



## From an Economics Perspective, do the Benefits Outweigh the Costs of Fighting Climate Change?

**G**uilty about their contributions to climate change, 195 countries signed the 2015 Paris Agreement and pledged to play their part in dealing with their greenhouse gas (GHG) emissions. A joint effort to combat climate change, the Agreement's primary aim is to keep the increase in global temperature to well below 2°C, as well as help countries adapt to its catastrophic effects and make finance flows consistent. Following this, recent years has seen a series of climate change policies which this essay will evaluate in relation to the time horizon.

A key aspect of fighting climate change is the transition of countries to a low-carbon economy – one that is based on clean energy rather than fossil fuels. This involves phasing out fossil fuel subsidies and supporting the renewables industry instead. In the short

term, there will be job losses in carbon-intensive sectors and new jobs in low-carbon sectors (for example, to run a wind farm), but the net effect will be job creation as low-carbon technologies tend to be more labour intensive. It is important to note, however, that the higher job creation rate reflects the fact that green energy is not yet 'cost-effective', meaning that assuming capital stock is fixed, more labour is used up to produce a given amount of output. Laid-off workers may not immediately find a new job in the renewables sector as they have different skillsets to what is required. This may give rise to structural unemployment, which the government may need to address by spending more on public training programmes on green jobs. Furthermore, Babiker and Eckhaus (2006) found that this increased unemployment could decrease

GNP in the first ten years. The unbalanced shift in the labour market, along with the minimal immediate effect on climate change, alludes to the costs of fighting climate change outweighing its benefits in the short run.

In the longer term, the transition to a greener economy will unleash a wave of innovations as profit-seeking firms exploit carbon opportunities. Over time, the need to adopt new green technology will create a wave of further innovations as firms adjust their processes and adapt the technology to their specific requirements, generating further job opportunities. At the same time, this additional technological change leads to declines in abatement costs, i.e. the cost incurred to firms when reducing emissions. It may therefore moderate the overall economic impact of climate change policy. Plenty of evidence suggests that whilst climate change mitigation technology may be expensive at first, the averaging of costs over a longer time horizon and the potential accumulation of economies of scale mean that green energy will be cheaper and more sustainable than fossil fuels (Fankhauser et al., 2008). Moreover, in the long run, it has the potential to create more jobs across a number of sectors including, but not limited to, the construction, manufacturing, transport, and insurance sectors. Of course, the extensive benefits from cleaner air would be reduced healthcare costs, but also decreased premature deaths and increased productivity.

But what of fighting climate change in less developed economies? Climate change has adverse effects on poverty and inequality, and these effects are exacerbated by the vicious cycle of poverty linked to health,

education and livestock. Initial inequality causes disadvantaged groups to be more exposed and susceptible to the damage caused by climate change, and less able to cope with it due to their poor access to resources. Consequently, these groups suffer disproportionately which results in greater subsequent inequality. As such, combatting climate change requires policymakers to take into account poverty and inequality issues. From an economics perspective, carbon pricing is the sine qua non of climate policy. One way to establish a carbon price is to levy a carbon tax on the distribution, sale or use of fossil fuels, which increases their cost and encourages users to switch to more environmentally friendly energy. Although this raises tax revenues, carbon taxes are regressive by nature, meaning those on low incomes will bear the brunt of the burden, and thus lead to a deadweight loss in economic welfare. Further, financing is typically more costly in developing countries since interest rates tend to be higher and access to capital more difficult. Hence, a carbon tax will increase fuel prices but not necessarily lead to investment in low-carbon technologies due to higher average capital costs (Schmidt, 2014).

According to the Stern Review (2006), the cost of inaction can be as high as the equivalent of losing at least 5% of global GDP each year, now and forever, whereas taking action to fight climate change will cost only around 1% of global GDP. Inaction is a slow death. Delaying would also be dangerous and much more costly. Khosla et al. (2017) suggest that the transfer of foreign low-carbon technology in developing countries such as India is urgent for meeting the dual objectives of development and



climate change, but warns that it will be costly at first. Through climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), developed countries are to mobilise approximately US\$100 billion by 2020 for climate change activities in emerging economies. But much of that funding will have to come from the private sector, particularly foreign direct investment (FDI) in developing countries which historically, has contributed to GHG emissions, for example when transporting goods and operating waste treatment facilities.

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Despite its potential to aggravate climate change, FDI also offers the potential to combat it by facilitating the transfer of clean technology. On that account, whether the benefits outweigh the costs of fighting climate change depends on whether governments succeed in concocting policies that prevent FDI from exacerbating climate change and maximising the contributions of capital markets towards mitigating it. If done correctly, FDI can bring the much-needed green technologies into these developing countries and subsequently, jobs, productivity and economic growth. This may have broad positive spill-over effects if the infrastructure is improved as a result of FDI, incentives are provided for domestic entrepreneurs to invest, and tax revenues generated by FDI are used to fund education

and training. From these, we can expect emissions rate to fall, poverty to alleviate and the income gap to narrow, as employment creation, flows of knowledge and ideas, and enhanced domestic investment contribute to higher economic growth. Therefore, careful planning of FDI is crucial when tackling climate change in these countries, and tight regulation on high-carbon FDI necessary.

Ultimately, considering the serious economic and social impacts of climate change, there is no question that the world as a whole need to act on it, fast. The question lies in which policies to implement in each country and region. As there are many market and government failures, climate mitigation will involve the combination of different instruments including carbon pricing, a shift of subsidies away from fossil fuels to the renewables industry, innovation policies, regulations and performance standards, policies to attract clean FDI in developing economies, and education and training. The balance between these instruments will depend on the stage of development of the economy, as well as the social and political acceptability of these instruments. Nevertheless, the most sustainable policy is to adopt low-carbon technologies and reduce dependency on non-renewables. Although the costs override the benefits in the short run due to the high initial capital costs and the rise in structural unemployment, a structural shift to a low-carbon economy makes millions of jobs possible from the necessary investment, and millions more saved if we take action. As climate strike banners have it, “there are no jobs on a dead planet.”

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