

Bigger sometimes is better when it comes to farm size

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A farmer working in the field. A new study suggests that small farms may not be as productive as larger farms as previously thought. Credit: Khem Sovannara/ILO (<https://www.flickr.com/photos/iloasiapacific/8395472040>) (CC BY-NC-ND 2.0)

Small farms in the developing world do not perform better than large ones if costs and labor are factored in rather than just crop production, says a new study.

Pedro Andrés Garzón Delvaux, EU economist and lead author of the study published in *Science Advances*, this month, says that the belief that small farms are more productive than big ones has resulted in explicit or implicit support for smallholder-focused development strategies.

According to the Food and Agriculture Organization of the United Nations (FAO), about 90 percent of the world's 570 million farms are small and most are found in the rural areas of the [developing world](#), but they produce food for a substantial proportion of the world's population. Many small farmers take on other [economic activities](#) to add to their small incomes.

Since the 1960s, researchers have consistently found that in developing countries crop yields per hectare drop as farms increase in size. The so-called inverse [farm-size](#) productivity relationship flies in the face of findings in the developed world, where bigger farms normally have higher productivity thanks to economies of scale and greater mechanization.

According to Garzón Delvaux, the inverse farm-size productivity relationship appears to suggest that two birds can be killed with one stone—supporting the poorest farmers as well as fostering development.

But after analyzing more than 500 [research papers](#) on the topic, Delvaux and colleagues show that policies supporting small farms may not be the best route to rural development. "The call is to disentangle these two concepts," he says. "You need to integrate social policy alongside rural development and not mix the two or assume that one will bring the other with it."

The study analyzed more than 1,000 [case studies](#) recorded between 1997 and 2018 and found the probability of falling performance as farm size increased at 65—77 percent when measured by crop yields or monetary value of outputs. But this dropped to 39—62 percent when relying on a farm's profitability or even further to 26—42 percent when relying on measures of economic efficiency.

Rather than simply focusing on supporting smallholders, development policy should try to tackle the reasons for this inefficiency, says Garzón Delvaux. Often, it is caused by a lack of alternative sources of income or difficulties in acquiring more land for farming due to lack of access to credit or restrictive property laws, he adds.

"The big effort," says Garzón Delvaux, "should be to support them in moving towards other activities than directly farming the land."

According to Garzón Delvaux, the efficiency or profitability of a farm has a far more direct impact on the economic fortunes of farmers than raw yields and the study results suggest that while smaller farms may produce more crops, it does not necessarily translate into rural development.

Previous research has suggested yields are higher on small farms because entire families work on them, so the amount of labor invested per hectare is far higher than commercial farms. "But it's completely inefficient," says Garzón Delvaux. "This is not going to allow them to move out from poverty."

The study also found the inverse farm-size productivity weakening over time. The probability of finding it dropped from 88 percent in 1990 to 66 percent in 2017—suggesting that some of these changes are already underway.

Steve Wiggins, an economist at the Overseas Development Institute, says the new paper will not be a revelation to most agricultural economists. He agrees with many of the conclusions but says the idea that inverse farm-size productivity is not an iron law is well accepted by most in the field and he questions how much development policy is shaped by it.

"The article is magnificent in its rigor in documenting this. They've done everybody a service and it's a point of record that we can all turn to," he says. "Is it somehow going to dramatically change our development thinking? No."

There is still a sizeable section of the development community focused on supporting smallholders for ideological reasons though, says David Laborde, an economist at the International Food Policy Research Institute (IFPRI). He says the paper's scale and comprehensiveness support the idea that size doesn't matter when it comes to farm performance.

"Medium, large or [small farms](#) all have their role or their niche," he says. "Thinking that we want to keep all of them smallholders just because they have high yields will be a dead end."

More information: P. A. Garzón Delvaux et al. Are small farms more performant than larger ones in developing countries?, *Science Advances* (2020). [DOI: 10.1126/sciadv.abb8235](https://doi.org/10.1126/sciadv.abb8235)

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