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**Article**

## Trade liberalization and poverty reduction

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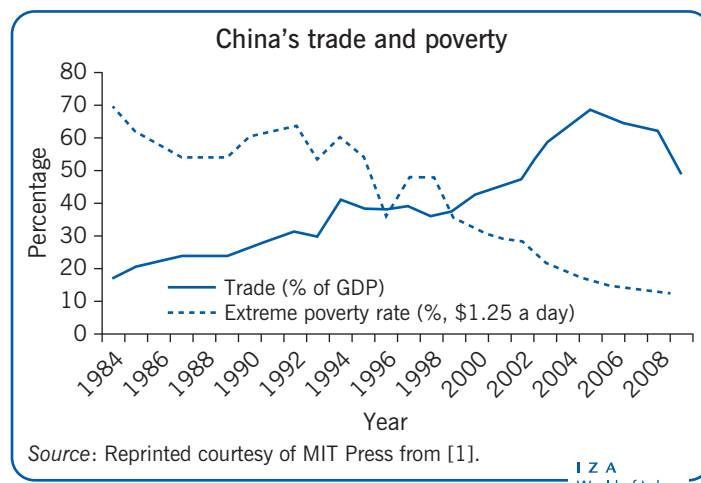
# Trade liberalization and poverty reduction

## Trade can reduce poverty when accompanied by appropriate policies and institutions

Keywords: international trade, reforms, poverty reduction, growth, labor markets

### ELEVATOR PITCH

Economic growth is essential, though not sufficient, for poverty reduction in developing countries. Research based on many different approaches and including both cross-country and intra-country studies shows that international trade can contribute to economic growth, and thus can help many poor people escape poverty. However, the domestic environment has to be conducive to realizing the poverty-reduction benefits of increased trade. Complementary domestic policies and institutions needed include regulations that foster labor mobility, adequate financial development, and good public infrastructure.



### KEY FINDINGS

#### Pros

- + Poverty rates fell dramatically in China and India as trade increased.
- + Some evidence of trade's effect on poverty comes from recent cross-country analysis that includes a very large set of developing countries.
- + Most intra-country studies also find that trade reduces poverty.
- + Trade increases incomes, and economic growth reduces poverty.
- + "Appropriate" policies complementary to trade reforms include: product diversification, suitable agricultural policies, and policies promoting financial development, protecting property rights, and developing vital infrastructure.

#### Cons

- There is no confirmation of causality in the China and India case studies on trade and poverty reduction.
- Cross-country regression results linking trade and poverty reduction lose their significance when time effects are taken into account.
- Analyses at the district level in India lead to results that are inconsistent with the recent findings of a positive relationship between trade and poverty reduction at the cross-national level.
- Few studies on the trade-poverty relationship have looked at the interactions with appropriate complementary domestic policies and institutions.

### AUTHOR'S MAIN MESSAGE

Both cross-country regression studies and single-country studies support the claim that liberalizing trade will reduce poverty. Both China and India, the greatest examples of the positive effects of trade on poverty, experienced huge reductions in poverty following extensive trade reforms. However, not all studies find significant positive gains from trade reforms. What seems to matter for the impact of trade on poverty is having the right kind of domestic institutions and policies. Greater road density, sensible labor regulations, and greater financial development enhance this impact.

## MOTIVATION

Trade has long been asserted to be an engine of growth. More recent is the dual claim that not only does trade enhance growth but that growth in turn reduces poverty [2]. The implication of these arguments is that growth will increase during the transition period to the new steady state following a trade reform. However, these theoretical propositions often depend on the analytical assumptions made and may fail under alternative assumptions.

Policymakers have long recognized the need for economic growth in order to reduce poverty, an argument that rests on simple arithmetic [2]. Many poor countries have had such low per capita incomes that a perfectly equal income distribution would put everyone below the poverty line.

Several country studies in the 1960s and 1970s offered strong evidence against import substitution policies (promoting industrialization by encouraging domestic production to replace imports) in favor of outward-oriented trade policies. Since this evidence predates major trade reforms and the use of sophisticated econometric methods, it is important to examine the more recent evidence.

## DISCUSSION OF PROS AND CONS

### **The theoretical channels leading from trade reform to poverty reduction**

Increasing average income while keeping the distribution of income around the average unchanged should reduce the incidence of poverty. Thus, unless growth is severely inequality enhancing, it should reduce poverty. According to theory, international trade leads to welfare gains through specialization in production and exchange of goods and services and through the availability of a larger variety of final and intermediate goods. However, there is no clear guidance on the trade-growth relationship; different models make different predictions. On the positive side, some models show that trade leads to more innovation through the international exchange of technical information (some of it embedded in traded goods and services) and the elimination of research duplication across countries [3]. Furthermore, the increased foreign competition introduced through trade strengthens the incentives of domestic producers to innovate. On the negative side, greater import penetration will reduce the market share of some domestic firms. Trade can also have adverse growth effects in countries that have a comparative advantage in technologically stagnant sectors.

Based on standard trade theory, trade liberalization in developing countries is expected to benefit those countries' unskilled labor, their most abundant factor of production, leading in turn to poverty reduction. However, this effect can be blocked if labor is unable to move across sectors. For instance, workers who are stuck in shrinking sectors will be hurt. Furthermore, skilled labor is more likely than unskilled labor to benefit from the complementarity of cheaper imported intermediate and capital goods.

Finally, trade affects poverty through multiple channels: consumption, production, and the labor market (wages and employment) [3]. The net welfare impact through consumption and production depends on whether an individual's net consumption and net production are of importable or exportable goods, while the net impact through the labor market channel depends on an individual's occupation and industry. These

channels, in turn, are affected by the pass-through of price changes as a result of tariff reforms. Price change pass-throughs to local markets are determined by the condition of a country's transport infrastructure, distance from the nearest port, and the relative market power of international buyers, local retailers, and distributors [3]. Because all of these factors can have heterogeneous effects, studies generally consider net aggregate effects of trade on the poor, while sometimes also considering how the effects interact with region- or industry-specific characteristics.

There is a wide variety of evidence on the impact of trade liberalization on poverty. The evidence comes from anecdotal country case studies (China and India), cross-country and intra-country studies, and empirical general-equilibrium studies.

### Case studies: High rates of growth and huge reductions in poverty in China and India

In the 1980s, China and India accounted for more than half the world's population in extreme poverty. Trade reforms started slowly in China in the late 1970s before gathering momentum in the 1980s and 1990s. Trade as a proportion of GDP rose from roughly 18% in 1984 to 70% in 2005, but then dropped back to 62% in 2008 and to 49% in 2009 as a result of the global financial crisis. Average tariff rates fell from roughly 32% in 1992 to about 4% in 2009. From 1992 to 2009, the proportion of the population living on less than US\$1.25 a day, the international measure of extreme poverty, fell from 69% to 12%,

#### Absolute and relative poverty

Poverty lines are cut-off points separating the poor from the non-poor. They can be monetary (for example, a certain level of consumption) or non-monetary (for example, a certain level of literacy). The use of multiple lines can help in distinguishing different levels of poverty. There are two main ways of setting poverty lines—relative or absolute.

*Relative poverty lines.* These are defined in relation to the overall distribution of income or consumption in a country; for example, the poverty line could be set at 50% of the country's mean income or consumption.

*Absolute poverty lines.* These are anchored in some absolute standard of what households should be able to count on in order to meet their basic needs. For monetary measures, these absolute poverty lines are often based on estimates of the cost of basic food needs (i.e., the cost a nutritional basket considered minimal for the healthy survival of a typical family), to which a provision is added for non-food needs. For developing countries, considering the fact that large shares of the population survive with the bare minimum or less, it is often more relevant to rely on an absolute rather than a relative poverty line. Different methods have been used in the literature to define absolute poverty lines.

*Reference poverty line.* What is necessary to satisfy basic needs varies across time and societies. Therefore, poverty lines vary in time and place, and each country uses lines that are appropriate to its level of development, societal norms, and values. When estimating poverty worldwide, the same reference poverty line has to be used and expressed in a common unit across countries. A common reference line is US\$1.25 a day for the extreme poverty line and US\$2 a day for the poverty line.

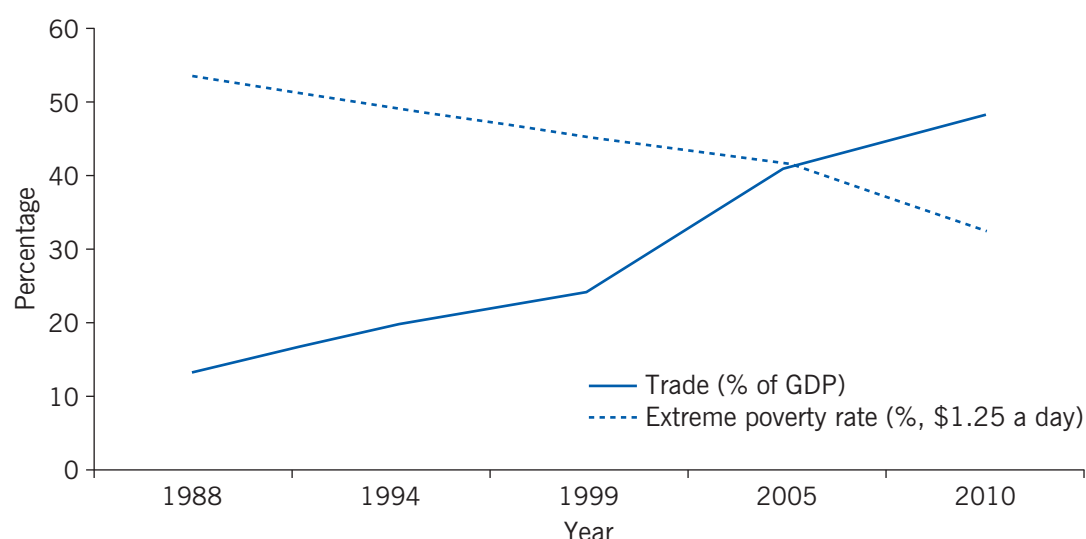
*Source:* Drawn from World Bank, *Choosing and Estimating a Poverty Line*. Online at: <http://go.worldbank.org/AOCMSD1N30>

while GDP grew at an extremely rapid rate of more than 8% a year, often hitting double digits. During this time, some 700 million people were pulled out of poverty.

In India, trade as a share of GDP rose from roughly 13% in 1988 to 48% in 2010. During that time, the average tariff plummeted from 80% to 10% (Figure 1). The proportion of the population living in extreme poverty dropped from 53% to 32%, with the most rapid decline occurring during 2005–2010 (from 42% to 33%). Economic growth was also very rapid during this period, in the range of 8–10% a year, with the exception of the recession year of 2008.

Thus, the world's two largest countries experienced high rates of growth and dramatic reductions in poverty following large drops in tariff rates. While these trends do not imply causation, they do strongly suggest a poverty-reducing impact of trade reforms.

Figure 1. India's trade and poverty



Source: Reprinted courtesy of MIT Press from Mitra, D. "Trade, poverty, and inequality." In: Bhagwati, J., P. Krishna, and A. Panagariya (eds). *The World Trade System: Trends and Challenges*. Cambridge, MA: MIT Press, Forthcoming [1].

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## Direct cross-country evidence

While earlier cross-country work was unable to find any effect of trade or tariffs on poverty after controlling for country-specific effects, a more recent study finds a relationship using improved and updated poverty data (US\$1.25 a day) covering 1981–2013 [1]. Following the previous literature, the study lags independent (explanatory) trade/protection variables by three years (to reflect the delayed influence on poverty of events in the past). There is fairly strong evidence of a negative relationship between poverty and trade (poverty declines as trade as a proportion of GDP rises) and a positive relationship between poverty and tariffs (poverty declines as tariffs decline, and vice versa). Regression analysis using country fixed effects (which remove the influence of characteristics of a country that do not change over time in order to assess the net effect of variations of the explanatory variables within each country on the outcome variable)

finds that trade has significant effects on poverty. A 1 percentage point increase in trade is associated with a 0.149 percentage point decline in poverty, and a 1 percentage point decline in the average tariff rate is associated with a 0.4 percentage point decline in poverty.

### Indirect cross-country evidence

Several cross-country macroeconomic studies showing positive effects of trade on growth have been criticized for econometric and measurement issues and for difficulties in determining the direction of causality [1], [4]. In particular, the measure of an economy's openness sometimes used captures not only trade policy but also the broader macroeconomic environment. However, the measure has been defended on the grounds that it conveys information on the entire package of trade and accompanying reforms [1], [4].

The more recent literature looks at the effects of trade on income levels rather than on growth rates [5]. Using predicted trade flows as instruments to address potential reverse causality (an instrumental variable approach), it finds positive effects of trade on income levels that are greater than those found with conventional ordinary least squares regression analysis.

Digging deeper, since incomes are ultimately a function of productivity, some micro-level studies look at the impact of trade on productivity growth. Higher productivity could have a positive impact on wages through an increase in labor demand, which could in turn have a poverty-reducing impact. Following the earlier macroeconomics literature, these studies incorporate imperfect competition and non-constant returns to scale in estimating productivity. Two studies find a strong correlation between trade reforms and firm-level productivity growth in Côte d'Ivoire and India [6], [7]. Similar results were found for Chile, Colombia, and India using modern techniques to deal with measurement error and selection problems [1].

A new randomized controlled trial that randomly selected Egyptian rug manufacturers either to receive or not to receive export orders finds evidence for learning by exporting, leading to higher profits for the exporters [1]. While generally not passed on to workers directly, higher profits lead to greater labor demand and, in turn, to higher wages, which could have a poverty-reducing impact.

The next and final step in the indirect evidence on the effect of trade on poverty is the impact of growth on poverty. For a large cross-section of 92 countries over four decades, the growth rates of the average income of people in the bottom quintile of the income distribution did not differ from the growth rates of per capita income, with a positive correlation between the two [8]. Especially important are findings that policies promoting overall growth (such as trade openness, macroeconomic stability, moderate government size, financial development, strong property rights, and rule of law) also promote income growth for the poor. Later work by the same researchers found that per capita income growth arising from trade expansion after the trade and accompanying macroeconomic reforms of the 1980s in globalizing developing economies led to a sharp fall in absolute poverty over the next two decades. Other research shows that the

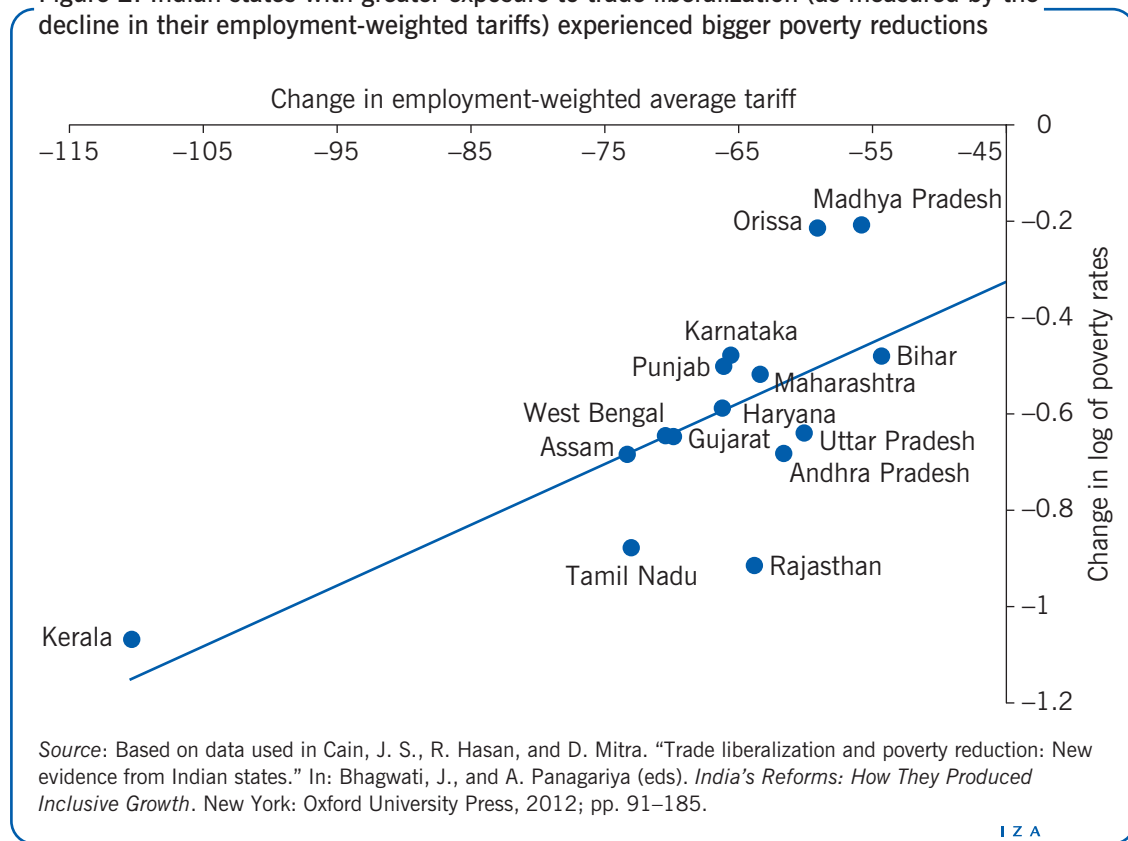
responsiveness (elasticity) of extreme poverty to real per capita income is about 2.5 on average [1].

Thus, most of the evidence suggests that trade boosts average incomes, which in turn is accompanied by growth in incomes of the poor and, thus, a reduction in the poverty rate.

### Direct intra-country evidence

A few intra-country studies have directly examined the trade-poverty relationship in a single step, without investigating the intermediate steps or channels. One such study shows that poverty reduction was lower in Indian rural districts where employment was concentrated in industries with high exposure to trade liberalization [9]. The results were similar for urban poverty, but were not statistically significant. The study concludes that greater exposure to the effects of trade liberalization may have resulted in a setback in poverty reduction. In contrast, another study finds that Indian states and regions whose workers faced greater exposure to trade have lower rural, urban, and overall poverty rates and experienced greater poverty reduction as a result of trade liberalization (Figure 2) [4]. Importantly, the effects were stronger in states with more flexible labor market regulations [4]. Changes in the composition of the population living in various districts within a state or region as a result of interdistrict labor mobility may explain such differences in results. In addition, India's National Sample Survey Organization uses

Figure 2. Indian states with greater exposure to trade liberalization (as measured by the decline in their employment-weighted tariffs) experienced bigger poverty reductions





random sampling at the state- and region-levels but not at the district level. Besides, district boundaries change frequently. Methodological differences between the two studies can also account for some of the difference in their findings.

An update to the state- and region-level study of India [4], which included data from a new survey round and took into account the effects of road connectivity and financial development, shows no qualitative change in the basic results. It does, however, find that the poverty-reducing effect of tariff reforms increases with road density and financial development in urban districts [1]. Other studies that have run separate regressions for workers in different social classes have rebutted the claim that poverty may have fallen in the aggregate after trade reforms but not among the socially disadvantaged classes in India.

A study on Colombia found poverty to be positively related to certain labor market variables such as the unemployment rate and informal sector employment—falling as these variables fall. But the study also found that trade does not affect any of these labor market variables [10]. Surprisingly, however, poverty in a sector is positively and significantly related to the volume of competing imports, while exports do not have a significant effect.

In Poland, trade liberalization during the 1990s resulted in higher wages in all industries, after controlling for individual worker characteristics, geographic variables, and industry and time effects [11]. As a result, workers in unskilled labor-intensive industries, which experienced the deepest tariff cuts, saw the greatest wage increases (possibly through increases in labor productivity). Given that the unskilled workers were among the poorest in Poland's labor force, the poverty rate was expected to decline as a result. Similarly, in Mexico in the 1990s, the incidence of relative poverty declined in states with higher exposure to foreign direct investment or imports or with a higher share of export assembly in GDP than in other states [1].

Most studies relying on direct, one-step regressions find that more open economies are more successful in reducing poverty. However, the studies are unable to identify the channels through which the effects occur. Another type of analysis, known as empirical general equilibrium welfare analysis, can help fill in this gap.

### **Empirical general equilibrium welfare analysis**

General equilibrium welfare analysis is used to investigate empirically the various general-equilibrium channels, especially those related to consumption and wages, through which trade affects the real incomes or welfare of people at all points along the income distribution. This kind of analysis incorporates relationships between changes in import tariffs and changes in the prices of tradable goods (along with the endogenous responses of the prices of non-tradable goods) into calculations of the adjustment in income needed to return people affected by these economic changes to their original utility/welfare level (called compensating variation) [12]. Analyzed using the compensating variation measure of welfare change, the welfare gain from a change in the price of a good resulting from a tariff change rises as the share of that good in an individual's budget rises. In addition, the analysis considers how wage changes attributable to tariff changes affect welfare by estimating the responsiveness of wages to tariff changes at three skill levels.



This approach is used to investigate, at each possible level of income, the impact on real income arising from trade agreements in Latin America under Mercosur, the Common Market of the South, which was first set up in 1991. Overall, the analysis finds significant welfare gains for the poor and a reduction in poverty, both of which were attributable to increased trade, even though other factors led to an actual overall poverty increase in Argentina in the 1990s—i.e. in the absence of the expansion in trade there would have been a bigger increase in poverty.

This methodology was also applied to Indian trade reforms to allow for the incomplete transmission of tariff changes into prices across states and across rural and urban areas, differences in wage effects across skill categories and age groups, and labor immobility across states and industries [1]. Overall, trade reforms are found to have a pro-poor effect, with larger effects in urban areas and in states with higher transmission of tariff changes into prices.

The approach was also applied to Vietnamese agriculture, modified to take household production into account. Again, the analysis found that trade reforms had a pro-poor impact [1].

## LIMITATIONS AND GAPS

While the remarkable experiences of poverty-reduction in China and India strongly indicate a poverty-reducing impact of trade, there is no confirmation of causation. Cross-country regression results are also not completely clear-cut. While these analyses find a significant poverty-reducing effect of trade, statistical significance disappears when both country and year fixed effects are added to the models.

Some cross-country macroeconomic studies apply a two-step indirect approach to analyze the relationship between trade and poverty (from trade to growth to poverty reduction). They rely, as a first step, on the empirical validations of the positive effects of trade on growth, which have been criticized for problems with how they measure trade openness and protection, their econometric techniques, and the difficulty in establishing causality. Defenders of the approach argue that measures of trade openness that include other types of reforms capture the value of the entire package of trade and accompanying reforms.

The protection measure used in some of the intra-country studies is an employment-weighted average of industrial tariffs. Though trade policy is set at the national level, variations in employment shares across states, regions, or districts within a country will lead to corresponding variation in this protection measure. This measure is appropriate where factors of production are completely immobile across these units but is less appropriate when there is some degree of mobility across them. For example, there might not be much mobility of workers between states in India, but in some instances there might be a reasonable degree of mobility between districts within a state, making cross-state analysis more meaningful relative to cross-district analysis. Some of this criticism may apply to assumptions in the empirical general equilibrium welfare analyses discussed in this paper. How well the assumptions of perfect intersectoral mobility in Argentina and no mobility in India capture the reality in each of these countries studied would be worth examining.

## SUMMARY AND POLICY ADVICE

The literature on trade and poverty reduction raises the issue of the importance of “appropriate” policies in order for trade reforms to yield the greatest benefits [2]. Examples include diversifying away from products whose world prices might fall steeply (while specializing based on true comparative advantage), introducing suitable agricultural policies, promoting financial development, protecting property rights, and developing vital infrastructure [2].

For example, there is evidence that higher road density, more flexible labor markets, and greater financial development enhance the beneficial impact of trade reforms on poverty [1], [3]. Trade liberalization has been less effective in reducing poverty in economically lagging Indian states. Their distance from the nearest port, coupled with the lack of proper road connectivity, leads to relatively imperfect price transmission from tariff reductions [1], [3]. Thus, building more ports and roads becomes important for boosting the poverty-reducing effects of trade reforms.

The costs of moving between jobs in different firms or sectors or regions prevent the efficient reallocation of resources in response to trade reforms [13]. Thus, it is important to devise labor market policies that will minimize such labor adjustment costs. Policies could include carefully designed trade adjustment assistance programs (which, along with providing unemployment benefits, could also provide training in new skills that would be valuable in the growing sectors of the economy), as well as wage insurance and subsidies.

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## Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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### Further reading

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