

IMPACT OF POLITICS ON ENGINEERING

EXECUTIVE SUMMARY

Although engineering itself may be based on values and practices vastly different from those of a political career, the role of politics on engineering and vice versa are undeniable. In this paper we aim to shed light on the interplay of these two professions by exploring the economic, historical and philosophical contexts, as well as drawing examples from the recent trade war between China and the US.

On July 6, 2018, a trade war had commenced between China and the United States. The President of the United States, Donald Trump, had long believed that US exports were unfavorably limited by Chinese trade practices. Following an investigation into Chinese trade policies in 2017, Trump imposed three rounds of tariffs on Chinese goods amounting to more than \$250 billion in value. In retaliation to what is considered "the biggest trade war in economic history," China's Ministry of Commerce countered by imposing tariffs on a comparable value of US goods. Although the US pursued the trade war in an attempt to protect its domestic industry and create more jobs, both sides are beginning to show the deficit of hindered trade. Globally, the GDP is expected to decrease over the next two years from 3.5% to 3.2% as the mutual tariffs on the world's two largest markets slow growth and increase inflation.

The term trade war is a contemporary expression, as historically trade wars implied real wars. With no global economy and complex systems of policies and practices, countries were forced to resolve trade issues physically rather than politically. For an example, in 1893, China wielded arms to protect their borders against opium smugglers as banning the substance through policy proved largely ineffective. Within the past 100 years, the Smoot-Hawley Tariff Act of 1930 provides the greatest historical perspective to parallel the current trade war in terms of events and potential outcomes. However, the Act likely hurt the average consumer by marginally increasing the prices of raw materials and thus goods, and is considered to have sped up the Great Depression. Through historical examples, it is concluded that trade wars negatively affect all parties to an extent, as some parts of the economy will always suffer when compared with open trade.

In the US, it is understood that engineers are generally apathetic when it comes to political topics. However, through the example of the trade war, the question arises whether more engineers should have an influence in policy making going forward. In the view of the fact that engineers truly understand the principles of science and technology, but the lack of administrative rights may lead to the suppression of scientific research, it is suggested that engineers should raise political awareness. Additionally, since ethical and moral obligations require engineers to express opinions publicly when there are contradictions in various interests, it is suggested that engineers should organize themselves and achieve political demands with collective strength. Lastly, the combination of engineering advantages and national politics has spawned a highly exclusive scientific and technological nationalism, thus it is suggested that as a victim, engineers have the right to participate in decision-making to avoid social publicity. If engineers can continuously improve their abilities and gain more status and the right to speak, gaining social power may be a more effective way of protecting the development of the project and safeguarding the public interest.

In terms of actions going forward, the US is urged to focus on the independent development of core technologies to improve their own technological power to encourage a cease-fire between the two countries. This will additionally accelerate the development of domestic engineer's talents which can in turn help increase the domestic economy. In the face of US export controls on China's high-tech products, the government's support policies should change. The focus should be on improving the standard R&D capability based on independent intellectual property rights, the manufacturing scale production capacity, the international market share based on international technology standards, and the sustainable competitiveness based on standard constraints and standards diffusion. Sino-US relations are the biggest geopolitical dispute in the 21st century and, to a certain extent, are inevitable. However, if optimistic forecasts are to be believed, the two countries may come to find a constructive solution.