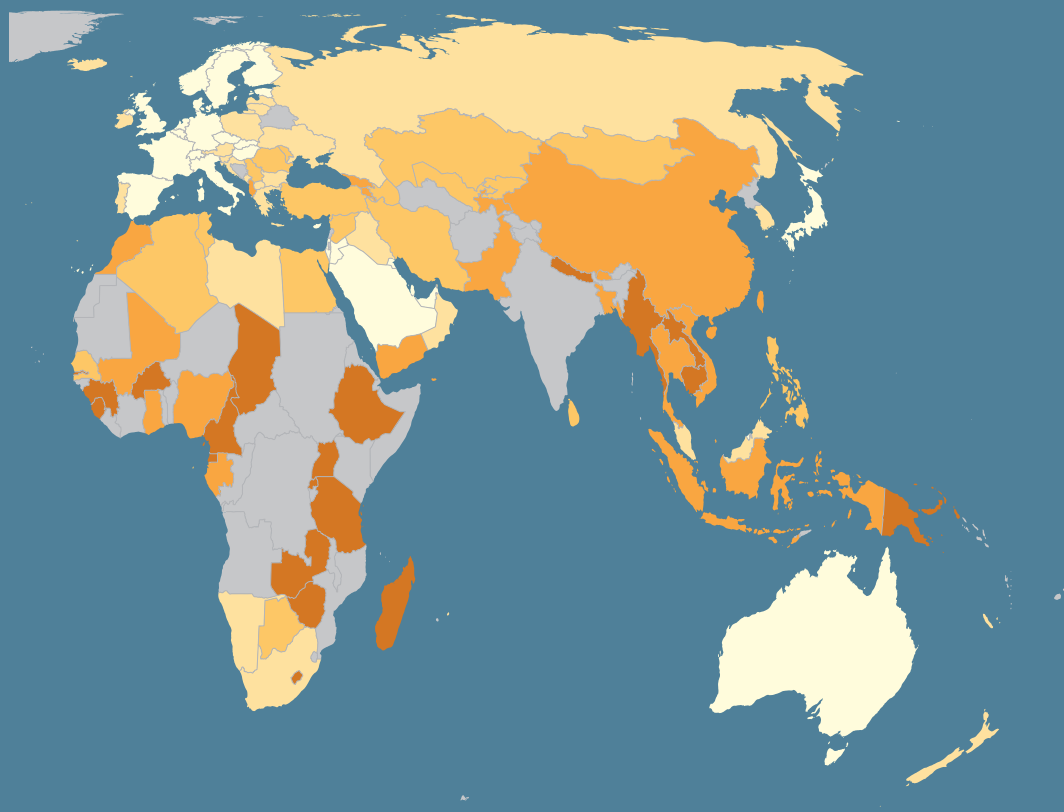
Map 6:



Source: KILM (ILO)

Metalink: [P1.RES.WBK.WDI.LAB.EAT](#), p. 78 

- Over 1 billion people are employed in world agriculture, representing 1 in 3 of all workers
- In sub-Saharan Africa over 60 percent of the entire workforce are involved in agriculture

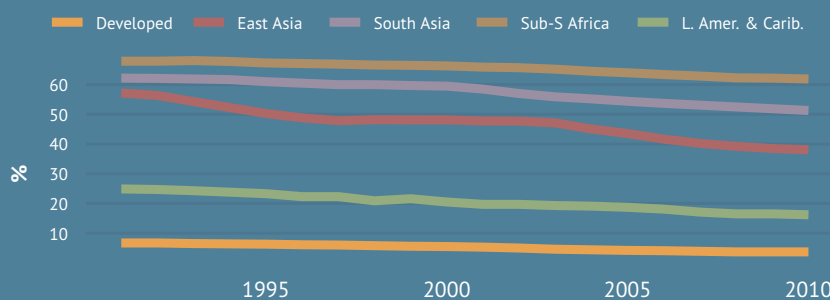


Employment in agriculture, share of total employment (% , 2010\*)



Chart 12: Employment in agriculture falling worldwide, but the sector still accounts for more than half of total employment in sub-Saharan Africa and South Asia

Employment in agriculture, share of total employment (1990-2010)



Source: KILM (ILO)

Metalink: P1.RES.WBK.WDI.LAB.EATx, p. 78

High rates of child labour are also caused by lack of access to education, poor quality of education, limited supplies of affordable agricultural technology and adult labour, hazardous practices, and the dominance of traditional attitudes towards children's participation in agricultural activities. However, in the context of family farming not all participation of children in productive activities is considered child labour. For instance, age-appropriate tasks that do not interfere with a child's compulsory schooling and that are not hazardous can be important contributions to the household food security and can provide children with agricultural and other skills for their future.

In the overall labour market, world **unemployment** in 2010 stood at 205 million (a rate of 6.2 percent), which was virtually unchanged from the previous year, but over 15 percent higher than the pre-recession level of 2007. Well over half of the increase in global unemployment between 2007 and 2010 arose in the developed economies, even though this group comprises only one-seventh of the world labour force.

The **employment-to-population** ratio, which indicates the employment-generating capacity of an economy, globally stood at 61 per cent in 2010, around a percentage point lower than at the onset of global economic turmoil. Put simply, this means that economies around the world are not generating sufficient employment opportunities to absorb additions to the working-age population.

## Further reading

- Global Employment Trends 2011 ([www.ilo.org/empelm/what/WCMS\\_114243](http://www.ilo.org/empelm/what/WCMS_114243))
- Key Indicators of the Labour Market (KILM) ([www.ilo.org/kilm](http://www.ilo.org/kilm))
- FAO Gender, Equity and Rural Employment Division ([www.fao.org/economic/esw/](http://www.fao.org/economic/esw/))
- Food, Agriculture & Decent Work ([www.fao-ilo.org](http://www.fao-ilo.org))

Chart 13: Wide variation in the depth of women's participation in agriculture, but their role more prominent in developing countries



Source: KILM (ILO)

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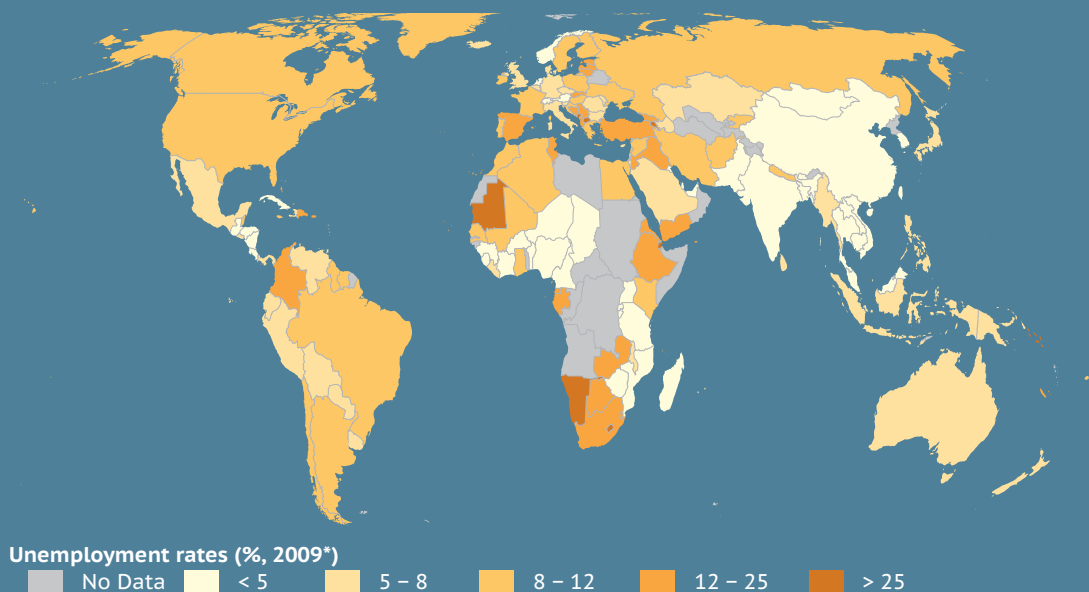
Chart 14: The need for paid employment is much higher in developing countries and among women



Source: KILM (ILO)

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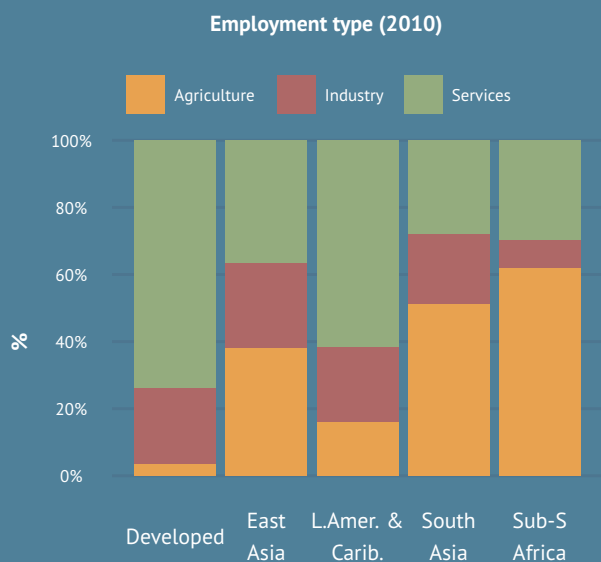
Map 7: High rates of unemployment afflict many regions, except Asia



Source: KILM (ILO)

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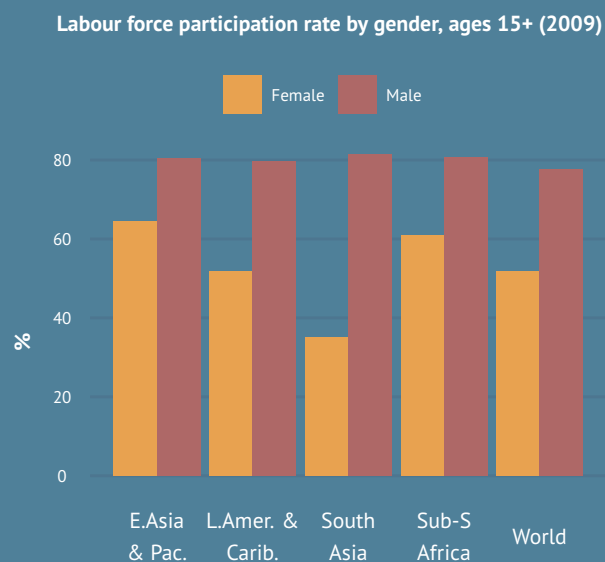
Chart 15: Agriculture forms the bedrock of employment in the poorest regions



Source: KILM (ILO)

Metalink: P1.RES.WBK.WDI.LAB.EATx, p. 78

Chart 16: Considerably less women participate in income generating activities than men



Source: KILM (ILO)

Metalink: P1.RES.WBK.WDI.LAB.PTRF, p. 79

## Capital and investment

Investment drives growth and development. Additional net investment in capital goods (**capital formation**) such as expenditure on new machinery, infrastructure and technology enables an economy to produce more, and more efficiently in the future. Investment is vital to promoting long-run economic growth by improving productivity and productive capacity.

Given its strong impact on welfare, investment is particularly important in agriculture: countries that performed best in terms of reducing poverty and hunger are also those that achieved higher net investment rates per agricultural worker. However, there has been a global slowdown in the rate of capital formation in primary agriculture. While the rate grew annually at 1.1 percent in the period 1975–1990, the rate of capital formation was only 0.5 percent during 1991–2007. This reduction was recorded in both developed and developing countries.

As a consequence, in sub-Saharan Africa and South Asia – that is, regions where many countries experience the highest prevalence and greatest depth of hunger – the growth of the population active in agriculture has outstripped growth of agricultural capital stock.

**Government expenditure on agriculture** is positively and highly correlated with capital formation, confirming the decisive role of such expenditure in creating an enabling environment for infrastructure and sustainable access to natural resources. It also has a significant positive impact on productivity: research has shown that increasing public spending on agriculture by 10 percent leads to a 0.34 percent increase in a country's agricultural total factor productivity.

Poorer developing countries have less capacity to fill the investment gap. The share of public spending on agriculture has fallen to an average of approximately 7 percent in developing countries and even less in Africa. Agricultural **Official Development Assistance (ODA)** decreased by some 58 percent in real terms between 1980 and 2005, even though total ODA increased significantly – by 112 percent – over the same period. This means that the share of ODA going to the agricultural sector fell from 17 percent in 1980 to between 5 and 6 percent in 2009, with the same downward trend observed in national budgets.

In the absence of national funding channels, financing for the rural agenda has been bolstered by increased donor funding. Such assistance represents a large part of the agricultural budget in most rural-based economies. For 24 sub-Saharan countries, ODA averages 28 percent of total agricultural spending, and for Mozambique, Niger, and Rwanda, ODA averages more than 80 percent.

Map 8:



Source: FAO & World Bank

Metalink: [P1.RES.FAO.ESS.CAP.STK](#), p. 75 

- Around USD 100 billion dollars of investment was put into agriculture globally in 2007
- But this is a fraction of the 5 trillion dollars added to world GDP in that year
- Growth in investment also lags behind population growth in many developing countries

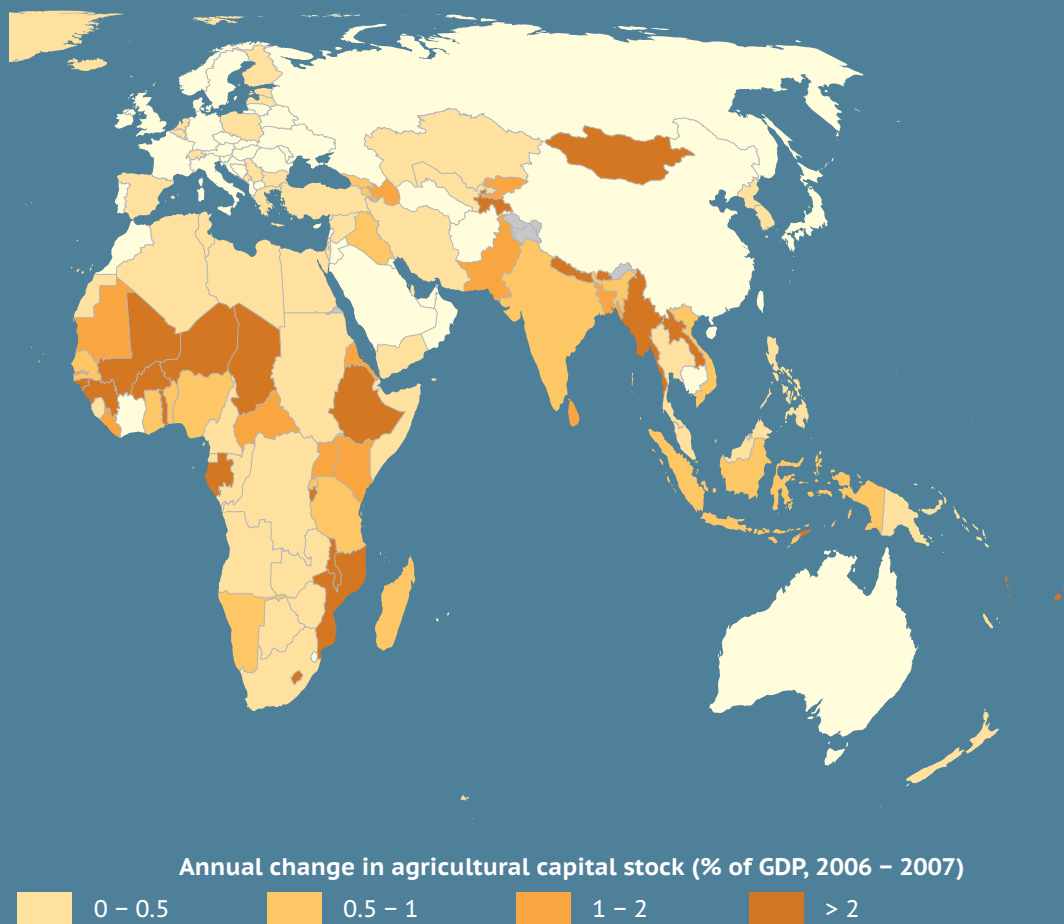
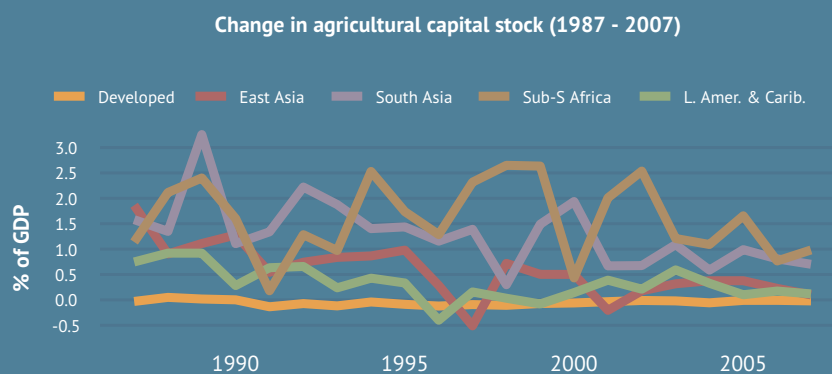


Chart 17: Investment in agriculture as a share of GDP extremely low



Source: FAO & World Bank

Metalink: [P1.RES.FAO.ESS.CAPSTK](https://doi.org/10.18113/FAO/ESSCAPSTK), p. 75

Investments in **agricultural research and development** (R&D) have shown to have very high rates of return, and thus can play an important role in alleviating hunger and poverty. While global private funding is commonplace in high-income countries, it is limited in most developing countries owing to a lack of financing opportunities and incentives for private research, and to uncertain returns.

Even though the benefits of public research initiatives such as the Consultative Group on International Agricultural Research (CGIAR) and affiliated organizations (which have contributed enormously to the global pool of available agricultural technology and knowledge) have been recognized, the question of how to increase and sustain the financing of such bodies is not straightforward. Governments are often hesitant to make substantial contributions towards entities whose benefits will be spread well beyond the scope of their constituents or borders.

Commercial bank lending to agriculture in developing countries is also low; it is less than 10 percent, for example, in sub-Saharan Africa. While the growth in private investment funds targeting African agriculture is an interesting recent development, these current investments remain minor.

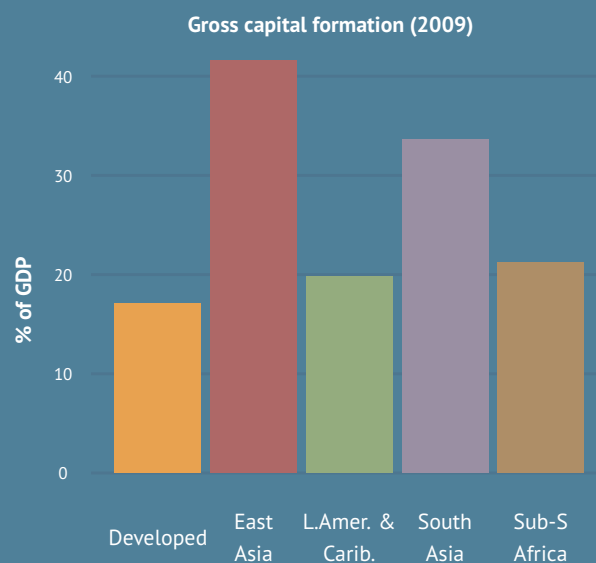
Given the limitations of alternative sources of investment finance, **Foreign Direct Investment** (FDI) in developing country agriculture could make a significant contribution to bridging the investment gap. FDI is also found to positively impact productivity growth, but only when governance is sound. Given the limitations of alternative sources of investment finance, many developing countries are making strenuous efforts to attract and facilitate foreign investment into their agriculture sectors. For them, FDI is seen as a potentially important contributor to filling the investment gap and providing developmental benefits, for example through technology transfer, employment creation and infrastructure development.

Whether these potential developmental benefits are actually likely to be realized is a key concern, as FDI has also the potential to harm host countries. Care must be taken in the selection and formulation of business models that are capable of meeting the needs of both host countries and investors. In addition, appropriate policy and regulatory frameworks need to be in place to ensure that development benefits are maximized and the risks minimized. FAO promotes responsible investment in agriculture, including building international consensus on Principles for Responsible Agricultural Investment (RAI Principles).

### Further reading

- FAO Investment Centre ([www.fao.org/tc/tci](http://www.fao.org/tc/tci))
- FAO How to Feed the World in 2050: Investment Brief ([www.fao.org/wsfs/forum2050/](http://www.fao.org/wsfs/forum2050/))
- FAO Foreign Investment in Agriculture ([www.fao.org/economic/est/investments/](http://www.fao.org/economic/est/investments/))
- von Cramon-Taubadel et al. (2011)
- Schmidhuber et al. (2011)

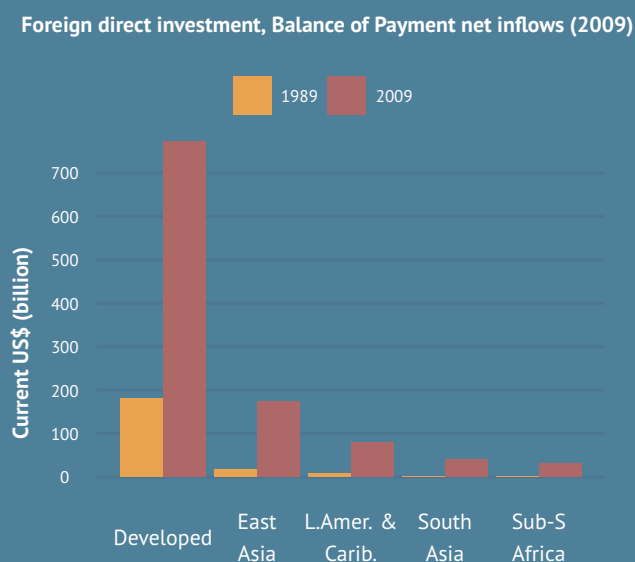
Chart 18: Investment relative to GDP highest in Asia among developing regions



Source: World Bank

Metalink: [P1.RES.WBK.WDI.GCF.GDP](https://data.worldbank.org/P1.RES.WBK.WDI.GCF.GDP), p. 77

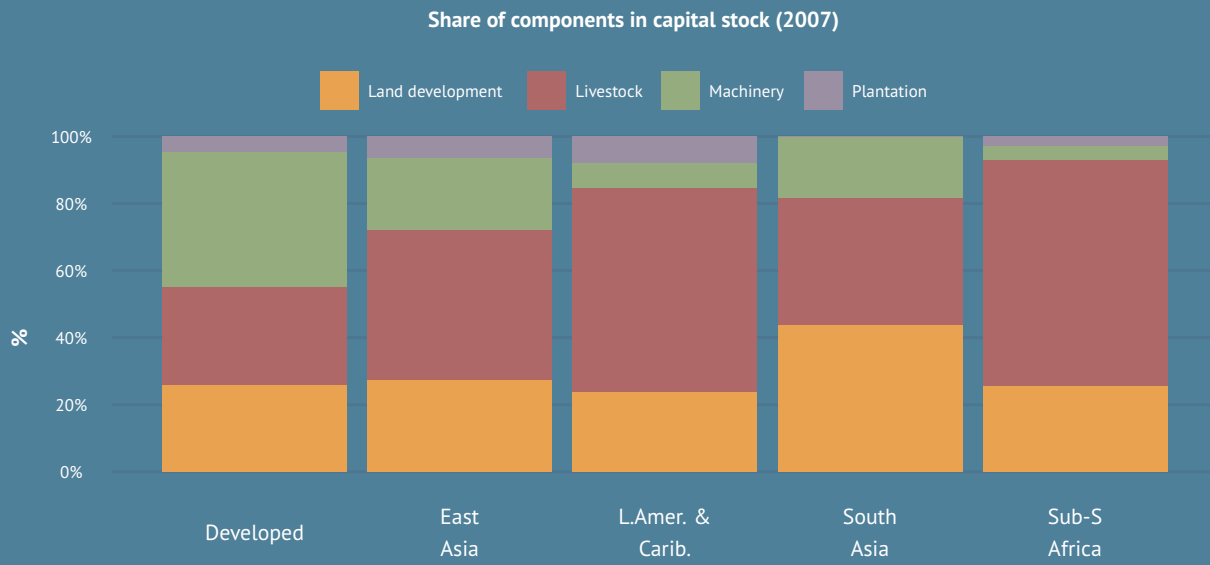
Chart 19: Developed economies attract the lion's share of foreign investment



Source: UNCTAD

Metalink: [P1.RES.WBK.WDI.FDI.INF](https://data.worldbank.org/P1.RES.WBK.WDI.FDI.INF), p. 77

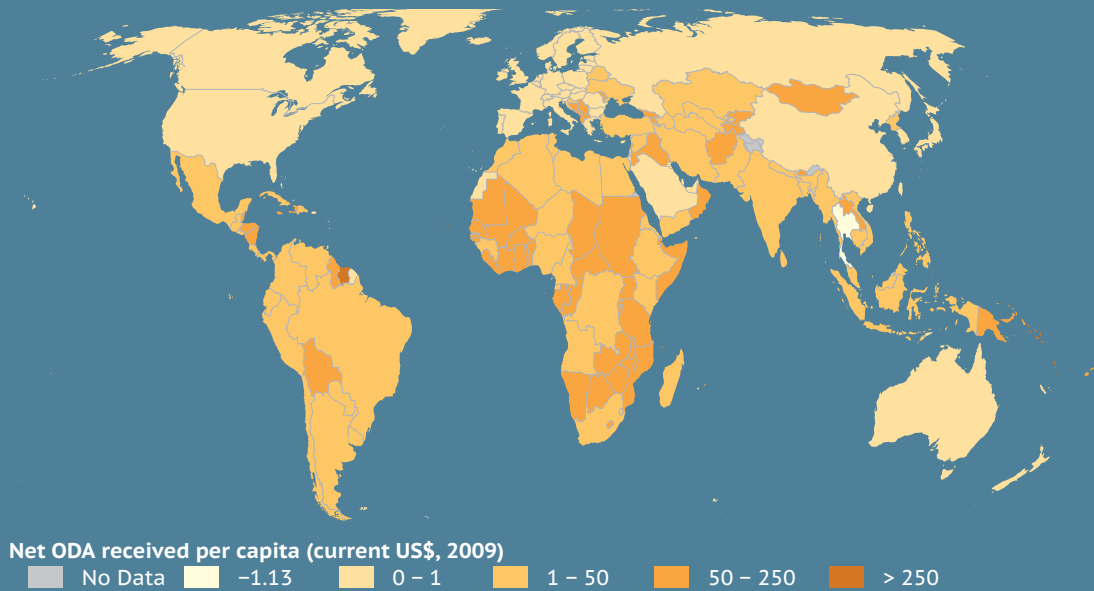
Chart 20: Investments in mechanization low in food-insecure regions



Source: FAO, Statistics Division

Metalink: [P1.RES.FAO.ESS.CAP.STK](#), p. 75

Map 9: Sub-Saharan Africa beneficiary to highest rates of official development assistance



Source: UNCTAD

Metalink: [P1.RES.WBK.WDI.ODA.PCP](#), p. 80



## Inputs

Throughout Asia and in parts of Latin America, expanding seed and fertilizer use has been accompanied by corresponding investments in irrigation, rural roads, marketing infrastructure and financial services that have subsequently paved the way for dynamic commercial input markets. Developing such markets is vital for agricultural productivity growth. This is the case for sub-Saharan Africa, where large commercial input enterprises have yet to emerge. High transaction costs, risks, and the major economies of scale involved in producing, importing, and transporting inputs, such as **fertilizer**, are to blame; but a key factor for the region's low input uptake is that it is generally cheaper to expand cropland to achieve production targets. As a consequence, chemical fertilizer usage is much lower in sub-Saharan Africa than elsewhere.

Today, Asian farmers are the major users of fertilizer. Indeed, one-third of the increase in cereal production worldwide and half of the increase in India's grain production during the 1970s and 1980s has been attributed to increased fertilizer consumption. The increased use of fertilizer is becoming even more crucial in light of other factors, such as the impact of more intensive cultivation practices and shorter fallow periods on soil fertility.

**Pesticides** can increase agricultural productivity, but when handled improperly, they are toxic to humans and other species. Usage can be reduced through Integrated Pest Management (IPM), which uses information on pest populations to estimate losses and adjust pesticide doses accordingly. IPM has brought about tremendous benefits to farm profitability, the environment, and human health. Adoption has often been limited because of its complexity, but results can be extraordinarily successful. For instance, the successful control of the cassava mealybug in East Africa, which hitherto caused significant losses, was achieved by introducing a parasitoid wasp that is the mealybug's natural enemy.

**Plant breeding** also plays an important role in bolstering productivity by adapting cultivated varieties to local conditions and making them more resilient to biotic (e.g. insects, diseases, viruses) and abiotic stresses (e.g. droughts, floods). Studies estimate that the global yield loss due to biotic stresses averages over 23 percent of the estimated attainable yield across major cereals.

## Further reading

- Schmidhuber & Bruinsma (2011)
- FAO Agriculture Department ([www.fao.org/ag/](http://www.fao.org/ag/))

Map 10:



Source: FAO, Statistics Division

Metalink: [P1.RES.WBK.WDI.FER.HA](https://doi.org/10.18125/1.5061), p. 77 

- 119 kg of fertilizer applied on average to every hectare of cropland in the world
- Fertilizer use lowest in sub-Saharan Africa but exploiting land potential holds the key to higher production in the region

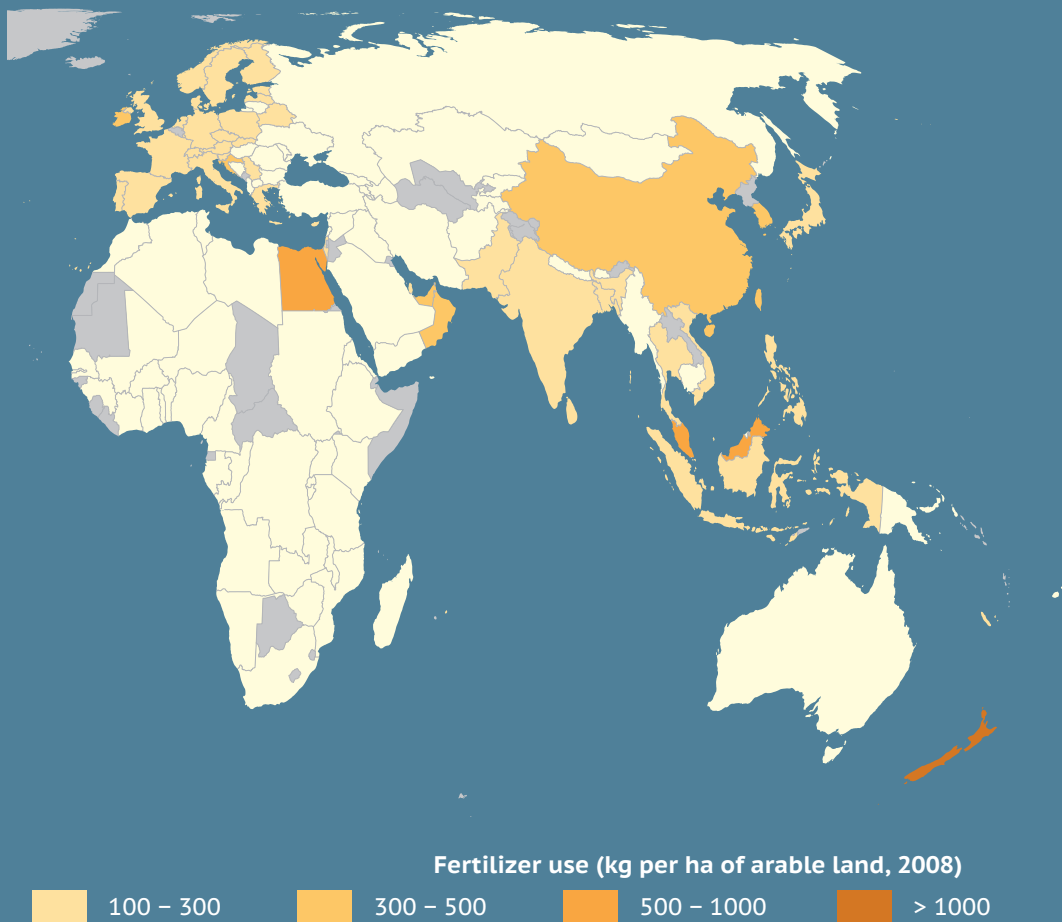
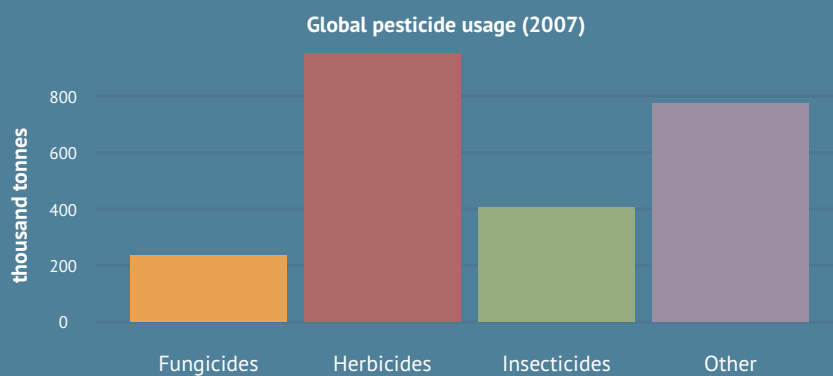


Chart 21: Herbicides - to control unwanted plants - are the most widely used form of pesticide in the world



Source: United States EPA  
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## Infrastructure

One of the key factors holding back agricultural development is the absence of adequate rural infrastructure. Improvements to basic rural infrastructure, particularly roads, electrification and storage are a prerequisite for agricultural sectors to thrive.

Considerable synergies can enhance infrastructure. Investments in cold storage, for instance, are only viable with reliable and sufficient rural electrification. Likewise, investments in milling facilities must be planned with adequate dry storage, electrification and feeder roads. Roads, storage and processing facilities together foster the creation of value chains that increase efficiency and minimize losses.

**Rural roads** and **transportation** link farmers to markets and reduce transactions costs. By lowering transportation costs to urban areas, farmers will earn higher returns for their produce and consumers benefit through potentially lower prices. Shorter transportation times also help in preserving product quality and in reducing losses. At the same time, better transport infrastructure reduces prices for inputs, such as seeds and fertilizer, and allows farmers to step up production intensity and use their resources more fully and efficiently.

High transaction costs matter enormously in many developing countries. For instance, while it costs only USD 40 to ship a tonne of fertilizer 9 000 km from the United States of America to coastal Mombasa (Kenya), it costs another USD 120 to take it from there to Kampala, a distance of 1 000 km. High shipping costs have the same effect as a high import tariff. High transaction costs make inputs expensive for farmers, and is part of the reason for the very low rates of input usage and ultimately the very low yields in sub-Saharan Africa. On the output side, high transaction costs work like an export tax, squeezing profit margins for farmers and lowering their competitiveness relative to overseas farmers.

In developing countries, there has been little investment in rural infrastructure that leads to improvements in roads, electricity and post-harvest technologies. Those who have invested, however, have reaped considerable rewards. This holds for several countries in East Asia, where China, for instance, increased expenditures on roads by almost fourfold at the beginning of the last decade, with the result that by 2006, 62 percent of villages were connected to their towns by paved roads.

Map 11:



Source: World Bank

Metalink: [P1.RES.WBK.WDI.INF.IX](#), p. 77 

- Poor infrastructure hampers economic development
- Roads and electrification are of special importance
- Much of Africa lags behind other regions in terms of quality of infrastructure

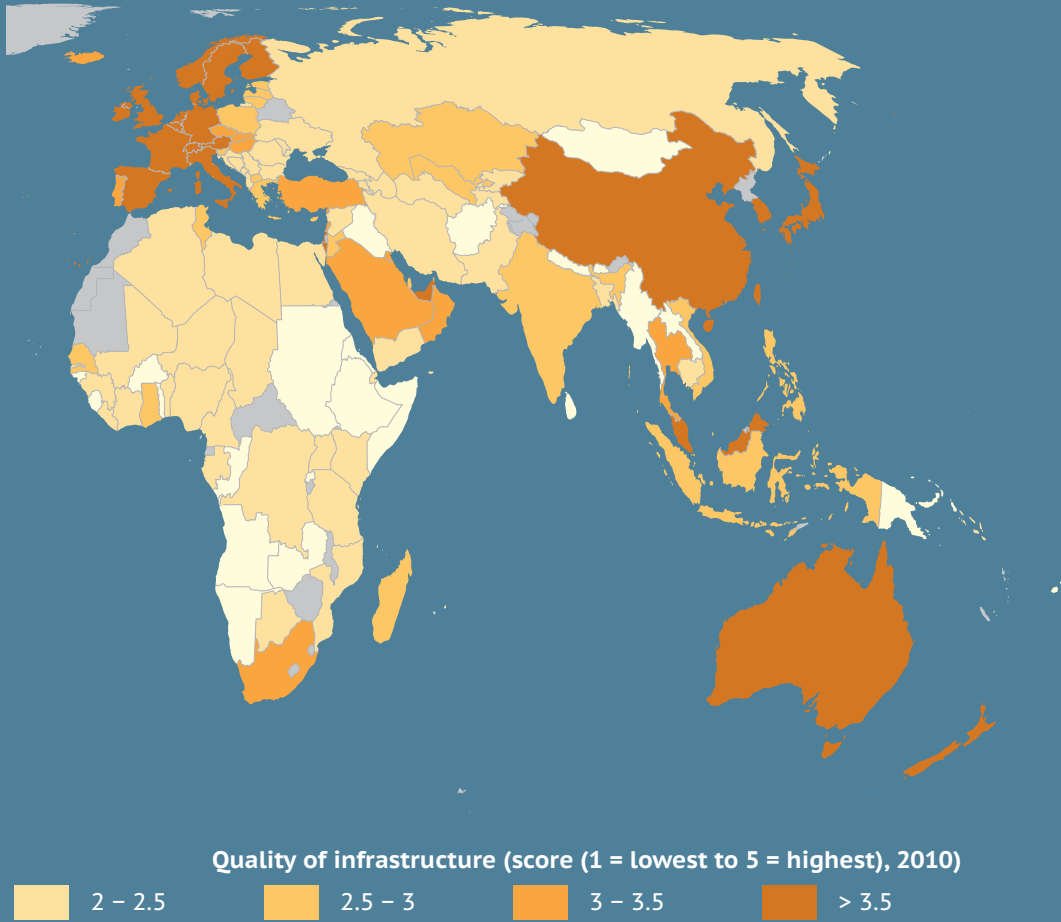
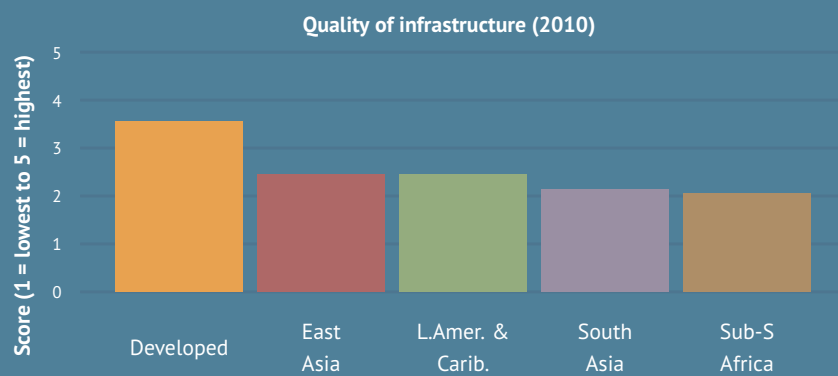


Chart 22: Among developing regions quality of infrastructure highest in East Asia and in Latin America



Source: World Bank

Metalink: [P1.RES.WBK.WDI.INF.IX](#), p. 77 

Not only rural roads but also **rural electricity** grids are unavailable and unreliable in many poor developing countries. For example, only 5 percent of Africa's rural population has access to electricity, while in South Asia electricity consumption per person is the lowest of all regions.

In developing countries, post-harvest losses alone account for an estimated 25-40 percent of total agricultural production. Losses can even be higher when bumper harvests overwhelm limited storage capacities.

Reducing losses ultimately means reducing pressure to raise output, and leads to less input usage and reduced pressure on scarce natural resources. Better storage also buffers against production shortfalls and thus helps reduce price swings. And finally, when marketing is subject to delay, adequate storage improves the quality of farm produce and allows farmers to fetch a higher price.

Although improved **export capacity** in delivering surpluses to deficit countries has been a positive development, it is particularly important to improve productivity and resilience of production systems in countries with limited **import capacity** and poor physical market integration.

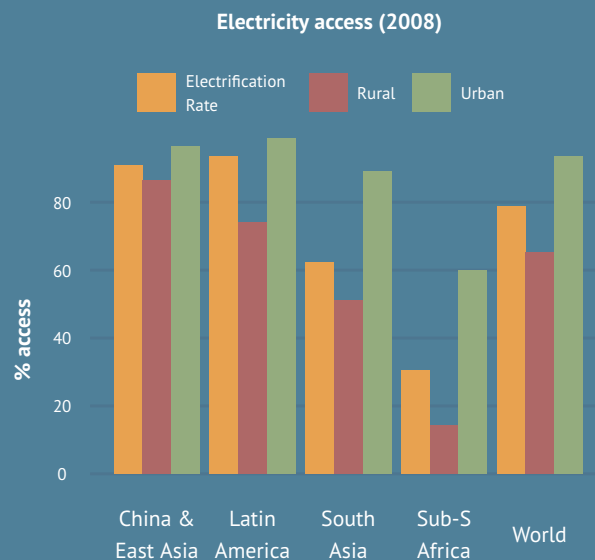
In addition to investment in physical infrastructure, efforts are needed to design and build new rural institutions, enhance rural markets for inputs, outputs and capital, equip small-scale farmers with appropriate technologies and facilitate non-agricultural enterprises in rural areas.

The returns to society from rural investments are high, but because of the public good nature of most of the investments needed, funding is likely required from the public sector, including governments of poor countries themselves, regional development banks and international development institutions.

## Further reading

- Schmidhuber & Bruinsma (2011)
- FAO Rural Infrastructure and Agro-industries Division ([www.fao.org/ag/ags/rural-infrastructure/en/](http://www.fao.org/ag/ags/rural-infrastructure/en/))

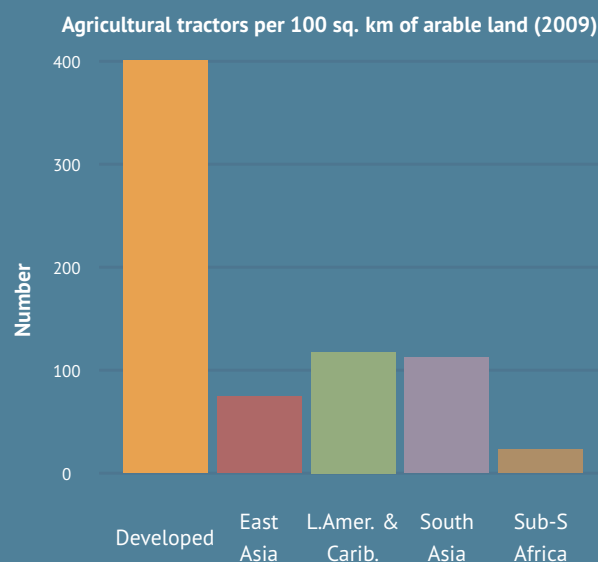
Chart 23: Access to electricity considerably lagging behind in poorer regions



Source: WEO

Metalink: P1.RES.IEA.WEO.ELEC.AC, p. 76

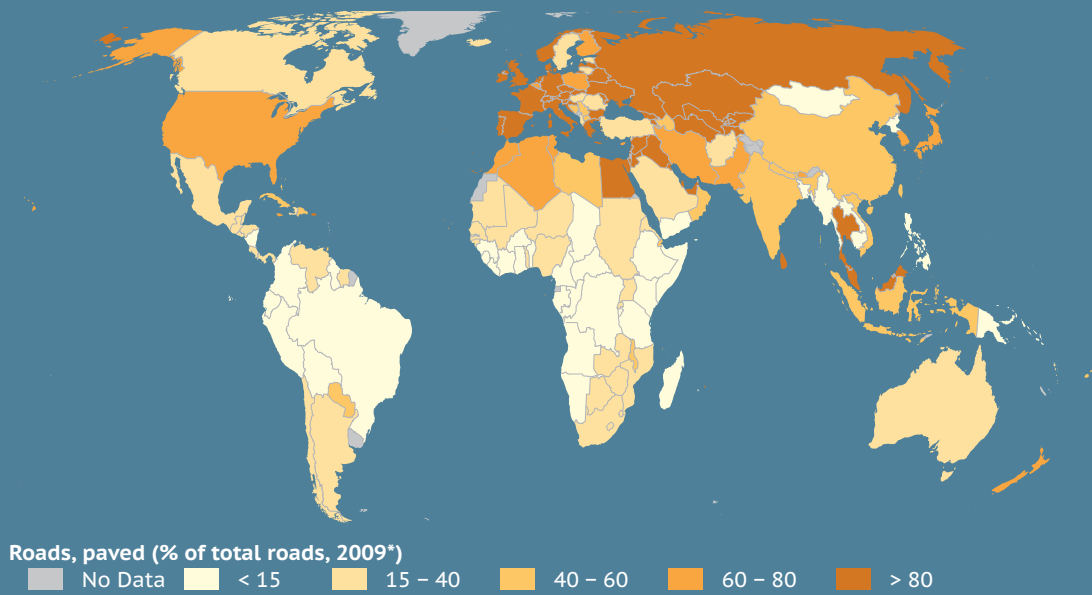
Chart 24: Large agricultural labour force and small holdings negate the need for mechanized agriculture in poorer regions



Source: FAO, Statistics Division

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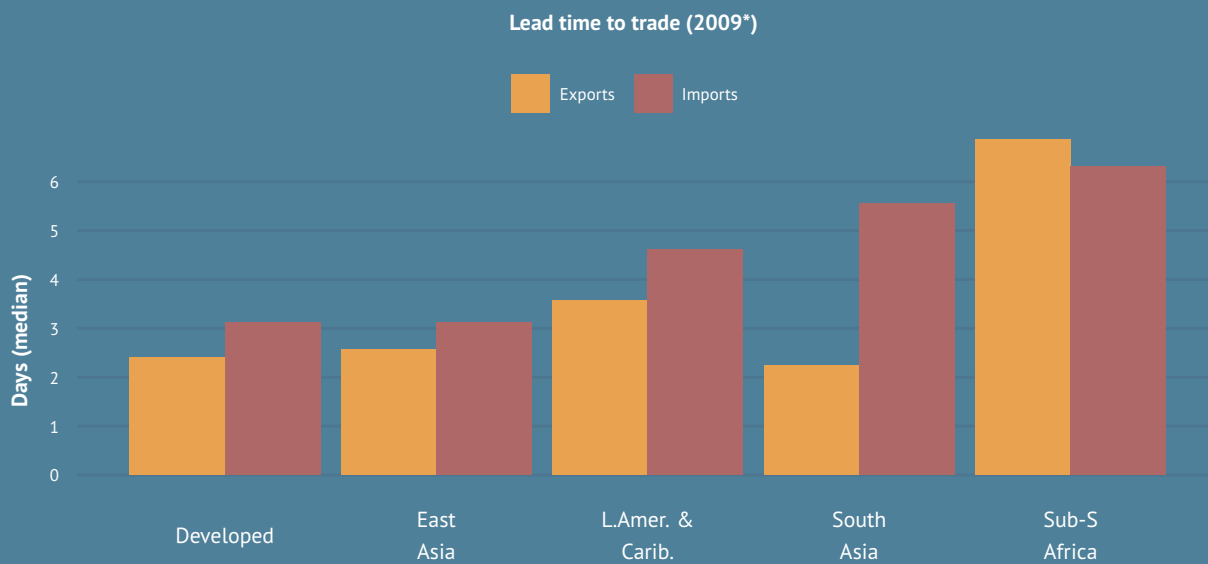
Map 12: A lack of paved roads reduces supply chain efficiency



Source: World Bank

Metalink: [P1.RES.WBK.WDI.RD.PV, p. 80](#)

Chart 25: More than twice the number of days needed to trade in sub-Saharan Africa than in developed countries



Source: World Bank

Metalink: [P1.RES.WBK.WDI.EXP.DAY, p. 77](#)