Exposing Trade Myths in The Era of Trumponomics and Brexit

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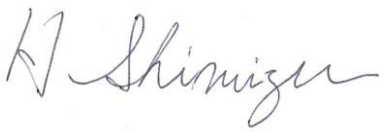

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While this thesis became possible with others' contributions, any errors or shortcomings remain my responsibility alone.

GLOSSARY OF ACRONYMS

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BSE	Bovine Spongiform Encephalopathy (mad cow disease)
CAP	Common Agricultural Policy
CETA	Canada European Union Comprehensive Economic and Trade Agreement
CKPO	Crude Palm Kernel Oil
COOL	Country of Origin Labeling
CPO	Crude Palm Oil
DEFRA	Department of Environment, Food and Rural Affairs
DRAM	Dynamic Random Access Memory
EPA	Environmental Protection Agency
EU	European Union
FMD	Foot and Mouth Disease
FRED	Federal Reserve Economic Data
FTA	Free Trade Agreement
FTAAP	Free Trade Area of the Asia Pacific
GATT	General Agreement on Tariffs and Trade
GCC	Gulf Cooperation Council
GDP	Gross Domestic Products
GHG	Green House Gas
HDL	High Density Lipoprotein
HDTV	High Definition Television
ILO	International Labour Organization
IP	Intellectual Property
IPR	Intellectual Property Rights
LCA	Life Cycle Analysis
LDL	Low Density Lipoprotein

MERCOSUR	Mercado Comun del Sur / Southern Common Market
MJ/ton	Mega Joule per ton
MNC	Multi National Corporation
MUFA	Mono Saturated Fatty Acids
NAFTA	North American Free Trade Agreement
NTB	Non-Tariff Barriers
NTM	Non-Tariff Measures (NTMs)
OEM	Original Equipment Manufacturer
PIIE	Peterson Institute for International Economics
PUFA	Polyunsaturated Fatty Acids
RCEP	Regional Comprehensive Economic Partnership
ROO	Rules of Origin
RSPO	Roundtable on Sustainable Palm Oil
RTA	Regional Trade Agreements
S&P	Standard and Poor's
SAFA	Saturated Fatty Acids
SIA	Semiconductor Industry Association
SME	Small and Medium-sized Business
SOE	State Owned Enterprises
TFA	Trans Fatty Acid
TPP	Trans-Pacific Trade Partnership
TTIP	Transatlantic Trade and Investment Partnership
UK	United Kingdom
US	United States
USITC	United States International Trade Commission
USDA	United States Department of Agriculture
WTO	World Trade Organization
WWF	World Wildlife Fund

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ABSTRACT

Despite a long-term increase in consumer welfare, free trade continues to be a topic of heated debate. It has gained new prominence with the election of Donald J. Trump as US president. His protectionist platform promised to 'Make America Great Again' by withdrawing from or renegotiating 'bad' trade agreements.

Protectionism is a politically successful strategy despite evidence that it is a self-defeating trade policy, weakens the economy and leads to a reduced standard of living. It ignores the complexities and dynamics of the global market, likely retaliation by other nations and the cost borne by American consumers and businesses.

This thesis uses business examples to show the complexity and benefit of global supply chains, challenging the idea that increased protectionism can strengthen the economy. It shows how politicians either don't understand or misrepresent the dynamics of the economy and that past protectionist policies have failed to achieve their stated objectives. Using the examples of the boycotting of oil palm products and the local food movement, it shows how self-serving special interest groups use environmental and social welfare arguments to influence consumers and activists to support intervention in the market, which goes against both their own best interests and those whom they are trying to 'help', and how unfiltered prices lead to better environmental outcomes, and higher standards of living for both producers and consumers.

Governments sign Free Trade Agreements (FTAs) to obtain economic benefits and to further their foreign policy objectives. Although there has been a significant reduction in tariffs since the implementation of the General Agreement on Tariffs and Trade (GATT), more recently a proliferation of agreements has increased business transaction costs. In addition, the growing focus on non-tariff trade barriers has provided opportunities for special interest groups to reduce competition by tilting regulations in their favour.

Ultimately, trade agreements are driven by two competing objectives: the economic free trade argument for reciprocal access to markets versus the mercantilist political desire to increase

exports and reduce imports. While free trade still maximizes overall economic benefits today, politicians generally craft trade policy that puts the interests of producers ahead of consumers. The best counterbalance is to reduce the scope of trade agreements to measures that actually reduce trade barriers.

CHAPTER 1. INTRODUCTION

Economists generally agree that free trade produces the best overall results for the community at large. However, it is not economists who make the decisions on trade policy: it is politicians. This thesis examines why protectionism is often a politically successful strategy despite its negative economic consequences.

Mounting support for protectionism in the United States contributed to the election of Donald J. Trump in November 2016. Voters supported Trump's economic platform because they were disenchanted with jobs losses, lower wages and growing inequality which they blamed largely on globalization. In addition, voters also support trade restrictions for other 'qualitative' reasons such as health concerns, preserving the environment, and social justice considerations. Both government and business use such concerns to influence voters/consumers to support measures that run contrary to their own best interests.

This paper asks the question "can the benefits of free trade still be realized in the 21st century?", and concludes that consumers can and do benefit from trade liberalization. However, government and business increasingly seek to manage trade rather than eliminate restrictions. In the process, the 'benefits' of intervention are diverted from consumers to producers. Nonetheless, consumers and voters support interventionist governments, because they (mistakenly) believe that without government intervention, big businesses and other nations would not behave in a socially desirable manner.

By exposing some of the myths surrounding the benefits of global trade, this study shows that isolating the economy from the international market will only lead to declining competitiveness of not only the protected industry but also other industries, a disrupted global supply chain, higher consumer prices, and likely retaliation by other trading partners,

The current political climate is less favourable to free trade than a few years ago. Recent 'Free Trade Agreements' are, in fact, agreements to manage trade, usually for the benefit of the dominant participants in the negotiation. The trend towards the inclusion of peripheral issues

such as environmental and labour standards, and the protection of intellectual property shifts negotiations away from trade liberalization, and diminishes the comparative advantages of those countries which stand to gain the most from access to foreign markets.

Sharp reversals in public policy can and do occur, and the circumstances under which these dramatic shifts occur are important. In the middle of the 19th century, and after a long public debate, Britain repealed the Corn Laws and abandoned mercantilist policies, beginning a short period of free trade.[1] Markets for products manufactured in Britain increased both domestically and abroad, and the price British workers paid for the necessities of life dropped. The mercantile system involved considerable levels of public sector spending on defence and enforcement of customs regulations. The shift to a free trade policy relieved pressure on public expenditure and paved the way for the independence of colonies which were tied to Britain under the mercantile system. The general improvement in prosperity that resulted from the liberalization of trade also improved public finances.

This chapter consists of five sections. The first section deals with the mounting scepticism over the benefits of international trade. The second looks at the theoretical basis of our understanding of the potential benefits of trade. The third section considers how the economy works in practice and why trade has become a political issue. The fourth section explains the four main constituencies in society and how their incentives and interaction affect trade policy. The final section outlines the structure of the thesis.

1. Rising Scepticism about International Trade

Trade – or the voluntary and mutually beneficial exchange of goods or services – is a unique characteristic of the human species. Trade has increased over time as transportation and communication costs have declined. People tend to accept that they benefit from an exchange of goods and services with others within a nation's borders. But attitudes to trade with individuals beyond those borders vary over time. National boundaries tend to impede trade, but trade

[1] (Helpman 2011) pp. 46 and 179. The Corn Laws was a major piece of protectionist legislation that was passed in the British parliament by the landed aristocracy in 1815, and it was repealed in 1846 when Britain adopted a free trade policy.

liberalization policies in the late 20th century contributed to a dramatic increase in the volume and value of goods traded internationally.

A protectionist backlash against the rapid increase in international trade – often referred to as 'globalization'– is now evident in some jurisdictions. The withdrawal of the United States from the negotiations aimed towards the creation of a Trans-Pacific Trade Partnership (TPP) and the renegotiation of the North American Free Trade Agreement (NAFTA) currently underway are consequences of the popular backlash against trade liberalization that U.S President Trump exploited with his campaign promise to 'Make America Great Again".

International trade and globalization are under attack not only in the US but also in Europe. In June 2016, 52% of Britons voted for "Brexit" in a referendum held to decide whether or not to Britain should leave the European Union.[2] This result was attributed, in part, to frustration with European Union officials in Brussels, and resentment among laborers who blame trade for declining income and lost jobs.

The collapse of the Doha Round of international trade negotiations among the member countries of the World Trade Organization (WTO) in 2008, and the protests against globalization organized to coincide with meetings involving the leaders of the world's most prosperous nations (e.g. at the G7 and G20 meetings and the annual Davos Forum) are further indications that trade liberalization is both difficult to realise and increasingly unpopular.

This thesis uses the current debate over international trade policy to examine the roles which four distinct groups within society – government, business, special interest groups, and consumers – play in shaping trade policy. It shows that the uncertainty over international trade regulation and the propensity of governments to actively intervene to either encourage or discourage trade creates opportunities which large businesses, multi-national corporations (MNCs) and special interest groups are quick to exploit.

[2] (Nelson 2016)

Understanding the attitudes and objectives of two sub-groups in society – special interest groups and the general public – is an important part of this discussion. Popular discontent over the adverse short-term consequences of trade liberalisation and pressure from special interest groups to persuade the general public that individual sacrifices are required for the 'greater good' provide justification for government intervention. For their part, politicians and government want to be seen to be doing something about issues perceived as problems by the electorate. Using trade policy as an example, this thesis shows how the public sector's enthusiasm 'to do something' imposes significant costs on individuals, and provides some businesses with opportunities to profit and avoid competition that would not exist in a competitive market.

2. Trade Theories from Adam Smith to Frédéric Bastiat

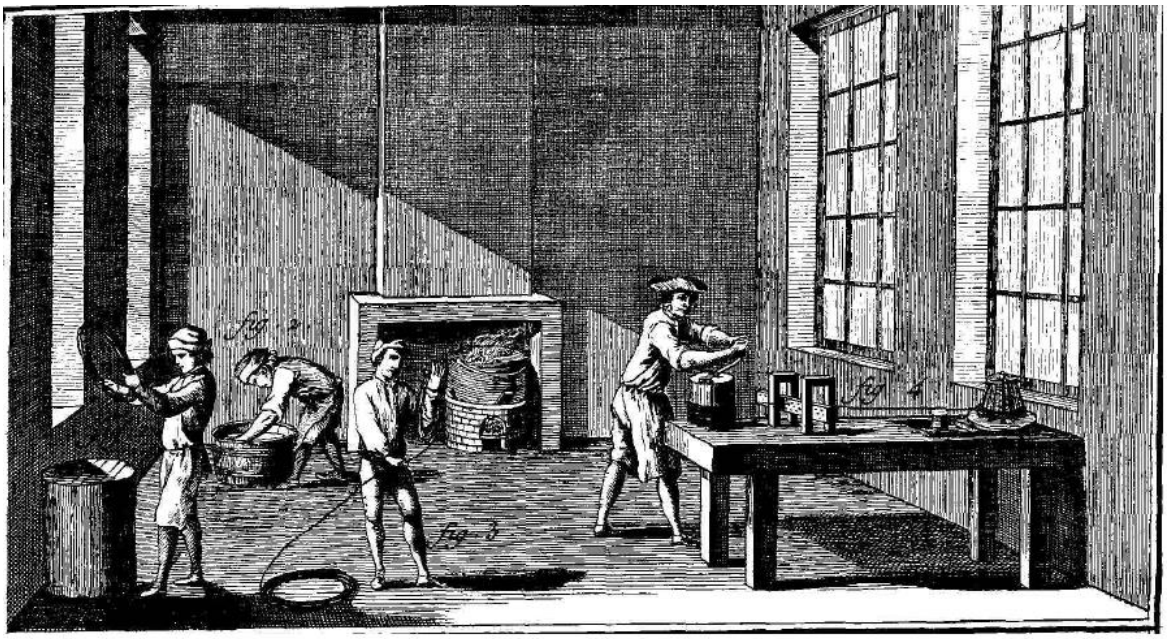
2.1 Adam Smith

The benefits of trade have been examined from a theoretical perspective only since the 18th century. Adam Smith drew attention to the human propensity "to truck, barter, and exchange one thing for another" in his 1776 classic work, *An Inquiry Into the Nature and Causes of the Wealth of Nations* ('Wealth of Nations'). He recognized that this unique propensity encouraged specialization or division of labour which enabled dramatic increases in productivity. He used the example of the fabrication of pins to illustrate how the benefits of the division of labour involved innovations of three distinct types:

> This great increase of the quantity of work which, in consequence of the division of labour, the same number of people are capable of performing, is owning to three different circumstances; first to the increase of dexterity in every particular workman; secondly, to the saving of time which is commonly lost in passing from one species of work to another; and lastly, to the invention of a great number of machines which facilitate and abridge labour, and enable one man to do the work of many.[3]

[3] (Smith 1904/1776) Book I, Chapter 1 Of the Division of Labor, *5*.

Figure 1 The Pin-making Factory-1760



Épinglier (Pin-Maker) I, *L'Encyclopédie* (1760s)

Source: *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers,* ed. Diderot and d'Alembert (1751-1772). Online at <http://www.alembert.fr/>

In modern terminology, these productivity-improving innovations would be thought of as improvements in the skills of the labour force, minimization of lost production due to re-tooling, and automation. Smith acknowledged that the wealth of nations meant providing ordinary people with "all the necessaries and conveniences of life" through "the division of labour" (specialization) and free trade.[4] Perhaps his most important realization was the collective benefits that derive from the self-interested actions of individuals: as he phrased it, "It is not from the benevolence of the butcher, the brewer or the baker that we expect our dinner, but from their regard to their own interest".[5] He realized that competition was necessary to drive the process of specialization and railed against the mercantilist trade policies of his time in general, and the granting of monopolies to a privileged few in particular. He was also one of the first to draw attention to the propensity of business owners to conspire together in order to limit competition to the detriment of the consumer:

[4] (Smith 1904/1776) Volume I, Introduction and Plan of the Work, 1.
[5] (Smith 1904/1776) Book I, Chapter 2 Of Principle which gives Occasion to the Division of Labour, 2.

> The interest of [businessmen] is always in some respects different from, and even opposite to, that of the public…. The proposal of any new law or regulation of commerce which comes from this order…. Ought never to be adopted, till after having been long and carefully examined…. with the most suspicious attention. It comes from an order of men… who have generally an interest to deceive and even oppress the public.[6]

Because they are relevant to the discussion later in this thesis, there are two additional aspects of Smith's work which should be noted. First, he recognized that international trade involved additional and sometimes significant risks in comparison with doing business in the home market where institutional arrangements were well known, were not subject to abrupt change and were followed because they facilitated business transactions. Second, he considered production of food an economic activity with strategic importance.

2.2 David Ricardo

Early in the 19th century, the British political economist David Ricardo extended Smith's insights by formulating a 'theory of comparative advantage'. He explained in his book *On the Principles of Political Economy and Taxation* (1817) that gains from trade would occur if nations specialized in the production of goods in which they had a comparative advantage, using production of wine and cloth as examples. He pointed out that although Portugal could produce both wine and cloth more cheaply than Britain, the efficiency differential between Portuguese and English wine was much larger than that between Portuguese and British cloth. He then showed that both countries would be better off if Portugal concentrated its resources on wine production and Britain devoted its resources to producing cloth.[7]

Ricardo agreed with Smith that lower prices paid for imported products saved resources and increased the purchasing power of the populace. Thus, all strata of society shared the gains from trade because:

> If, in consequence of the price of foreign commodities being cheaper, a less portion of the annual produce of the land and labour of England is employed in

[6] (Smith 1904/1776)Book I, Chapter 11 Of the Rent of Land, 264.
[7] (Ricardo 1817/1971) Chapter 7 On Foreign Trade, 13-31.

> the purchase of foreign commodities, more will remain for the purchase of other things.[8]

Pursuit of comparative advantage therefore allocates resources (labour, capital and natural endowments) to their most productive use, generating more output more efficiently and encouraging mutually beneficial interaction among the peoples of the world:

> Under a system of perfectly free commerce, each country naturally devotes its capital and labour to such employments as are most beneficial to each. This pursuit of individual advantage is admirably connected with the universal good of the whole. By stimulating industry, by rewarding ingenuity, and by using most efficaciously the peculiar powers bestowed by nature, it distributes labour most effectively and most economically: while, by increasing the general mass of productions, it diffuses general benefit, and binds together by one common tie of interest and intercourse, the universal society of nations throughout the civilized world. It is this principle which determines that wine shall be made in France and Portugal, that corn shall be grown in America and Poland, and that hardware and other goods shall be manufactured in England.[9]

2.3 Frédéric Bastiat

The French economist and statesman in the 19th century, Frédéric Bastiat marvelled at how the population of Paris got fed every day:

> Here are a million human beings who would all die in a few days if supplies of all sorts did not flow into this great metropolis. It staggers the imagination to try to comprehend the vast multiplicity of objects that must pass through its gates tomorrow, if its inhabitants are to be preserved from the horrors of famine, insurrection, and pillage. And yet all are sleeping peacefully at this moment, without being disturbed for a single instant by the idea of so frightful a prospect.[10]

Like Smith, for Bastiat, the miracle of the feeding of Paris day after day, year in and year out, was that it was the result of a 'bottom-up' process involving the actions of thousands of individuals coordinated only by their own self-interest.

[8] (Ricardo 1817/ 1971) Chapter 7 On Foreign Trade, 4.
[9] (Ricardo 1817/ 1971) Chapter 7 On Foreign Trade, 11.
[10] (Bastiat 1845/1996)

However, the most important contribution of Bastiat to the argument presented in this thesis comes from what has been labelled his 'broken window fallacy': if a window is broken, its repair is obviously economic activity: a glazier is summoned, the window is replaced, and money changes hands. However, if the window is *not* broken, the funds that would otherwise be used paying for the repair of the window are put to other uses, and the individual involved continues to enjoy the benefit of the window as well as the benefits of having funds to spend elsewhere. Bastiat described the difference between his two examples as the 'seen' versus the 'unseen', and pointed out that a good economist needs to think about the 'unseen' as well as the 'seen'.[11]

Economics is probably haunted by more fallacies than any other discipline. First, it is often difficult to determine whether a change in the economy is the result of a change in regulations or the result of something else. Second, both bad economists and the populace at large tend only to see the immediate and obvious effects of new regulations rather than long term effects which are less obvious. The impact of a change in the regulatory environment is usually felt by a specific segment of society, which is likely to be vocal in its own defence, while the long term and less obvious effects are more widely dispersed across the community at large. When the future benefits are dispersed and the short term adverse consequences are concentrated, it is relatively easy for a politician like US President Trump to put forward a platform that cherry-picks a few facts but distorts the broader picture.

3. How the Economy Works and Why Trade has become a Political Issue

3.1 Schumpeter

The overall conclusion of this thesis is that consumers stand to benefit from more trade liberalization, and will be harmed if recent efforts to reverse liberalization are successful. The arguments used in support of this conclusion rely heavily on the insights of Joseph Schumpeter. Schumpeter, an Austrian economist and a professor at Harvard University in the early 20th century, is best remembered for coining the term 'creative destruction' as a shorthand expression describing the process of technical change. Although Schumpeter acknowledged that an economy could *grow* if more resources were employed by a fixed array of technologies, he

[11] (Bastiat 1845/1996)

defined *development* in terms of the qualitative change in economic activity that occurred when technical change made it possible to obtain more output by using a given array of resources more efficiently.

Competition among firms drives the process of technical change and creates an economy which evolves over time. Schumpeter employed a comprehensive definition of technical change, one which has been interpreted as any 'change in the way things are done'. In the absence of government intervention,[12] the pace and trajectory of technical change is dictated by the willingness of the market to absorb products and services which improve living standards. Higher living standards come chiefly from the availability of the same products (and services) at lower cost, or the appearance of previously unavailable products (and services) which benefit consumers.

In Schumpeter's opinion, the dynamism of capitalism is a process of innovation, the subsequent investment that accompanies the diffusion of the innovation, and then an inevitable recession. John M. Keynes, a British economist, considered recessions an unfortunate side-effect of laissez-faire capitalism which it was the legitimate business of the state to supress. Schumpeter regarded recessions as necessary if the full benefits of the investment boom which accompanies the adoption of superior technology are to be realised. A recession is beneficial because it:

> …. fulfils what the boom promised. And this effect is lasting, while the phenomen[a] felt to be unpleasant are temporary. The stream of goods is enriched, production is partly reorganised, costs of production are diminished and what at first appears as entrepreneurial profit finally increases the permanent real incomes of other classes.[13]

Thus, Schumpeter's development process consists of innovative activity which improves the productivity of resources, provides entrepreneurial profits in the short run, and increases purchasing power and extends the process of specialization and trade in the medium and longer term. It is this cycle of innovative booms, and subsequent reorganization, and the absorption of new technology that successively reinvigorates capitalism. Schumpeter however, stresses that

[12] (Boulding 1969)
[13] (J. A. Schumpeter, 1934/1968) p. 245.

this process of reinvigoration occurs only when recessions are 'normal', implying that this is not always the case. Government intervention frequently prevents the 'normal' process of continuous adjustment to a constantly changing economic situation. Inevitably, the underlying economic reality will become evident, and an 'abnormal recession' or a crisis will occur. The collapse of the Soviet Union was a prime example.

Government intervention alters the pace and trajectory of technical change, reducing the level of consumer welfare relative to that which would be generated by development in the absence of government intervention: for example, protectionist measures tend to slow the pace of innovation (the rate at which the 'way things are done' changes) and hence reduce the competitiveness of domestic products in foreign markets. This insight may be rephrased as 'a tariff is a tax on exports'.

Schumpeter's insight regarding the cause and consequences of crises is particularly relevant to this discussion of the implications of recent trends in trade policy for business management. He suggested that crises only occurred when government intervention exaggerated the normal ebb and flow of economic activity. In *Capitalism, Socialism and Democracy,* he elaborated on this idea, pointing out that any crisis created demand for additional intervention, which would increase the amplitude of the subsequent recession, increasing the clamour for still more interventions.[14]

Later, Robert Higgs, an American economist and economic historian, traced the influence of a succession of crises on the growth of government in the US in his book *Crisis and Leviathan*.[15] He argues convincingly that growth in government had been the consequence of a ratchet effect: although government involvement in the economy may shrink in the aftermath of a crisis, it does not return to its pre-crisis level. It therefore increases over time. The Depression of the 1930s was a particularly significant crisis which led to a dramatic increase in government intervention, particularly the New Deal policies of President Roosevelt. The impact of the sharp increase in tariffs on imports under the Smoot-Hawley Act of 1932, the decision to de-link the US dollar

[14] (Schumpeter 1942)
[15] (Higgs 1987)

from the gold standard in 1934, and the retaliatory reaction to these policies elsewhere in the world are important lessons in light of current US initiatives to restrict imports. Schumpeter himself, a professor at Harvard University at the time, wrote of the Depression that "what we are witnessing is an economy that is not permitted to work".[16]

The ideological support government received for intervention to thwart the destructive phase of the development cycle led Higgs to a pessimistic conclusion; "Laissez-faire is unrealisable, too…. In today's world, no substantial group of people is prepared to accept the personal responsibilities and to shoulder the personal risks inherent in genuine capitalism – which is, after all, as Joseph Schumpeter emphasised, a system of creative *destruction*" (original emphasis).[17] Yet this ideological support for intervention of this type carries with it an 'unseen' cost: it enables innovative firms to retain entrepreneurial profits, and prevents the general public from capturing the full benefits of economic development.

The final contribution Schumpeter made to our understanding is how an evolving economy may be threatened by a growing anti-capitalist sentiment within the population at large. Schumpeter blamed some of this trend on the tendency towards large-scale industrial enterprises in which employees specialised in a specific function and lost sight of the totality of the process which designed, built and sold products in the market. But he singled out "underemployed intellectuals",[18] who existed largely thanks to the dramatic improvements in productivity made possible by technical change, specialisation, and trade, as the main force propagating anti-capitalist sentiment among the population. Each time the short term dysfunctional consequences of creative destruction distracted (increasingly large) segments of society from the benefits it provided in the medium and longer term. As Peter Drucker, a founder of modern management, commented in an article comparing Keynes and Schumpeter, "…. [sixty] years since [*Capitalism, Socialism and Democracy*] appeared have surely proved Schumpeter to be a major prophet".[19]

In the US context, Daniel J. Ikenson, a director at the Cato institute, pointed out that scapegoating trade for problems real and imagined is nothing new. He wrote:

[16] (Schumpeter 1934/1968) p.16.
[17] (Higgs 2005) p. 297.
[18] (Schumpeter 1943/1968) p.354.
[19] (Drucker 1983) p. 5

> Blaming the Japanese, Mexicans, Chinese, and other foreigners for domestic woes ingratiates politicians to excitable elements of the electorate and helps them direct voter anger away from their own records. It has become a kind of quadrennial tradition ever since the NAFTA debate took center stage in the 1992 election.[20]

The recent election of the US President Trump provides a vivid example of this phenomenon. The discontent of 'excitable elements of the electorate' is significant because it reinforces an 'ideology of intervention' which underlies the ratchet effect of government growth over a succession of crises. As Schumpeter maintained, this intervention is not in the best interest of the ordinary citizens in the medium and longer term, because it impedes the process of technical change which improves productivity and hence living standards. Growth in government is expensive, and must be paid for either through higher taxes or debt (a tax on subsequent generations), the burden of which falls disproportionately on the middle class. The consumer and taxpayer pay higher prices for items consumed, because intervention impedes competition, slows or diverts technical change and prevents the transfer of entrepreneurial profits (to the population at large via lower prices) and also requires higher taxes (to support a burgeoning public sector).

3.2 Michael Porter

Michael Porter, who is considered to be one of the most important theorists in the field of strategic management, echoes many of the ideas expressed by Schumpeter.[21] He argues that a nation's competitiveness depends on the capacity of individual firms to innovate and this innovation is driven by competitive pressure. Once a company achieves a competitive advantage, it can only sustain it through relentless improvement. If it stops improving, it will be overtaken by competitors. He points to the link between innovation and change, and says that the latter is often resisted by companies (one of the great examples is the Eastman Kodak Company discussed in Chapter 2).

Many requests for governments' help from business are actually counterproductive in the long run and only create requests for more help. Porter argues that one reason governments implement counterproductive policies in pursuit of national 'competitiveness' is because they have much

[20] (Ikenson 2016)
[21] (Porter 1990)

shorter time horizons than businesses. It takes a lot longer for a company to create a competitive advantage than one election term. Therefore, most government policies favour easy-to-see short term benefits like subsidies and tariffs, and these can inadvertently undermine innovation and dynamism.

3.3 Protectionism Doesn't Protect from Technological Change

The very word "protectionism" is appealing because it implies that those who favor protectionist measures want to guard and defend Americans from forces which undermine their economic welfare. However, it does not achieve these goals. Measures to protect particular businesses don't shield them from the technological changes that are among the biggest disruptors of the economic *status quo*. No federal government subsidy in 1900 could protect the American horse-and-buggy industry from the birth of the modern car after Karl Benz built the first prototype in Germany in 1885. His technology crossed the Atlantic and Henry Ford eventually developed the Model-T. This new technology created wealth for many, jobs for millions, and made transportation easier for everyone.

Technological change has also made parts of America's economy, such as modern manufacturing, much more productive. For this same reason, manufacturing probably will never provide the same percentage of jobs for the American economy as it did until the 1970s. Tariffs and subsidies for American manufacturing won't change the situation significantly because tariffs and subsidies may slow the pace of technical change in the US, but can't stop that process in other jurisdictions. The 'way things are done' can and does change in other jurisdictions, and American manufacturers have been quick to take advantage by outsourcing components abroad and incorporating them into 'made in America' products.

American businesses generally respond to competition created by free trade in one of two ways. First, they try to out-innovate and out-compete foreign competitors. As a result, some businesses not only survive, but grow and prosper. Other businesses will, despite their best efforts, fail. And sometimes the competition that drives an American company out of business comes from other American companies. The net result for consumers is that they benefit from better and cheaper products.

Second, businesses facing foreign competition may lobby for government assistance, usually by arguing that this is an issue of the national interest because it will save or create American jobs. However, the truth is that these requests are driven by the desire to protect their own markets and by their inability to make the hard decisions which are key to success in every business. Sometimes an entire industry may calculate that it's more cost-effective for them to spend resources on lobbying to secure some sort of government subsidy. This behaviour is referred to as 'crony capitalism' which, because of its corrupting effects, is even *more* reason for America to resist protectionism.

3.4 Why Businesses Lobby for Regulation

People often mistakenly assume that supporting free markets or *laissez-faire* capitalism means being pro-business. In French, *laissez-faire* literally translates to "let do" which broadly means leave it alone. True supporters of free markets advocate separating corporations from the state. This means rejecting any government handout, protection or the provision of special privileges to any business entity. In a true free society, businesses must sink or swim on their own merits. Each business must compete in the market, relying only on innovation and entrepreneurship rather than government support.

One of the big misconceptions consumers have about business is that business wants less rather than more regulations. In fact, the opposite is true. Why do big corporations lobby for *more* regulation? The late Noble Prize-winning economist Milton Friedman once wrote, "business corporations in general are not defenders of free enterprise. On the contrary, they are one of the chief sources of danger".[22] In this big government era, it's become easier for businesses to profit through the halls of Congress rather than the marketplace. Echoing these sentiments, a British journalist, Matt Ridley adds, businesses "are addicted to corporate welfare, they love regulations that erect barriers to entry to small competitors".[23] Firms that face difficult adjustment because of more efficient foreign producers often lobby against trade. So do their workers, unions, and industrial associations.

[22] (Ridley 2010) p.111.
[23] (Ridley 2010) p.111.

Lee Drutman, a senior fellow at New America, pointed out a growth of business lobbying in the United States since Congress passed a series of regulations to address environmental and consumer safety issues in the 1970s.[24] Combined with declining economic performance, businesses began to pay more attention to politics and began to hire their own lobbyists. At first, they were trying to reduce the impact of regulations. Then this morphed into seeing the government as a source of profit and assistance. Now "as the federal government has progressively become larger over the decades, every significant introduction of government regulation, taxation, and spending has been to the benefit of some big business".[25]

The more complex laws become, the more opportunity there is for corporations to influence out-of-sight, hard to understand rules. In addition, the more complex things become, the harder it is for inexperienced bureaucrats to maintain a good understanding of the regulations they are overseeing. As a result, they tend to rely on corporate lobbyists for expertise in particular policy areas, putting lobbyists at the centre of the policy-making process. Corporations aren't just involved in direct lobbying. They are also connected to other groups like think tanks, industrial associations, and special interest groups such as those claiming to champion the environment or social justice.

3.5 Trade Deficits

President Trump has frequently blamed the trade deficit for slowing economic growth in the United States. For example, he tweeted on his private Twitter account that, "[t]he US recorded its slowest economic growth in five years [in 2016]. GDP up only 1.6%. Trade deficits hurt the economy very badly".[26] President Trump's concern with American trade deficits exemplifies a majority political view which is that trade deficits with other countries have only negative economic effects on the US economy. In the media, trade deficits are depicted as America's indebtedness to other countries, and hence a sign of the weakness of the American economy.

[24] (Drutman 2015) New America is a think tank and civic enterprise focusing on American Politics. https://www.newamerica.org
[25] (Carney 2011)
[26] (Trump 2017) April 26, 2017. The number of his Twitter followers is 43.8 million as of December 01, 2017.

There are other aspects of the "trade deficit" and "trade imbalance" debate besides distorted trade balance statistics. At the macro level, a trade account calculation that recognizes all international transactions shows no trade "deficits" or "imbalances". Cash flow expended on goods and services (the current account) is mirrored in the cash flow of financial assets (the capital account). The 'balance of payments' always balances as shown in the formula below.[27]

a) Current Account + b) Capital Account = 0 = Balance of Payments

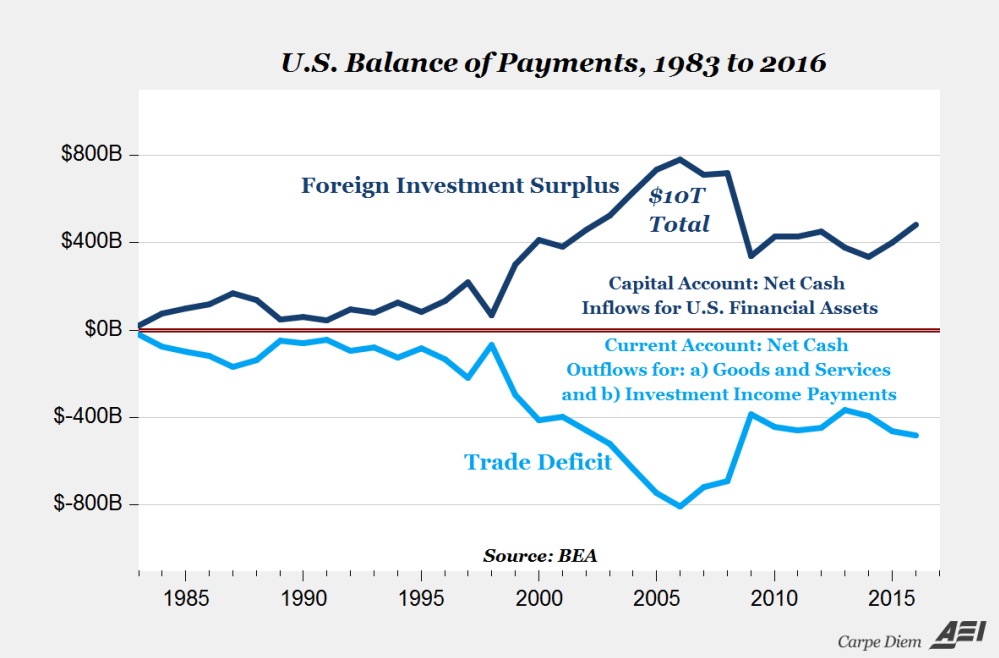
Using an example given by Professor of Economics Don Boudreaux, consider the case of a Mr. Lee living in China who earns $1 million from selling cloth to American businesses, and then spends that $1 million on a home in Tucson (Arizona).[28] This transaction results in a $1 million negative entry in America's current account as a (trade) deficit, and a $1 million positive entry in America's capital account as a surplus. If Mr. Lee purchases US stocks or bonds instead of a home in the US, these sold assets are recorded as positive entries in the US capital account, and this investment amount counterbalances the negative US current account (trade deficit). In the field of international finance, trade imbalances reflect net capital flows between countries, and the balance of payments always equals to zero. President Trump does not seem to realize that, although Chinese businesses are not buying American goods and services to the same extent that Americans are buying Chinese goods and services, they are, however, buying American investment assets of equivalent value.

This flow of capital occurs in the reverse direction to the flow of trade in tangible goods and services and tends to be ignored in discussions of trade policy formulation. According to Douglas A. Irwin, an economics professor at Dartmouth College, this point was stressed repeatedly by economists in the 1980s once the prevailing US merchandise trade balance turned from surplus to deficit, and a spate of Japan-bashing began.[29] In this instance, Japan was accused of taking advantage of the relatively open US market to buy up American assets. Irwin stated that "countries with current account surpluses (trade surplus) can buy assets from the rest of the world, or use their savings to act as net lenders to other countries (capital account

[27] (Perry, 2017c)
[28] (Boudreaux 2016)
[29] (Irwin 1996) p.18

deficit)".[30] As shown in Figure 2, since the early 1980s, the US has had a trade deficit counterbalanced by a net foreign investment surplus.

Figure 2 US Balance of Payments, 1983 to 2016



Source: (U.S. Department of Commerce 2017) (M. J. Perry 2017c)

According to an estimate by the American Enterprise Institute, in 2016 Chinese outward, non-bond investment reached a record high of $170 billion of which about 30% (or $50 billion) was invested in the US, mainly in real estate and business acquisitions.[31] Also, China is the second largest foreign holder of US Treasury bills, bonds, and notes to the tune of $1.059 trillion which accounted for 18 % of the US public debt held by foreign countries as of February 2017.[32]

Foreign investment in the United States has received a great deal of negative publicity. Investment by US businesses in the US is regarded as beneficial whereas investment in the US by foreigners is seen in quite a different light, as somehow threatening or undesirable. At best,

[30] (Irwin 1996) p.20
[31] (Scissors 2017)
[32] (U.S. Department of the Treasury/ Federal Reserve Board n.d.) As of February 2017, Japan was the largest foreign holder of U.S. Treasury bills, bonds, and notes, and the combined holding share by Japan and China was 36.17%.

discrimination against investments originating abroad can be attributed to an "anti-foreign bias".[33] As professor Boudreaux has explained, a growing US capital-account surplus means investors worldwide believe in the American economy's prospects.[34] He has pointed out that an inflow of investment funds creates valuable assets, such as machines and factories, increases in research and development, and in the process, creates jobs. These investments contribute to improvements in the productivity of labor (causing wages to rise) and raise the average standard of living for Americans.[35]

The opening of a factory in Austin, Texas by Samsung of South Korean company and Apple's competitor in 2007 may be cited as an example. Samsung's initial investment of US$3.5 billion made it the single largest foreign investment in Texas ever.[36] The factory is one of the largest semiconductor facilities in the US and produces highly advanced flash memory products for computers and mobile devices. By 2012, the company employed 2,400 people, and the total amount invested in the factory since it opened had reached more than US$17 billion.[37]

A political debate regarding trade deficits against specific countries is therefore irrelevant in terms of economic growth and job creation. As Irwin has pointed out, if restrictions are placed on capital account transactions, countries would be forced to balance their current accounts, since these countries could not pay for their goods and services purchased from overseas, and their trade volume would be restricted to a minimal level.[38] He continued:

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[33] (Caplan 2007a)
[34] (Boudreaux, 2004)
[35] (Boudreaux, 2004)
[36] (Samsung 2007)
According to job recruitment site for Samsung at
https://careers.ap.samsung.com/careers/svc/app/viewSearchJob?reqstnNo=307499&source=Indeed
Samsung Austin Semiconductor (SAS) is one of the most advanced semiconductor manufacturing facilities in the United States. SAS produces digital LSI logic components for tablets, smart phones, and other mobile devices. In August, 2012, SAS invested $4 billion to accommodate full System LSI production, bringing our total investment in Austin to more than $17 billion. With 2400 employees and 2.3 million square feet of space, SAS is producing a full range of design rule devices.
[37] (Samsung 2007)
[38] (Irwin 1996) pp. 21-22. Irwin describes the details of the connection between the current account and the capital account, as follows: "The ability of a country to run a current account surplus or deficit depends on the degree to which countries allow capital to move between them. This in turn is a function of the international monetary system and the particular exchange rate regime in place. In the absence of international capital, that is, of international borrowing and lending, domestic savings equals domestic investment, and therefore trade is balanced as exports equal imports". In summary, international capital flows are the underlying causes of swings of the balance of payments. For further details see pages 23-26 of Irwin's paper.

> Note that these balanced current accounts have nothing to do with whether or not a country is open to foreign goods, has unfair trade practices, or is more productive or competitive than other countries. If net capital flows are zero, the current account will be balanced.[39]

Consequently, international trade accounts are always balanced in aggregate, and the negative connotation applied to "trade deficits" is misleading and should not be interpreted as a sign of weakness in the American economy, nor does it necessarily result from unfair trade practices on the part of the Chinese or any other trading partner.

Although it has been emphasized that there is nothing inherently undesirable in running a trade deficit, the obvious mechanism available to the Trump administration to reduce a current account deficit, should it decide to do so, would be to restrict the flow of capital from abroad. One of the most effective ways of doing this would be to reduce the fiscal deficit and limit public sector borrowing as the US Government's borrowing (primarily by selling treasury bills) is one of the largest drains on a country's savings and leads to a huge current account surplus. This current account surplus can only be financed by a trade deficit. This is a more accurate explanation of the US trade account deficit. Accusing China or other countries of weakening the economy should therefore be interpreted as an effort to divert attention away from the underlying cause of economic difficulties which, in the US, originates in excessive government spending.[40]

In conclusion, the trade policy debate orchestrated by the Trump Administration is flawed primarily because it focuses only on trade flows in goods and services while ignoring capital flows in financial assets.

The US President and many US politicians have used flawed statistics and misleading trade deficit rhetoric to justify their preference for a protective trade policy. Efforts by politicians to implement protectionist trade policy will, if successful, only result in reduced levels of trade and investment in the US and lower standards of living for Americans. Such a strategy is hardly a recipe for enhancing the prospects of American workers and consumers .[41] Furthermore, it would

[39] (Irwin 1996) p. 24.
[40] (Irwin 1996) p. 26.
[41] (Boudreaux 2004)

inevitably sour relations with major trading partners, and China in particular, whose economies are dependent to varying degrees of trade with the United States, and would precipitate stagnation of the global economy.[42] This would repeat the tactic of dramatically raising tariffs in response to the Depression of the 1930s, which is now widely acknowledged to have made that economic downturn much deeper and more protracted than it would otherwise have been.

In a Forbes magazine interview, Mark J. Perry, an economist at the American Enterprise Institute, pointed out how debates over the level of trade at the national level distract attention from the huge benefits of trade that accrue to individuals. He wrote:

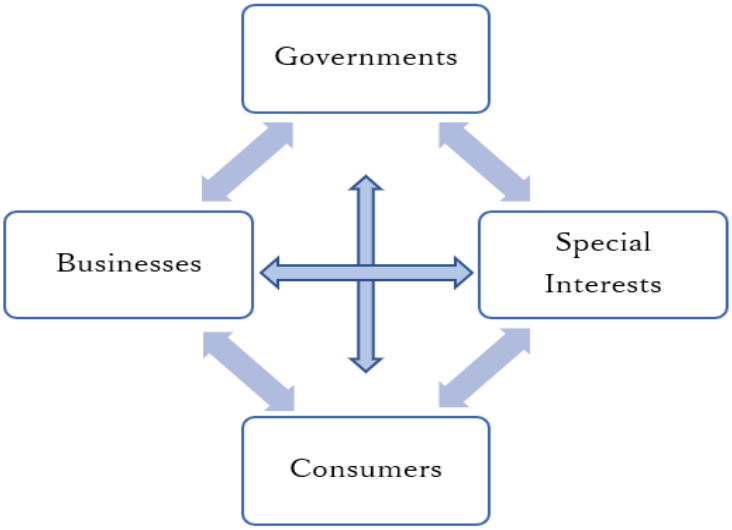
> Countries don't trade, only people and businesses trade…a trade deficit from an accounting standpoint at the national level when imports exceed exports in no way changes the fact that what we call a trade deficit reflects hundreds of thousands of mutually beneficial exchanges over a certain period. [43]

4. Modern Society: Interaction among Four Components with Different Incentives

In society, four main groups interact in such a way as to favour intervention in the economy in general and international trade in particular. These include (generally large) businesses, consumers, governments and special interest groups. The interactions among these components of society are illustrated in Figure 3. The characteristics and behaviour of each group is outlined below.

[42] (Anderson 2016)
[43] (Anderson 2016)

Figure 3 Interactions of Components of Society



Source: Author

4.1 Business

A key point of this thesis is that large businesses divide their attention between maximizing their viability in the business environment in which they operate and exerting effort to alter that environment in order to obtain benefits. The former involves competition in the market place under existing rules at any given point in time. The latter involves lobbying to change those rules in order to obtain such benefits as subsidies, regulations which serve to restrain the entry of competitors, tariffs to limit competition from imports and so on.

All businesses – large and small - compete in the market place, offering their products and services to consumers, or to other businesses in the form of intermediate goods. However, for the purposes of this thesis, the business sector is viewed as being composed of high profile firms. The general criterion for inclusion in this segment of society is that the business in question must have sufficient profile to exercise some influence over government policy, broadly defined. Governments operate at a variety of scales, at different jurisdiction levels (local, state, regional, and national), and the number of businesses with sufficient profile to influence the policy making process decreases as one moves up the governmental hierarchy. The government most directly involved in international trade policy is generally the national government. The three high-

profile American firms discussed in Chapter 2 – Kodak, Apple and Boeing – are examples of firms with sufficient profile to influence policy formulation from the national level down.

It is extremely important to acknowledge that these efforts to influence policy are only worthwhile when there is a strong disposition on the part of the governmental body in question to intervene in the economic sphere. This predisposition towards intervention on the part of government is not something that businesses create through their own efforts. However, once it exists they are quick to use it to their advantage.

Efforts on the part of business management to obtain benefits from influencing government have traditionally been described as 'rent-seeking' but the more evocative term "crony-capitalism" is now more commonly used instead. The overall objective of the influence a business exerts on the regulatory framework is to reduce competition in the markets in which it operates.[44]

Market-oriented activities of business management occur in parallel with efforts to influence government intervention. Government officials and the general public routinely underestimate the complexity of business decision making. It is not easy for any businesses to survive, and the management of multinational businesses involves costs and risks on a scale difficult to comprehend. For these costs to be worthwhile there must be commensurate potential benefits.

The two fundamental decisions facing any business which offers a product in the market are whether to 'make or buy' something and, in either instance, where to do so. In a competitive market, there is constant downward pressure on prices and opportunities to obtain components at lower cost must be identified because other firms in the same business also have an incentive to do so. Improved transportation and communication now make it feasible to scour the globe for potential suppliers. Many sophisticated products are assembled from components provided by a global supply chain where the costs of quality components and the associated transportation costs make it worthwhile.

[44] (Kingston 2001) p. 99. Kingston criticizes Rodrik (1997) for labeling the globalization that occurs under managed trade "marketisation" because it gives the impression that market forces are expanding. He says, "this is the very opposite of what is actually happening, which is the generation of more market power [for big business] and new forms of it".

Businesses routinely seek out government incentives to locate component production and assembly operations in particular jurisdictions as well as manipulating the regulatory environment to limit competition in the markets in which they sell their products. In both instances, they exploit a predisposition on the part of various levels of government to intervene "for the general good" although, as Adam Smith pointed out, the objectives of business are quite the opposite of those of consumers. However, it is important to recognize that the willingness of government to intervene in ways which benefit particular companies at the expense of others creates uncertainty for business managers beyond the business risks associated with market competition. This uncertainty stems from the fact that regulations can and do often change, and benefits may be captured by competitors. The usual response of big businesses is to devote more resources to the lobbying process.

Under free trade, (i.e. when the predisposition of government to intervene is absent) the commercial costs associated with bringing a product to market are minimized as each party in the process strives to be more efficient. Free trade in wheat at the end of the 19th century and competition among wheat growing countries gave British flour mills access to the raw material they needed at the lowest possible price. Competition among millers and bakers passed along the benefit of those low prices to consumers. When the era of free trade in wheat came to an end in the 1930s, the prices consumers paid for bread rose, and the prices farmers received for wheat fell.

Wheat used to make the bread consumed by those working in European factories in the 19th century was a relatively homogeneous commodity. The producers of wheat were anonymous insofar as the millers who purchased it in Europe were concerned. However, the components used in the assembly of modern electronic devices, automobiles and the like today contribute to the differentiation of the final products in the market, and a global supply chain therefore involves a direct relationship between component suppliers and the seller of the final product. Under free trade, creating and establishing these relationships would be difficult enough.

However free trade does not generally prevail, so the creation of international business linkages required to source components or products abroad is considerably more complicated. Various

impediments to the free flow of goods across international borders have to be addressed. These raise prices and reduce competition, because generally only large firms have the resources required to keep abreast of the government regulations that complicate trans-border commerce. State interference with trade is just another form of intervention which restrains competition. Businesses which derive benefits from state intervention in the form of tariffs or subsidies are therefore unlikely to pass those benefits along to their customers in the form of lower prices.

4.2 Consumers

The 'consumer' constituency obviously interacts with businesses of all types as the 'final demand' for goods and services available in the market. Myriad small, often local, businesses are classified as a sub-group within the 'consumer' segment. The practical distinction between the large businesses that operate at the regional, national or international scale and the local businesses considered part of the 'consumer' sector is based on whether the business is of sufficient scale to exert some influence on government policy. Even smaller businesses – farmers are a prime example in many jurisdictions – are, however, able to influence policy when they act in concert through industry-wide organisations. The characteristics and behaviour of such organisations are considered separately below.

To the extent that 'consumers' are also employees of businesses of varying scales, they might be expected to share the perspective of their employer. There is likely to be widespread empathy among employees for the plight of small and medium sized businesses operating at the local and regional level (i.e. those classified within the consumer sector). However, when the employer is a large multi-branch enterprise, perhaps even with operations abroad, the functions of individual employees are extremely specialised and they rarely think in terms of the well-being of the firm as a whole. Instead there is likely concern that their function maybe transferred to another location, and adversarial relationships between labour and management have become entrenched in some industry segments in North America and Europe.

The 'consumer' component of society is handicapped when it comes to understanding the complexity of business management, international trade, and their economic and sociological implications. This lack of understanding makes it susceptible to superficial and often

fundamentally flawed conclusions when they are exposed to incomplete or misleading information.

The willingness of government to respond to petitions for intervention from businesses and special interest groups requires an implicit mandate from the consumer sector which favours intervention. Trade policy provides numerous examples where consumers appear to support government intervention which is not in their own best interest. Consumers endorse government intervention in the (often mistaken) belief that intervention is beneficial in a general or society as a whole.[45] As will be emphasized, 'consumer' opinion on this matter is constantly reinforced by the state (which is interested in expanding its role in society) and by the various special interest groups (which are seeking benefits for *specific* sub-sectors of the society, not the good of consumers in general).

The 'consumer sector' interacts with government in three distinct ways: as voters, as taxpayers and as the direct beneficiaries of government programs and services. According to public choice theory, the ignorance of voters regarding specific policies of candidates is 'rational' in the sense that the cost of acquiring information is high, and the likelihood of the vote of a particular individual influencing the outcome of an election low. In this sense the 'political market' is woefully inefficient in comparison with the market for goods and services where consumers have an incentive to discover information because payment is direct and individuals bear the consequences of their purchasing decision.[46] In addition, voters only exert their influence over elected officials periodically in the run-up to elections, and are expected to cast their votes on the basis of the prospective policy platforms of the various candidates and their parties. However, by the time the next election rolls around it is next to impossible for the voter to assess the

[45] Tasic (2005) explains this tendency in terms of the evolutionary history of the human species: for the vast majority of human history, the survival and well-being of the individual's social group was recognised as being more important than the survival or well-being of the individual. Individual sacrifices need to be made to ensure the survival of the group. It is only since Adam Smith helped us to understand that the well-being of society is individuals act in their own self-interest. For hundreds of years – at least since Magna Carta of 1215 – ordinary people struggled to free themselves from government-imposed restrictions. It is therefore paradoxical that many now support government intervention for the sake of the 'greater good'. The demonization of big business that has occurred since the Depression of the 1930s seems to be a crucial factor in this about face.

[46] (Tullock 1989)

performance of the incumbent government in any meaningful way, so the electorate is susceptible to ideological arguments.

Professor of Economics at George Mason University, Bryan Caplan argues that, contrary to public choice theory, voters are 'irrational' in the sense that they act on the basis of four widely held, systemic biases.[47] The first three of these biases are particularly relevant to discussion of attitudes to international trade. Caplan's systemic biases are:

1. *An anti-market bias*: notwithstanding Adam Smith, the general public still do not understand how markets obtain the public interest from private self-interest.
2. *An anti-foreign bias*: people generally underestimate the benefits of interaction with foreigners who are regarded as competition or enemies, not potential partners in mutually advantageous trade.
3. *A make-work bias*: people do not equate prosperity with production and productivity but with employment. More jobs are more important than more productivity.
4. *A pessimistic bias*: notwithstanding a general rise in living standards, people usually consider economic conditions bad and likely to deteriorate.

Although it may be the disadvantaged elements of the electorate who clamour for 'help' from the state, the chief beneficiaries of government intervention are businesses. The generic term for the process whereby businesses benefit from regulation is 'regulatory capture'. One important aspect of regulatory capture is the manner in which the benefits and costs are distributed. The benefits are concentrated on a small number of participants in the affected industry, whereas the costs are widely dispersed across the taxpaying public. Although the benefits obtained by businesses may be considerable (for example, the payments made to keep Americans working in the tire industry) the cost of providing those benefits is so small for each taxpayer that it is likely to go unnoticed – at least initially.

As taxpayers, the 'consumer' sector bears the brunt of the cost of providing government employment, intervention, regulation, and services. The cost of government is significant and

[47] (Caplan 2007a)

growing. Although the cost to individual taxpayers for specific government initiatives is small, the array of programs has a tendency to grow over time, and there is relatively little attrition: each program provides benefits, and therefore creates a usually small but potentially vocal constituency who will resist attempts to end their flow. Although the value of the benefits supplied by government generally dissipates over time as the economy adjusts around the infusion of funds, the costs of each successive intervention accumulate. Sometimes the adverse implications of an impending fiscal crisis are anticipated by political entrepreneurs who advocate measures for rectifying the situation before a full-blown crisis ensues. This was the case in Canada in the early 1990s when the government took steps to reduce the federal deficit from 'third-world' levels. Sometimes, however, the cost of government programs is sufficiently onerous to be perceived by the electorate as an election issue.[48] This was the case in the 1984 federal election in New Zealand which resulted in a dramatic shift in trade policy.

4.3 Government

Public Choice theory in economics refutes the 'nirvana fallacy' that election or appointment to government office transforms ordinary people, trying to do the best they can for themselves and their families with the limited information they have at their disposal, into omniscient saints working tirelessly for 'the greater good'. In fact, they continue to be driven by their own interests: in the case of professional politicians this generally involves doing what they can with the taxpayer funded budgets available to get re-elected. The ever-rising cost of competing for political office creates a dependence on those who fund re-election campaigns and influence public attitudes. Such special interest groups (see below) become an important catalyst in the policy making process.

Government employees also have a vested interest in retaining their positions and expanding the budgets which justify their existence. One of the consequences of this logic is that it is very difficult to end a government initiative once it has been created. Both the government bureaucracy required to implement it and the special interest groups who benefit from it join forces in its defence. As has already been mentioned, the complexity of the policy making

[48] In Canada, high levels of government spending were a significant factor in the rise to power of the Reform, Canadian Alliance and eventually the resurrected Conservative party under the leadership of Stephen Harper (Prime Minister from 2006-2015.)

process creates opportunities for lobbyists who are only too keen to help the policy makers see the alternatives available from the perspective of the business they represent. The 'help' businesses provide to policy makers and the funds they provide politicians for re-election gives them considerable leverage over the outcome of deliberations which affect their profitability.

Notwithstanding the regulatory capture which occurs as a result of the political process, politicians and bureaucrats are obsessed with 'optics': how their actions are perceived by the general public. Considerable expenditure of (taxpayer funded) public money is devoted to advertising the importance of government intervention for society as a whole, despite the fact that regulatory capture ensures that private interests obtain the benefits at the expense of the general public.

4.4 Special Interests

The final group of participants in this stylized society consists of an amorphous collection of special interest groups: industry associations, unions, environmental and other social issue related groups. The main purpose of many such special interest groups is to influence policy, using popular support and hence the potential votes of 'consumers' as leverage.

The mandate government receives from its citizenry for intervention is crucially important if the effort businesses and other special interest groups expend to get the rules changed in their favour are to be productive. Those on either extreme of the political spectrum recognise the influence business exerts on government as being counterproductive for consumer welfare: those on 'the left' regard it as an inevitable failing of 'capitalism', while others label it 'crony-capitalism' and consider it an unfortunate and regrettable distortion of market interactions.

The burden on taxpayers (and their descendants when government debt levels increase) rises as government intervention in the economy increases over time. Taxpayers find themselves paying not only for the interventions for which they have agitated but also for the benefits for which businesses lobby in order to take advantage of the 'ideology of intervention'. As will be pointed out, instances where taxpayers get to the point where they no longer tolerate the subsidization of certain sectors of the economy in order to hide the fact that it is not competitive *vis a vis*

imported alternatives have already prompted some countries to abandon protectionism in favour of free trade.

5. The Structure of this Thesis

Chapter 2 investigates whether President Trump's protectionism policy will achieve its stated goal, namely to "Make America Great Again" using three prominent American companies as case studies to investigate, in reality, how trade and the global supply chain contribute to strengthen their competitiveness.

It looks at Kodak in order to explore how companies must adapt to new technology in order to survive and how politicians blame trade for business failure in order to support their own domestic agenda. It then analyzes Apple's successful use of global supply chains to develop innovative products and achieve a dominant position in the consumer electronics market. Apple also provides an opportunity to explore the problems with trade deficit statistics and shows that they are vastly overstated when global supply chains are involved.

The third company, Boeing, is a century old and appears on the surface to be a more traditional American company. It was loudly praised by President Trump for its 'Made in America' Dreamliner airplane. However, it too relies on global supply chains to produce state of the art products and relies heavily on international markets for sales.

Chapter 3 examines how consumers and special interest groups advocate in favor of protectionism. It discusses two case studies from the agricultural sector, a sector which has traditionally been accorded special treatment in terms of public policy. The two case studies, which involve palm oil and the 'buy local' movement, explore how consumers are influenced to support initiatives based in large part on an anti-foreign products bias, both of which are not in their own best interest and do not achieve the stated objectives.

Chapter 4 turns to the regulatory environment governing world trade. It provides a brief history of how GATT and WTO reduced many tariff rates internationally, but floundered in 2008 when

it tried to achieve agreements on agricultural trade and non-trade barriers among more than 150 countries. Since that time, there has been a growth of both multilateral and bilateral trade agreements. This has resulted in a proliferation of conflicting rules which both help and hinder trade. NAFTA and TPP are profiled as examples of larger regional agreements. The former is now under attack by President Trump because it is perceived as being a 'bad deal'. The latter deal was repudiated by President Trump in January 2017. Both of these 'trade' deals have a strong political dimension and contain terms that go well beyond trade related issues. This chapter also examines Brexit and its trade agreement options. In June 2016, Brexit voters gave their government a mandate to put consumer interests ahead of EU regulations. Britain could take this opportunity to implement a 'consumer first' free trade policy in alliance with other nations. The best option for the UK is a simple and unilateral trade agreement which could benefit not only U.K. consumers but also people in other nations, particularly those in developing countries.

Chapter 5 draws conclusions, makes a few policy recommendations and suggests areas for further research.

CHAPTER 2. "MAKE AMERICAN GREAT AGAIN"?

> To prohibit a great people, however, from making all that they can of every part of their own produce, or from employing their stock and industry in the way that they judge most advantageous to themselves, is a manifest violation of the most sacred rights of mankind.
>
> Adam Smith. 1776.[49]

1. Introduction

Protectionism is a politically successful strategy despite being "superficial and short-sighted", since it ignores the complexities and dynamics of the global market.[50] It will trigger retaliation from other nations. The cost of protectionism in America is borne by consumers and businesses. Isolating the American economy from the rest of world will impoverish and weaken American businesses, and result in job losses and lower living standards. Moreover, higher product prices will place a disproportionate burden on poorest citizens in the US.

However, protectionist policies enjoy popular support, since job losses in some industries are highly visible and are often attributed to 'unfair' competition from other countries (e.g. Kodak case). Blaming other countries and globalization is both incorrect and misleading: it is an excuse to avoid recognizing the real reasons behind business failures and job losses, and also ignores the tremendous benefits which accrue to consumers and businesses from trade and specialization.

The example of Apple Inc., one of the world's most successful companies, demonstrates the complexity and value of the global supply chain, the very real benefits of international trade to both business and consumers, and challenges the feasibility of turning back the clock and repatriating jobs to America. Apple's supply chain production data are used to understand the flaws and double-counting in conventional trade account metrics.

The third example, Boeing, is a huge, successful US company, lauded by President Trump because of its large US based workforce. However, Boeing itself praises the benefits of its global

[49] (Smith 1904/1776) Book I, Chapter IV Of Colonies, 66.
[50] (Perry 2017b)

supply chain (30% of Boeing parts are made outside the US), and relies heavily on overseas sales. It is a good example of how misleading the label 'Made in the USA' can be.

Boeing is also an example of how big business extracts valuable concessions from the government to enhance its own competitiveness. In 2012, the World Trade Organization (WTO) ordered the US to halt unfair subsidies and tax breaks to Boeing, judging them to have damaged a European rival company, Airbus. Despite making the most out of the governments' subsidies for its own benefit, Boeing accused its Canadian competitor, Bombardier, of illegally selling aircraft below their production cost, and persuaded the US government to levy huge anti-damping tariffs against its rival company.

Many empirical studies on protectionist trade policy have concluded that the costs of protectionist trade policies far exceed the benefits. A study by the Federal Reserve Bank of St. Louis of 31 protectionist cases in the US in the 1980s[51] and the more recent example of tariffs levied against a Chinese tire manufacturer[52] confirm how protected producers capture benefits at the expense of consumers. Despite President Trump's bleak assertions, the US economy as a whole has been growing. Like Apple and Amazon, many new companies have been doing very well. Schumpeter's theory of 'creative destruction' explains the natural business cycle where old businesses and jobs are replaced by new ones and where 'survival of the fittest' is determined by a business's ability to adapt to changes in its environment.

2. The Rise of Protectionism

2.1 Why Protectionism is a Popular Political Strategy

Trade policy has been a prominent issue in recent years and political opposition to international trade is on the rise. During the US presidential campaign in 2016, the Republican candidate Donald J. Trump made a series of speeches with the theme "Make America Great Again" in which he promised to boost US economic growth and create jobs. To protect American jobs from the negative effects of globalization, he proposed reversing many years of trade liberalization, and vowed that he would "rip up" existing trade agreements, renegotiate the North American

[51] (Coughlin, Chrystal and Wood 1988)
[52] (Hufbauer and Lowry 2012)

Free Trade Agreement (NAFTA), and impose a 35% tariff on imports from Mexico and a 45% tariff on imports from China.[53]

The Global Markets Forum, which includes more than 50 prominent US economists, regularly undertakes a survey of attitudes to free trade.[54] In the 2012 survey, 87% of respondents agreed that "Freer trade improves efficiency and offers consumers better choices, and in the long run these gains are much larger than any effects on employment". Also, 88% agreed that "On average, citizens of the US have been better off with the North American Free Trade Agreement than they would have been if the trade rules for the US, Canada and Mexico prior to NAFTA had remained in place".[55] In the same survey in 2014, 93% of respondents agreed with the claim that "Past major trade deals have benefited most Americans".[56]

In the US political arena, trade agreements have been blamed for sending American jobs overseas. For example, in 2015, Louise Slaughter, a Democratic Congresswoman who has represented Rochester, New York, for nearly 30 years stated that "I've never seen a trade bill that in any way benefited US manufacturers and workers". [57] She pointed to Kodak as an example of a company harmed by trade agreements, and especially by NAFTA. Since the deal between the US, Canada and Mexico went into effect in 1994, Kodak's Rochester work force shrank from 39,300 to 2,300 in 2015. [58] During the same period, according to the Connecticut state representative Rosa DeLauro, the state lost more than 96,000 manufacturing jobs, and once again international trade was blamed for causing job losses in the US[59] (This argument is refuted in Section 3 of this chapter.)

[53] (Noland, Hufbauer, et al. 2016) p.5.
[54] (University of Chicago Booth School of Management n.d.) IGM Economic Experts Panel consists of more than 50 experts of economists in the US The panel explores the extent to which economists agree or disagree on major public policy issues, and try to represent a broader economist population.
[55] (University of Chicago Booth School of Management, IGM Forum) March 19, 2012.
[56] (University of Chicago Booth School of Management, IGM Forum) November 11, 2014.
[57] (Nocera 2015)
[58] (Nocera 2015)
[59] (Nocera 2015)

2.2 The Negative impact of Trade with China on the US

Although, the majority of economists generally acknowledge the benefits of trade, some also highlight the associated trade-offs, adjustments costs, and the divergent impacts on winners and losers. For example, in 1994, Krugman and Obsfeld wrote:

> International trade has a powerful effect on income distribution…This means that international trade tends to make low-skilled workers in the United States worse off —not just temporarily but on a sustained basis. [60]

These negative effects of international trade have received a great deal of attention, from both a political and economic perspective, especially in the wake of China's economic reforms in the 1980s and its entry to the world economy. When China joined the World Trade Organization (WTO) in 2001, a country of 1.3 billion people entered the global trading system, precipitating an unprecedented change in the dynamics of world trade which could not have been foreseen, especially in the manufacturing sector.[61] According to the World Bank, China's exports of goods swelled nearly 10-fold during the first 13 years after China joined WTO, reaching $2.3 trillion in 2014.[62]

Wide ranging effects associated with China's integration into the global market challenged the widely held view among economists that the negative social costs would be small and transitory. There have been many studies of the trade effects on US workers and the domestic economy: a 2016 report by trade and labor economists David H. Autor, David Don and Gordon H. Hanson concluded that the negative effects were much larger and lasting longer than previously anticipated.[63]

As the trade of goods has increased with China and other nations, the US has been running a huge trade deficit since the late 1980s. In 2012, the amount reached $460 billion, of which trade with China accounted for almost 75%.[64] According to Martin Neil Baily and Barry P. Bosworth

[60] (Krugman and Obstfeld 1994)
[61] (Goodman 2016)
[62] (World Bank 2017b)
[63] Summary of mainstream economists' view on international trade and its impacts on employment and wages, please refer (Autor, Dorn and Hanson 2016) pp. 1-3.
[64] (Baily and Bosworth 2014) p.4. p.13.

of the Brookings Institute, job losses from 2000 coincided with the growing trade deficit with China, "which suggests to some a causal link in which China trade is the reason for the loss of US manufacturing jobs".[65]

2.3 Changes in US Manufacturing

According to a 2014 Economic Policy Institute's report, between 2001 and 2013, the expanded trade deficit with China eliminated or displaced 3.2 million US jobs, three quarters of which (2.4 million) were in manufacturing.[66] These job losses occurred in all states and the District of Columbia, but the hardest hit states were California, Texas, New York, and Illinois where jobs in various manufacturing industries were concentrated. Computer and electronic components, textile and apparel, and furniture were sectors particularly hard hit. The trade deficit in the computer and electronic parts sector accounted for 56% of the negative growth during 2001-2013, and for 39.6% of the total job losses over the same period. The report also pointed out that negative effects were not limited to job losses and the associated direct reduction in wages paid. Competition with low wage workers from developing countries drove down wages and weakened the bargaining power of non-skilled, non-college-educated workers throughout the US economy.[67]

Empirical research by Autor, Dorn, and Hanson further discovered that some American communities never fully recovered after manufacturing jobs moved to China. Although, economic models had predicted that labor markets would eventually adjust to trade shocks and suffer a limited impact, unemployment rates remained elevated and worker incomes depressed for at least a full decade after the China trade shock started.[68]

This occurs in part because movement of labor in the aftermath of changes in regional labor demand is slow and incomplete, and because immobility is particularly pronounced among low-skilled workers.[69] Also, labor demand changes depend on industry specialization patterns and on

[65] (Baily and Bosworth 2014) p.4. p.13.
[66] (Kimball and Scott 2014) p.2.
[67] (Kimball and Scott 2014) p.3.
[68] (Autor, Dorn and Hanson 2016)
[69] (Autor, Dorn and Hanson 2016) p.17.

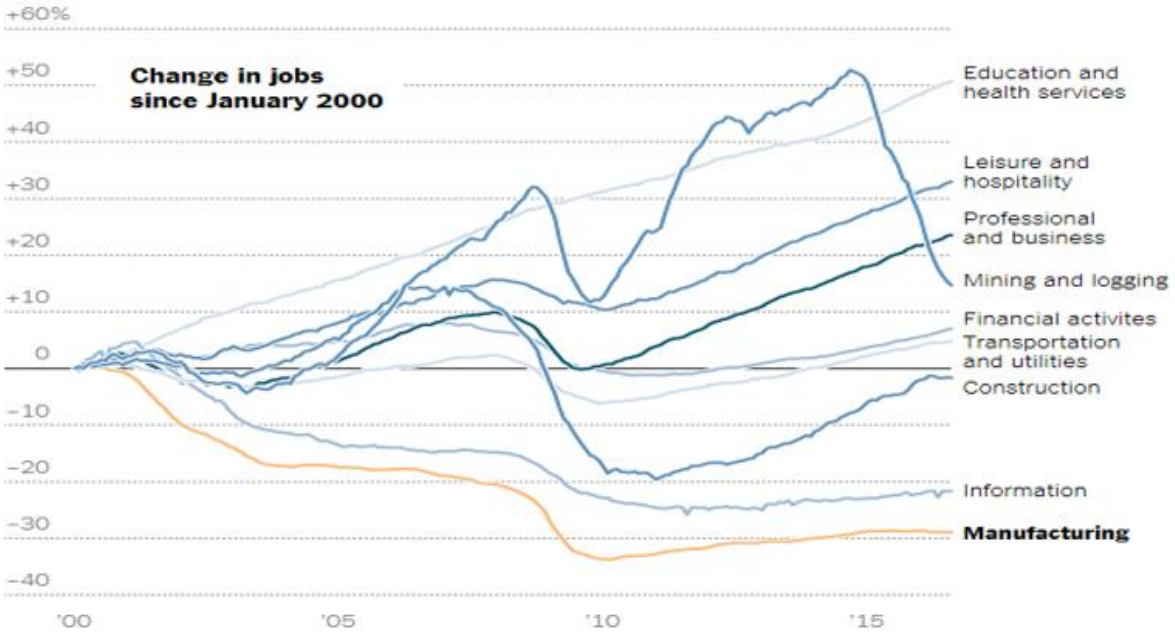
the degree of regional exposure to foreign competition.[70] In the apparel and furniture industries, China is a particularly efficient competitor relative to the US.[71] Moreover, a significant share of displaced low-skilled workers sign up for permanent disability payments instead of the temporary trade adjustment assistance that is made available, thereby increasing the number of permanent labor force dropouts.[72] Autor, Dorn, and Hanson estimated that between 1999 and 2011, about 1 million manufacturing jobs were lost, and an additional 1 million job losses occurred indirectly in supplier businesses outside these trade exposed sectors.[73]

However, as pointed out in Chapter 1, job creation and destruction are a natural part of the business cycle. Politicians tend to emphasize job losses and ignore job creation in other sectors. Although manufacturing employment has declined, there have also been gains in other areas such as service and health sector businesses (Figure 4).

As shown in Figure 5, manufacturing jobs peaked in the late 1970s, and throughout the 1990s the number was around 17 million. From 2000 to 2010 this sector lost 5.6 million jobs, which was the largest decline in manufacturing employment in US history. In other words, manufacturing employment had already started to decline well before NAFTA came into effect (1994) and before China joined WTO (2001) and entered into world trade with its full force.

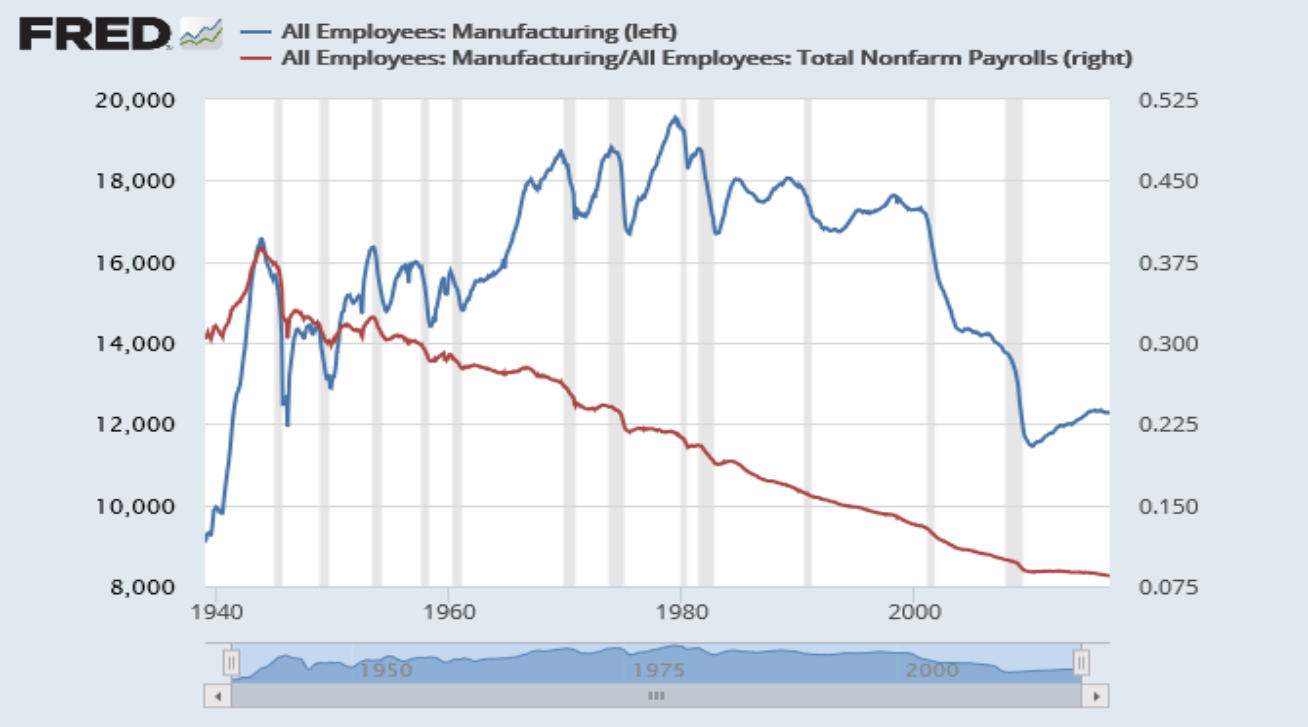
[70] (Autor, Dorn and Hanson 2016) p.17.
[71] (Autor, Dorn and Hanson 2016) p.28.
[72] (Autor, Dorn and Hanson 2016) p.32.
[73] (Autor, Dorn and Hanson 2016) p.28.

Figure 4 Manufacturing Job Losses and Other Sectors from 2000-2016



Source: (U.S. Department of Labor 2017a)

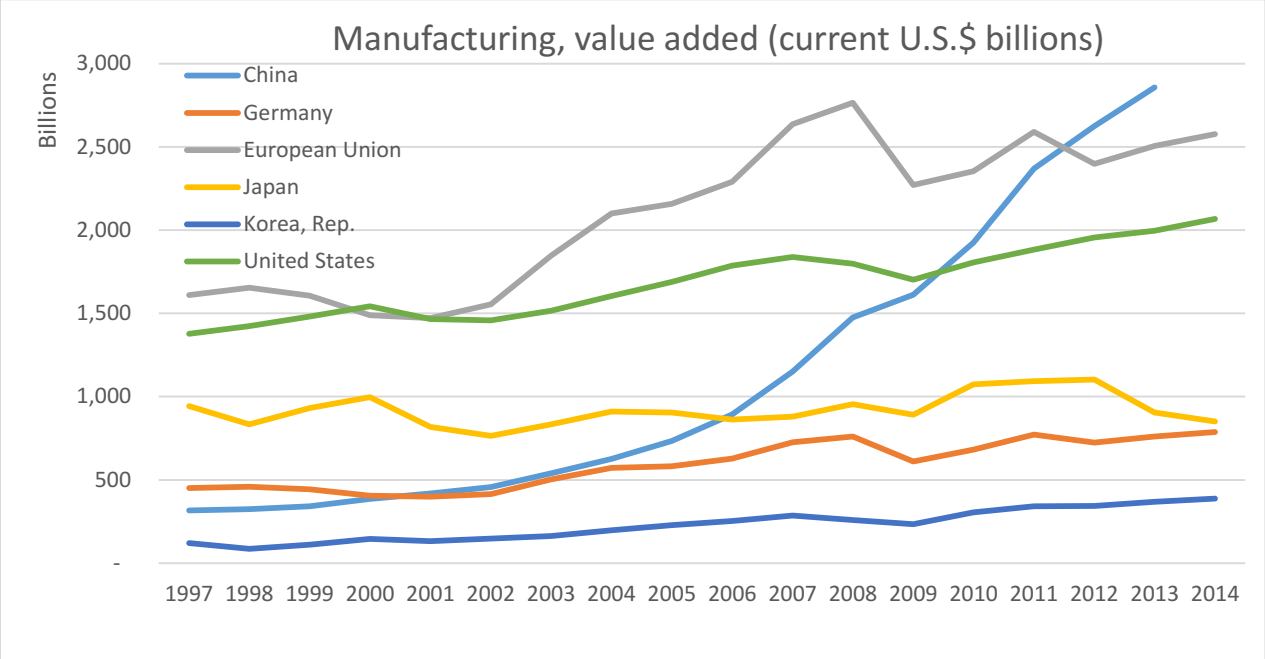
Figure 5 Number of Manufacturing Nonfarm Employment and its Share of US Employment 1939-2016



Source: FRED Economic Data, https://fred.stlouisfed.org/graph/?g=1Gor

Although the number of jobs has been declining, the American manufacturing sector is still strong and growing in terms of output value. The US still has the world's second largest manufacturing sector after China (Figure 6).[74]

Figure 6 World Manufacturing Output, Value added

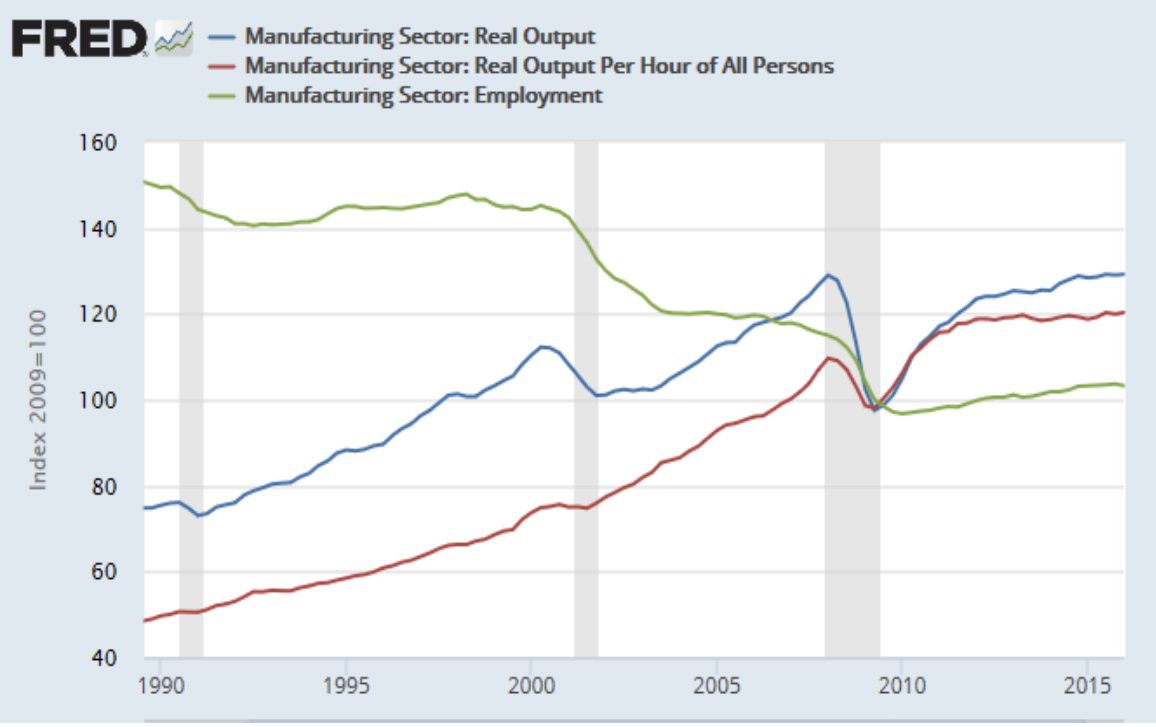


Source: (World Bank 2017d)

According to an empirical study by Michael J. Hicks and Srikant Devaraj of Ball State University, only 13% of job losses since year 2000 can be attributed to trade. The remaining 87% was due to productivity growth in American factories.[75] The American manufacturing sector has been producing more than ever and expanding: between 2009 and 2015 the sector's real output increased 30%, and the number employed in 2015 was about 12.3 million workers which were about the same level as in 2009. Automation and the use of information technology increased productivity growth per worker by 20% (Figure 7).[76]

[74] (Baily and Bosworth 2014) p.1.
[75] (Hicks and Devaraj 2015)
[76] (Goodman 2016) (Hicks and Devaraj 2015) p. 4. They estimated that if productivity had remained at 2000 levels, in 2010 employment would be 20.9 million workers in the manufacturing sector. Instead, the actual employment number was 12.1 million, which resulted in about 40% more output with the much less employment. Also, there was considerable variation among sub-sectors: computer and electronic products, motor vehicles, bodies and trailers, and

Figure 7 Trends in US Manufacturing: Real Output, Output per Hour per Worker, and Employment



Source: (Federal Reserve Bank of St. Louis)

In summary, evidence suggests that adjustment to Chinese trade shock in the US has been a slow process, and costs have been concentrated in the regions where those manufacturers were located.[77] US President Trump's view was, therefore, at least partially correct: "trade creates new jobs in exporting industries and destroys jobs when imports replace the output of domestic firms".[78] The surge in animosity towards trade among those who lost jobs to competitive imports persists and is difficult to reverse. President Trump was and continues to be successful by tapping into anger among working class voters suffering the consequences of job losses in manufacturing.

In the political arena, inconvenient facts and numbers are generally ignored. The "Make America Great Again" slogan has been very popular among politicians, labour unions, some

parts had strong growth. On the other hand, lower productivity sub-sectors, such as textile and textile product mills, apparel, leather, and allied products, registered about a 50% decline of GDP growth between 1998 and 2012.

[77] (Autor, Dorn and Hanson 2016) p.33.

[78] (Bivens 2008)

manufacturing sector and other businesses that blame trade for their economic predicament. Behind the "Make America Great Again" and "Buy American" protectionism, there is the implicit assumption that trade is a zero-sum game. In other words, any gain from trade on the part of China is mirrored in a comparable loss on the American side of the transaction. Such a nationalistic view reflects a tendency to tribalism and ignores the fact that at the world level, the size of the 'pie' representing goods traded internationally has been getting progressively larger. According to World Bank data, between 1995 and 2014, global aggregate manufacturing output doubled from $5.8 trillion to $12 trillion.[79] About the same period, from 1997 to 2013, US manufactured value added increased 48%, while China's increased by 900% from a low initial base (Figure 6).[80]

3. Kodak and the Myth of Free Trade

The case to which Louise Slaughter, the US Congresswoman representing Rochester, New York, referred (see page 44 above) shows how simplistic and erroneous explanations can be used to support protectionist policies. She blamed the North American Free Trade Agreement (NAFTA) for the rapid demise of the Eastman Kodak company.[81] Yet the Kodak case is a "picture-perfect" example of a business failing due to its inability to keep pace with new technology, coupled with poor business management. Trade agreements in general, and NAFTA in particular, had little or no impact on the firm's competitive advantage.[82]

An economist in the US Department of Commerce, John Tschetter wrote a report in 2010 arguing that international trade encouraged structural changes in domestic industries that resulted in increased efficiencies, economies of scale and more productive investments that enhanced the competitiveness of foreign and US producers alike.[83]

In today's complex and unpredictable world, businesses have to be competitive and innovative to keep up with rapid changes in technology, consumer tastes, and market dynamics. As discussed

[79] (World Bank 2017a)
[80] (World Bank 2017a)
[81] (Nocera 2015)
[82] (Economist 2012)
[83] (Tschetter 2010) p.4.

in Chapter 1, if a company cannot keep pace with these changes, and misjudges the future trajectory of the sector in which it is participating, it will fail regardless of its size and the nature of its business. Kodak, formerly a giant, high-tech American company, provides a classic illustration of this reality.

3.1 Kodak and Technical Change

Companies must remain competitive to survive. Faced with changes to the business environment, they must adapt and innovate to seize the business opportunity. There are many Kodak case studies demonstrating how new technology combined with ill-equipped management can have devastating consequences for even a well-established blue-chip business.[84]

Kodak was founded by George Eastman in 1880.85 The company ruled the imaging industry through innovation for more than a century. By 1976, Kodak accounted for 90% of film and 85% of the camera sales market in the US However, the company found itself in trouble in the late 1990s.86 Kodak went through a series of restructurings between 1983 and 2007, but these failed to address the underlying problems. In the late 1990s, its share price began to decline as a consequence. The number of employees dropped by 100,000 between 1973 and 2012 as jobs were slashed (Figure 8). In 2012 Kodak filed for Chapter 11 bankruptcy protection.[87]

[84] The most comprehensive analyses of the demise of Kodak's business is written by Lucas and Goh (2009), Gilbert and Bower (2002) and Anthony (2012).
[85] (Lucas and Goh 2009) p.49
[86] (Lucas and Goh 2009) p.49
[87] (Reuters 2012)

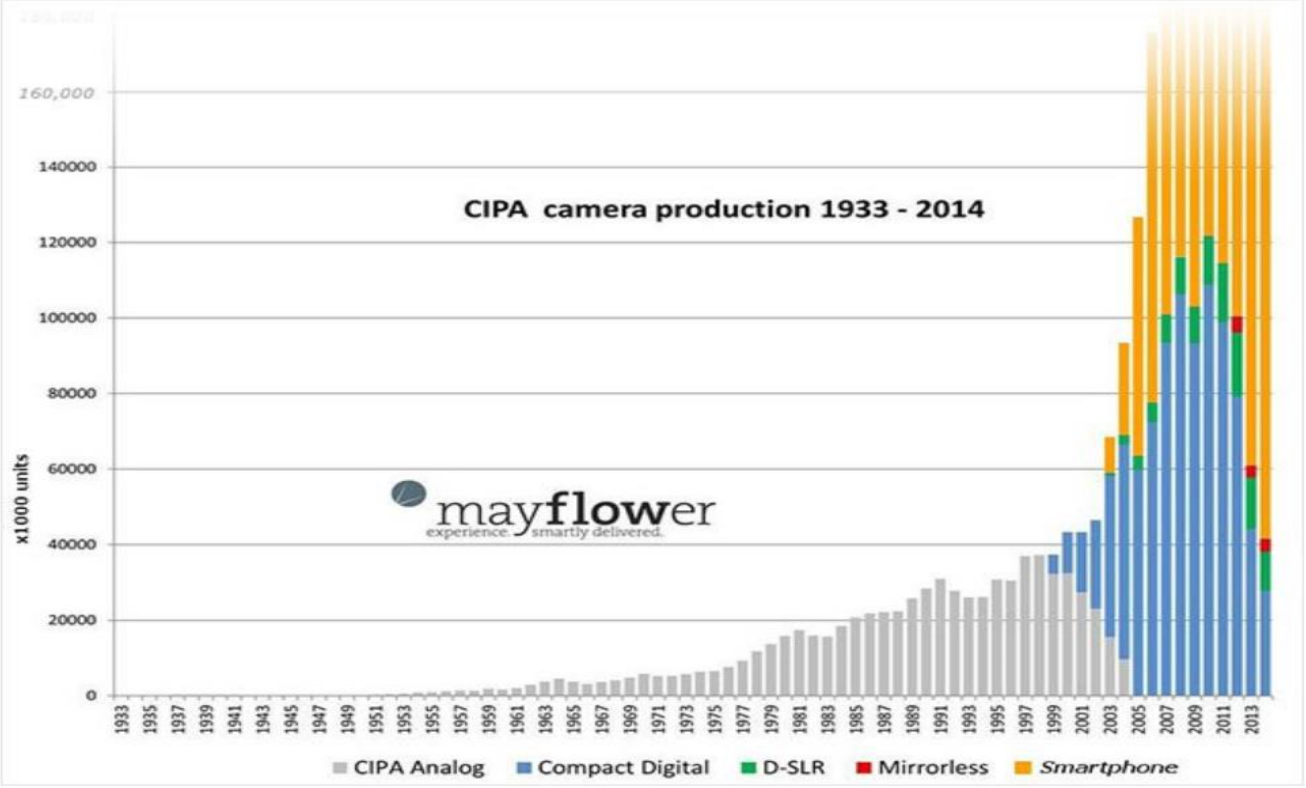
Figure 8 Kodak's Employees and the Share Price between 1973 and 2012

Source: (Economist 2012) (original data from company reports by Thomson Reuters)

The number of photos taken in the world increased from 1 billion photos in 1930 to 350 billion in 2011.[88] In the late 1990s, the camera market started to change rapidly. Analog cameras were supplanted by digital ones around 1997 (Figure 9), and in 2003, the number of digital cameras sold surpassed film cameras.[89] Then, revolutionary change hit the camera business with the advent of smart phones. Smart phone production took off exponentially around 2003,[90] and resulted in a double-digit decline in the production of digital cameras.[91]

[88] (M. Zhang 2011)
[89] (Lucas and Goh 2009) p.51
[90] (M. Zhang 2015)
[91] (M. Zhang 2015)

Figure 9 Changing Camera Production 1933-2014



Source: (M. Zhang 2015)

Digital technology has completely taken over film photography, and Kodak announced the cessation of Kodachrome film production in 2009.[92] In combination with advances in information and communication technologies, digital photography brought fundamental changes to the entire process of capturing, displaying and transmitting images. Smart phones rapidly became a 'must have' – a versatile tool of daily life with which to talk and text, listen to music, take pictures and videos, and interact through social media in ways previously unimaginable.

3.2 Why Kodak Failed to Adapt

Kodak's management seriously underestimated how quickly the demand for this new technology would grow, and did not adapt their business to these industry-wide trends quickly enough. The key reasons for its failure to adapt were:[93]

[92] (Cade 2013)
[93] (Lucas and Goh 2009) A business model researched by the Harvard Business School professor, Clayton M. Christensen beginning in 1995. Please see details on the model in pp. 46-49. As for an information on Professor Christensen please see http://www.claytonchristensen.com/

1. Kodak didn't understand the commerical potential of digital technology
2. It faced the classic incumbent's dilemma
3. It had a rigid, bureaucratic culture to change
4. It failed to capitalize on its core capabilities

1. Kodak didn't understand the commercial potential of digital technology

Kodak's brand traditionally stood for film. The company failed to understand that it was actually in the imaging business and that film was just one way of displaying an image. It was Kodak that invented the world's first digital camera in 1975 and the first megapixel imager in the mid 1980s. The transformation from conventional photography to digital photography took about two decades. However, Kodak misjudged the potential of digital technology and believed its traditional film business would endure. It regarded this film-less technology as an enemy, an evil juggernaut that would kill the chemical-based film and paper business rather than an opportunity. [9495] Kodak began moving slowly into the digital market but found that it was too late.

2. It faced the classic incumbent's dilemma

Kodak had a strong brand and a long history of success associated with film. It had very high profit margins and lots of cash in the bank. Existing success leads to complacency and is a deterrent to innovation.

3. It had a rigid, bureaucratic culture

In a Harvard Business School study, Gilbert and Bower explain that when management and workers face a disruptive innovation and perceive a new technology as a threat, they respond aggressively in defense of the exisiting business model.[96] When a company responds to a threat by more vigorously pursuing a previously successful strategy it is a recipe for disaster. To quote the Japanese business management guru, Keniche Ohmae "rowing harder doesn't help if the boat is headed in the wrong direction".[97] The alternative is change, which is often difficult. Creating a new business model, committing resources to innovation via a series of staged investments, and

[94] (Mui 2012)
[95] (Mui 2012), (Lucas and Goh 2009) p.5
[96] (Gilbert and Bower 2002)
[97] Quoted in (Brown 2000).

giving business units the autonomy to purse new ventures are examples of tactics used by successful businesses to evolve in unison with changes in the market situation.[98]

The Kodak corporate culture valued harmony, not challenges. In fact, both managers and the workforce were still clinging to the old paradigm. In Kodak's case, this is precisely the reason the company failed: its bureaucracy and hierarchically-oriented management culture were deeply ingrained throughout the company. Each employee did everything according to the company rule book. For example, "Meetings were held prior to meetings to discuss issues and establish agreement in order to avoid confrontations, which were considered un-Kodak like".[99] When it came to decisions, managers avoided risks, and instead developed procedures and policies to maintain the status quo.[100] The net result was "paralysis", and the emergence of digital photography as the technology of the future was not evident to Kodak until it was too late.[101] Its long and distinguished legacy and a complacent company culture inhibited the firm's ability to adapt.[102] This deficiency was particularly harmful because it affected middle managers, who dealt with the day to day business.

Kodak hired a series of new CEOs from outside the company and expected them to turn the company into a high-tech growth company. However, the old-line manufacturing culture continually frustrated their efforts. Although they were able to facilitate a change in the culture at the very top of the hierarchy, they were unable to change the mentality of a huge mass of middle managers who did not understand the digital world.[103] A former Kodak employee explained the insurmountable difficulties which prevented the transformation of the company in the following terms:

> Kodak wanted to get into the digital business, but they wanted to do it in their own way, from Rochester and largely with their own people. That meant it wasn't going to work. The difference between their traditional business and

[98] (Gilbert and Bower 2002)
[99] (Lucas and Goh 2009) p.54
[100] (Lucas and Goh 2009)p.54
[101] (Lucas and Goh 2009)p.54
[102] (Lucas and Goh 2009) p.53
[103] (Lucas and Goh 2009) p.53

> digital is so great. The tempo is different. The kind of skills you need are different…but they didn't want to force the pain on the organization.[104]

Henry C. Lucas and Jie Metin Goh of the Robert H. Smith School of Buiness, University of Maryland explain Kodak's failure in terms of the complacency of management and the culture of company rather than the innovative challenges of digital technolgy itself. They conclude their study:

> The most important observation is that management has to recognize the threats and opportunities of new information and communications technologies and marshal capabilities for change. This change effort involves attacking core rigidities and the culture of the organization, and bringing all levels of employees on board, or the change effort will fail. ...The unanswered question is when confronted with a major technological discontinuity, can managers and organizations change a business model that has been successful for more than a century? [105]

4. It failed to capitalize on its core capabilities

Kodak had a number of great capabilities (assets in facilities, knowledge, researchers, investment, and management).[106] However, its capabilities in film blinded those involved to the potential of digital processes. The Kodak brand and legacy were built on its success in developing processes for manufacturing high-quality film and printing paper. Although Kodak had a number of technological and research assets including knowledge of chemistry, film production, and patented processes, it could not utilize these assets to create new businesses or products when the digital world began expanding rapidly. In the end, "almost a century's experience in film inhibited rather than facilitated a shift to new technology".[107]

Kodak's imaging patents had been "the object of desire" among technology giants. Ultimately, its inability to adapt to changing market conditions was a tragedy. In 2012 Kodak sold many of its patents for approximately US$525 million to a group of technology companies including Apple, Google, Facebook, Amazon, Microsoft, Samsung, Adobe Systems and HTC.[108]

[104] (Lucas and Goh 2009) p.53.
[105] (Lucas and Goh 2009) pp.54-55
[106] (Lucas and Goh 2009) p.48
[107] (Lucas and Goh 2009) p.53
[108] (Skillings and Kerstetter 2012)

3.3 Kodak vs. Fujifilm: Heterogeneity is a Key Source of Robustness

Kodak was like a big ship which could not alter course easily to explore a new market. In contrast to Kodak's failure, its long-time rival, Fujifilm, made a nimble and ultimately successful transformation when faced with the challenge of digital technology. It provides a great counter example of a company that evolved by creating new businesses.

The Japanese company Fujifilm was founded in 1934, and Fujifilm and Kodak had much in common.[109] Both of them were in the photography film business with high profit margins in the near monopolies they held in their domestic markets. In the late 1990s, they both realised that digital technology posed a threat and that they needed to change their business before they were rendered obsolete. While Kodak was slow and reluctant to move forward, Fujifilm responded with a series of radical reforms. These included partnering with new companies, investing heavily in R&D, and the acquisition of 40 firms.[110] What distinguished Fujifilm's approach from Kodak's was its strategy of experimenting with completely new business fields, such as pharmaceuticals and cosmetics, in which it could utilize existing capabilities in chemistry and materials. Fujifilm's exploratory efforts and attempts to diversify paid off. The contrast between Fujifilm and Kodak is stark. When the camera film market peaked in 2000 and shrank by 90% over the following 10 years, Fujifilm grew steadily; Kodak declared bankruptcy in 2012.[111]

In another Harvard Business School study, Reeves, Levin and Ueda pointed out that when a company experiences an environmental shock, 'heterogeneity' is a key factor which influences the 'robustness' of the company and hence its ability to survive the shock. These authors emphasized that 'heterogeneity' means not only a diversity of businesses, but also a diversity of people, ideas, and endeavours.[112] In Kodak's case, although they hired new talent and tried out different ideas and businesses, the firm's traditional allegiance to the film business prevented many managerial employees from responding enthusiastically to the challenge of creating a new business.

[109] (FujiFilm n.d.)
[110] (Reeves, Levin and Ueda 2016)
[111] (Reeves, Levin and Ueda 2016)
[112] (Reeves, Levin and Ueda 2016)

In contrast, Fujifilm went through a painful management transformation, but did so quickly and thoroughly enough to reinvent its business structures. For example, in the 2000s Fujifilm entered many new businesses such as health care diagnostics, pharmaceuticals and cosmetics where their knowledge of chemistry and imaging technology could be leveraged.[113] In 2015, Fujifilm had sales revenues of US$22 billion and a net income US$1.1 billion,[114] which was a remarkable result in comparison with the restructured Kodak which had only US$1.8 billion revenue and a net loss of US$80 million in that year.[115]

3.4 Competitiveness is About Innovation

To return once again to the US political arena, Louise Slaughter, the Democratic Congresswoman representing Rochester, New York, blamed NAFTA for Kodak's demise.[116] However, as we see above, it's clear that Kodak's failure was self-inflicted, and was not caused by trade agreements, nor imports from other nations. A professor at MIT, David Autor reluctantly acknowledged in an interview that much of the decline in US manufacturing employment was driven by technology advancement, not by globalization.[117] For politicians and people who lost jobs in the process, this reality is hard to swallow.

4. Apple Inc. and the Global Supply Chain

In this section, we focus on growing intra-industry supply chains, and explain why President Trump's proposed policies, which isolate the American economy from the rest of world, will make American businesses and consumers worse off.

As cross-border investments and international supply chains have proliferated, the nature of trade has changed from the classical inter-industry trade to intra-industry trade. Inter-industry trade, which previously dominated international commerce, involves the exchange of one type of good (e.g. a car) for another type of good (e.g. food). Intra-industry trade is the exchange of similar type of goods (e.g. exporting and importing automobile parts). Thus, one product crosses many

[113] (FujiFilm n.d.) (Fujifilm 2016)
[114] (Fujifilm 2016)
[115] (Statistics Portal 2017d)
[116] (Nocera 2015)
[117] (Autor 2016) In his 2016 study, he did not mention the importance of technological change on American labor market.

national borders in the process of production (e.g. iPhones, automobiles, and T-shirts.) Many countries, especially developed countries like the US, are heavily engaging in intra-industry trade, which has been growing significantly in both size and importance. As a result of globalization, about a half of the value of US imports consists of intermediate goods and capital equipment of purchases by US producers.[118] If President Trump's protectionist trade policy restricts many imports, the policy will cause many problems for American businesses. Historically, protectionist policies have ended up protecting a few at the expense of exporters, small businesses, and consumers.[119]

4.1 Why Apple and the iPhone are Successful

"Designed by Apple in California, Assembled in China"

In January, 2017 Apple iPhone celebrated its 10th anniversary. From the moment Apple's CEO Steve Jobs unveiled an iPhone in 2007, it became legendary. It reinvented and revolutionized the phone with new technologies: a mobile device with a clear wide screen, touch screen controls, and connectivity to the internet.[120] Although media and investors were skeptical about iPhone's future sales at that time, since its introduction Apple has sold more than one billion iPhones.[121]

Apple Inc. was founded in 1976 by Steve Jobs, Steve Wozniak and Ronald Wayne. Its headquarters is located in the middle of Silicon Valley, Cupertino, California. In 2016, Apple became the world's largest information technology company in revenue terms with $216 billion in sales. To put this in perspective, this amount is bigger than the 2017-2018 California state budget.[122] According to American investment research company Morningstar, in 2017 Apple is the largest publicly traded company in the world with a market capitalization of $825 billion and with gross sales over $200 billion.[123] Apple employed 116,000 full-time workers worldwide, 50,000 of whom resided in the US in 2016.[124]

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[118] (Ikenson 2016)
[119] (Irwin 1996) pp.9, 12-13.
[120] (Berr 2017)
[121] (Berr 2017)
[122] (Carroll and Respaut 2017)
[123] (Morningstar 2017) (Apple Inc 2016a) P.39. In 2016, Apple had net income US$46 billion dollars (20% net profit with US$216 billion net sales.)
According to (Manyika and Chui 2014) study measured value added and productivity. This study compared Detroit (then a major centre of a traditional manufacturing industry) in 1990 with Silicon Valley in 2014. In 1990, the three

Apple is a technology innovation icon, and probably one of the most researched companies in the world. Between 2009 and 2012, more than 1,500 published articles mentioned both Apple and its innovations.[125] In fact, a report by the business consulting company McKinsey, pointed out that among 750 companies in their database, Apple was the only global player creating new markets continuously through disruptive innovation, and one of only three to derive more than 5% of its annual growth from 1999 to 2008 from this source.[126] The report concluded that Apple's successful business model derived from:

> Apple does deserve its place in today's hierarchy of esteemed companies by virtue of its unique accomplishments; its innovative products, services, and business models; its culture; and its processes and capabilities in areas such as supply chain management—not to mention the extraordinary leadership of its cofounder and current executives.[127]

Apple's success derives in large part from its powerful global supply chain. Apple undertakes product design for both hardware & software, development, and marketing in-house in the US However, the company doesn't manufacture iPhone components nor does it assemble phones on its own.[128] Instead, it contracts out the manufacturing of its components to many different technology companies around the globe. These manufacturers specialize in particular fields, such as display, camera, and battery (Figure10). Some parts, like the RAM (random-access memory) and the A9 processor are even supplied by the rival smartphone manufacturing company Samsung.[129] All components are transported from various manufacturing locations to assembly facilities, mostly in China, where the iPhones themselves are produced (Figure 11).[130]

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biggest companies in Detroit had a market capitalization of $36 billion, revenues of $250 billion, and 1.2 million employees. In 2014, the three biggest companies in Silicon Valley had a much higher market capitalization of $1.09 trillion, generated about the same revenues of $247 billion, but involved 10 times fewer (137,000) employees. In other words, in the 21st century, a unit of wealth is created by a much smaller work force compared to a few decades ago thanks to digitalization and globalization which enable companies to increase productivity exponentially with much smaller marginal costs than the more traditional manufacturing such as the automotive industry.

[124] (Morningstar 2017)

[125] (Capozzi, Kellen and Smit 2012)

[126] (Capozzi, Kellen and Smit 2012)

[127] (Capozzi, Kellen and Smit 2012)

[128] (Minasians 2016)

[129] (Gould and Villas-Boas 2016), (Finance Online 2014) According to this report, about 85% of iPhone 5s is assembled in China.

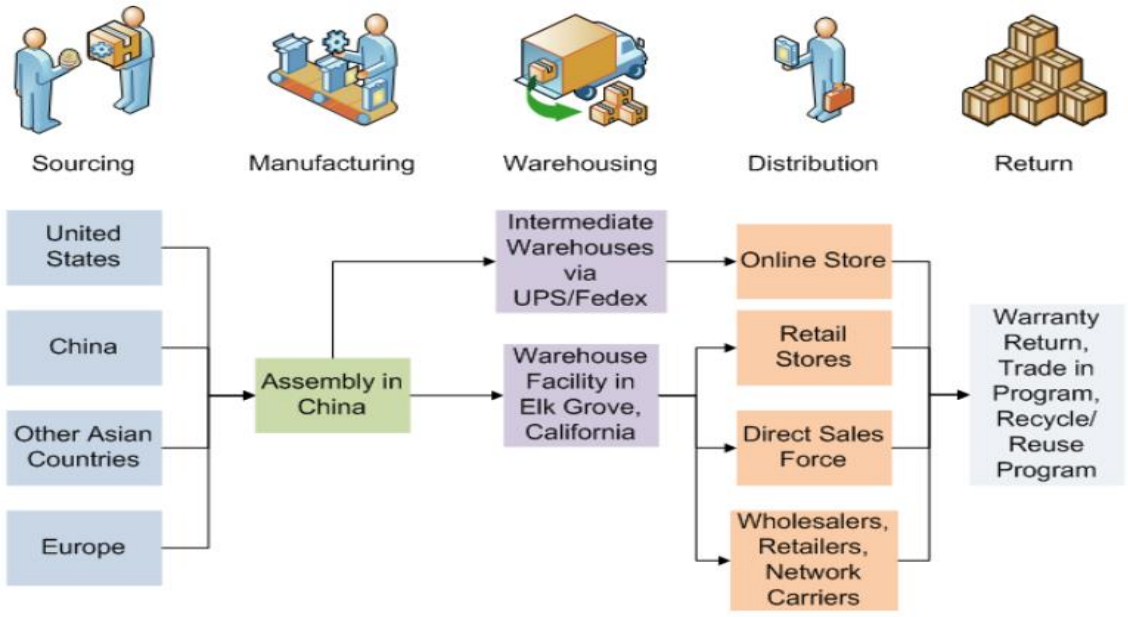
[130] (Kakaes 2016)

Figure 10 Where the main parts of iPhone 6s come from

Sources: (Gould and Villas-Boas 2016)

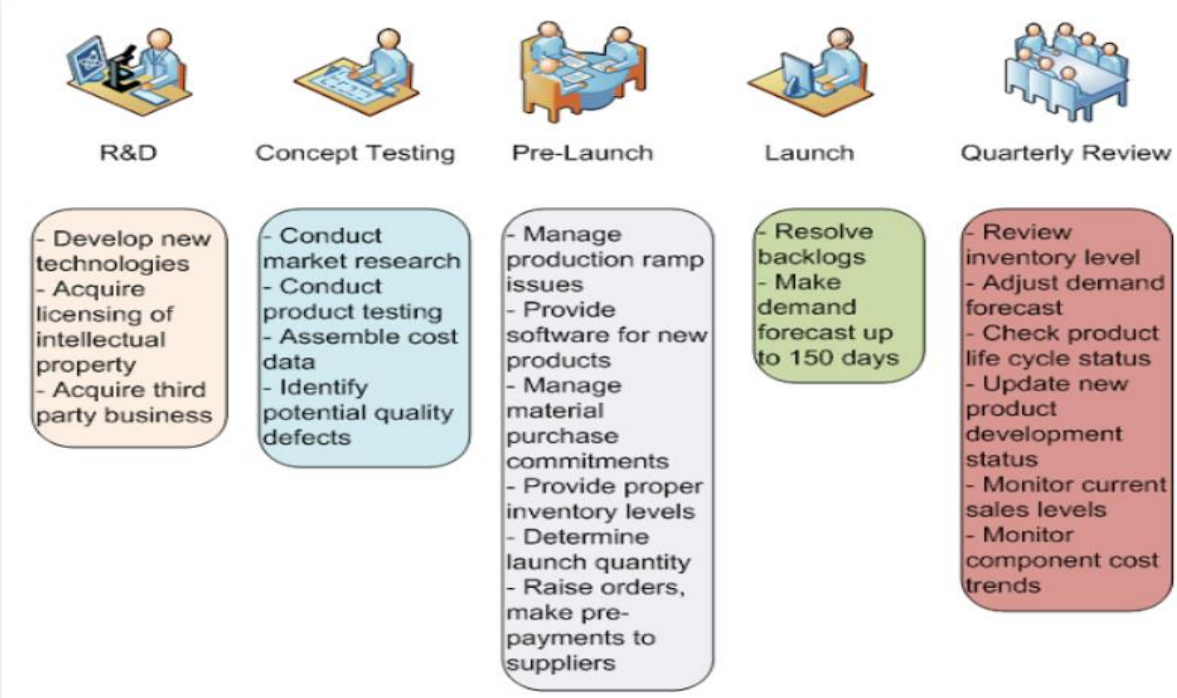
There are detailed infographics on where iPhone parts are sourced and facts about iPhone supply chains created by CampareCamp and FinancesOnline at:
http://comparecamp.com/how-where-iphone-is-made-comparison-of-apples-manufacturing-process/
https://www.entrepreneur.com/article/228315

Figure 11 Supply Chain Map of Apple Inc.



Source: (SupplyChainOpz 2013)

Figure 12 Supply Chain Planning at Apple Inc.



Source: (SupplyChainOpz 2013)

Apple is the brain behind a complex network of vast international operations. A simplified supply chain map indicates the scope of its operations, including: research and development, marketing, and various other functions (Figure 12).

By contracting out most of its manufacturing on a global scale, Apple frees up resources to focus on its strengths: design and marketing.[131] Apple's list of suppliers for all products (iPhone, iPad, Macintosh computer) includes more than 700 manufacturers located in 28 countries, of which nearly half – 346 are located in China.[132] The way Apple works closely with strategic suppliers confers a competitive advantage on the firm: successful international collaboration ensures that parts from around the world work together to make Apple's iOS an effective and robust operating system.[133] In 2015, IT research firm Gartner ranked the Apple's supply chain as the best in the world for the seventh year in a row.[134]

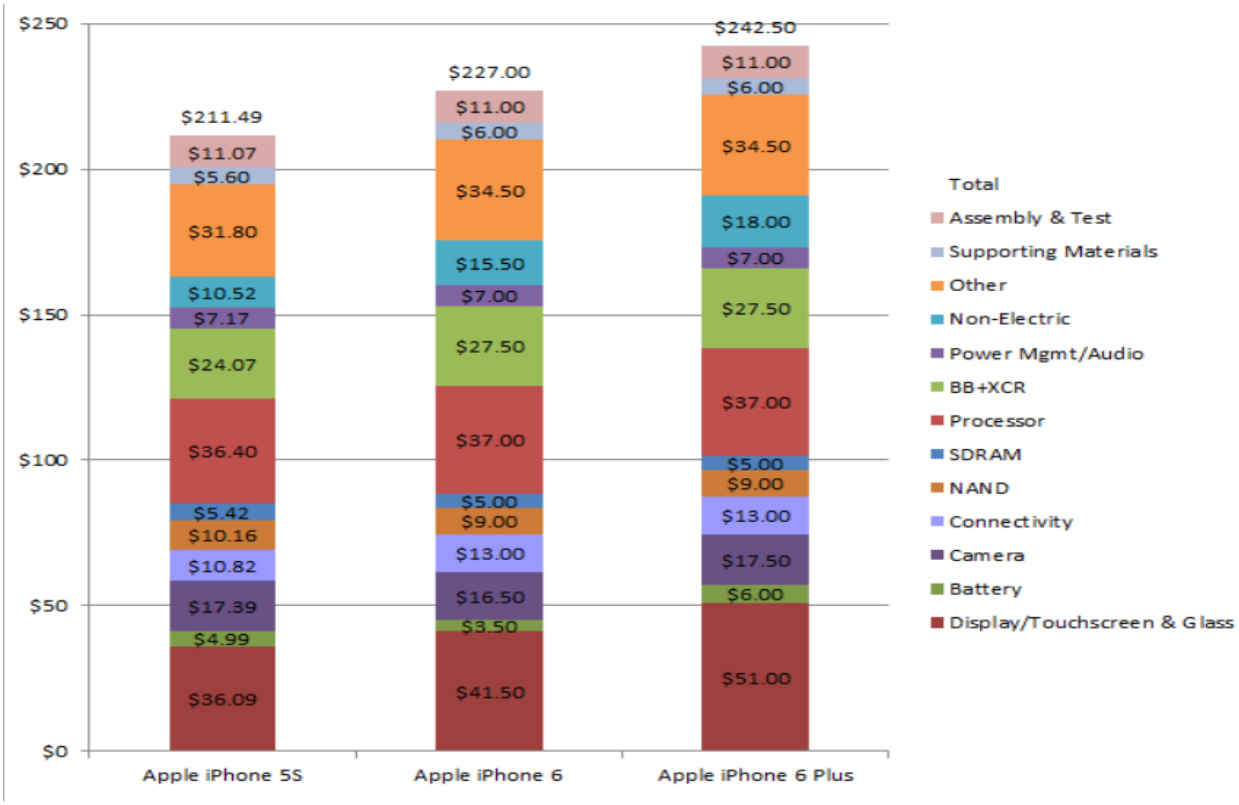
Apple practises supply management with precision in order to keep down costs. According to a detailed cost analysis for iPhone done by Teardown.com, the total bill of materials (BOM) and manufacturing (assembly and test) for a 16-gigabytes model iPhone 6, was $227 (Figure 12). In 2014 the average retail price of an iPhone 6 was around $650.[135] Among component parts, the most expensive were the display $41.50 (18%) followed by the A8 processor $37.00 (16%), and the baseband and transceiver chips $27.50 (12%).[136] After considering warranty and other costs, Apple's profit margin was estimated to be as high as 59%.[137]

For technology companies, the cost of labor is minimal compared with the expense of components. For iPhone 6's, the assembly and test cost amounts to $11 (Figure 13), of which the assembly cost alone is around $4 per phone (1.7% of the materials and manufacturing cost). For the iPad, a somewhat larger product, the estimated assembly cost (in 2010) was around $9 and

[131] (Barboza 2016a)
[132] (Kakaes 2016) All suppliers are those making parts for iPhones, iPads and Macs.
(Finance Online 2014)https://financesonline.com/how-iphone-is-made/
[133] (Gould and Villas-Boas 2016)
[134] (Gartner 2017)From 2016, Apple was categorised in the Master Class to which companies are classified if their composite score places them in the top 5 rankings for at least 7 out of the past 10 years. In 2016, only Apple and Procter & Gamble are in this category in the world.
[135] (Young, et al. 2014) (Rassweiler 2014)
[136] (Young, et al. 2014) (Jones 2014)
[137] (Jones 2014) Excluding licensing, royalties, software, and other expenditures such as product development and research, retail and services.

the total material cost $250.60 (excluding software, royalties and licensing fees), while the retail price was $499.[138]

Figure 13 Cost Comparisons for the iPhone 5S, and Estimated Costs for the iPhone 6 and iPhone 6 Plus



Source: Teardown.com

4.2 China's Role in iPhone Production

In China: an average factory worker's monthly salary is between $300 and $450 (2,000 and 3,000 yuan) depending on the location of the factory.[139] For example, a minimum monthly salary for a factory worker in Shanghai was $327 (US$1.90/hour, 2190 yuan) in 2016.[140] In the US, the

[138] (IHS Technology 2010)
[139] (China Labour Bulletin 2017) Monthly salary based on the standard work week of 40 hours.
(China Labor Watch 2016)
[140] (China Labour Bulletin 2017) Monthly salary based on the standard work week of 40 hours.
(China Labor Watch 2016) This report investigated the working condition at Pegatron Corporation with about 70,000 factory workers in Shanghai, making products for Apple. They investigated more than 1,000 pay stubs and found: 1. Workers hourly rate is US$1.82. 2. Work hours of more than 10 hours a day, 6 days a week. 83% of

minimum monthly wage is $1,160 (US$7.25/hour) based on the Federal Fair Labor Standards Act.[141]

However, Apple relies on Chinese manufacturers not only for a labor cost, but also for Chinese factories' flexibility and scalability of production along with a skilled workforce. These criteria cannot be matched by counterparts located in the United States, so domestic manufacturing and assembly operations are not a viable option for most Apple products.[142]

For example, Foxconn, owned by the Taiwanese manufacturer Hon Hai Group, is the world's largest electronics contract manufacturer.[143] In mainland China, Foxconn employs more than one million workers in 30 factories.[144] It started to operate the world's largest iPhone assembly factory in Zhengzhou, China in August 2010.[145]

After specialized manufacturers produce components of the iPhone, all parts are shipped to contract manufacturers mostly in China, who then finish final assembly, testing and packaging (F.A.T.P).[146]

In Zhengzhou, Foxconn produces about half of the world's iPhones with a maximum potential production capacity of 350 iPhones production per minute or 500,000 iPhones a day.[147] The factory covers 2.2 square miles, more than 1.5 times the size of Central Park in New York, and can employ up to 350,000 workers.[148] There are 94 production lines on the site, and the finishing process takes about 400 steps to assemble the iPhone, including polishing, soldering, drilling and fitting screws.[149]

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workers monthly overtime hours exceed 80 hours. 3.In October 2015, 71% of worker's average weekly working hours exceeded Apples 60 hour per week maximum limit.

[141] (U.S. Department of Labor 2017b)

[142] (Kakaes 2016) (Duhigg and Bradsher 2012)

[143] http://www.foxconn.com/ Foxconn, owned by Taiwan's Hon Hai Group, is one of the world's biggest contract manufacturers - building and assembling for leading brands like Apple, Dell and Hewlett-Packard.

[144] (Leng 2017)

[145] (Barboza 2016a)

[146] (Barboza 2016b) Some assembly is done in Brazil. Also, according to Minasians (2017), in 2016, a discussion took place between the CEO of Apple, Tim Cook and Indian government officials about manufacturing in India.

[147] (Barboza 2016b)

[148] (Barboza 2016b)

[149] (Barboza 2016b)

4.3 China's Comparative Advantage in iPhone Production

China offers comparative advantages in a number of key areas:

1. Flexibility and scalability with speed
2. Abundant supply of semi-skilled workers
3. Government incentives
4. Access to the world's largest consumer market, China
5. Efficient logistics and inventory management

1. Flexibility and Scalability with Speed

When Apple's sales took off after the introduction of the iPod in 2001, Foxconn had expertise, industrial skills and resources to meet the demand created by such a popular product. Its factories could quickly produce prototypes, increase production and, during peak periods, hire hundreds of thousands of workers.[150] Apple's former executive Joe O'Sullivan explained, "They have brilliant tooling engineers, and they were willing to invest a lot to keep pace with Apple's growth".[151]

There are many stories of how Chinese factories made tight timelines when required to do so. The most famous story dates from 2007. Apple's founder, Steve Jobs noticed that the glass on his prototype iPhone was scratched by the keys in his jeans' pocket, and demanded the use of scratch-proof glass on iPhones minutes before its launch in the world market. In a Shenzhen factory with 230,000 employees, Foxconn mobilized 8,000 workers within 30 minutes to start a 12-hour shift replacing the glass screens on iPhones Within 96 hours, the plant was producing over 10,000 iPhones a day.[152] Within three months from the launch, Apple had sold one million iPhones. [153]

Moreover, it is a logical decision to have an assembly factory located in China where it is in close proximity (in both the communication and spatial senses) to more than 300 of Apple's

[150] (Barboza 2016a)
[151] (Barboza 2016a)
[152] (Duhigg and Bradsher 2012) However, Foxconn did not confirm the specifics of this story due to a labor regulation related issues.
[153] (Duhigg and Bradsher 2012)

Chinese contractors.[154] Thus, the rate of production at the Foxconn factory can be adjusted quickly to market demand without the time loss which usually results from a shortage of one or more components.

In addition to the Chinese suppliers, there are more than 70 American companies in Apple's supply chain. These American companies also have factories throughout the globe, and many of these are in Asia. Corning Inc. is based in Corning, New York, and manufactures a damage-resistant screen cover glass. Corning built factories in Japan and Taiwan as demand grew.[155] For Corning, these moves made sense because producing the glass close to assembly factories saved the time involved shipping its product from its US factories to Asia by boat which takes around 35 days.[156] Another example is Texas Instruments Inc. based in Dallas, Texas, which operates many facilities in Malaysia, Japan, the Philippines, Mexico, Germany, and Scotland.[157] It is also important to note that some parts are made in the USA by foreign companies, such as those produced by Samsung in Austin, Texas (as mentioned on page 29).[158]

Apple's supply chain demonstrates how the global trade network is intertwined, and that it is not that simple to label products as "Made in the USA".

2. Semi-skilled workers

In 2017, there will be about 8 million college graduates in China. Foxconn plans to recruit 12,000 college graduates, plus 6,000 vocational school graduates. The founder Terry Gou's goal is to transform Foxconn from a labor-intensive processing factory into a technology giant with upgraded talent. In his words, "When we are making new products, we need highly educated people".[159]

China offers an abundant supply of both low-level and mid-level skilled workers to accommodate fluctuating demand easily. In contrast, the US labour market lacks the capacity to

[154] (Kakaes 2016) All suppliers are those making parts for iPhones, iPads and Macs.
(Finance Online 2014)https://financesonline.com/how-iphone-is-made/
[155] (Corning 2017)
[156] (Duhigg and Bradsher 2012)
[157] (Finance Online 2014)
[158] (Compare Camp 2014)
[159] (Leng 2017)

scale up production. For example, Apple's executives estimated that the time needed to hire approximately 8,700 engineers to manage 200,000 assembly workers for iPhone production would be as long as nine months in the US, compared to 15 days in China.[160] Thus, the US labour market can't match China's.

3. Government incentives

As China's largest private employer, Foxconn has enviable negotiation leverage with Chinese governments and has obtained a "preferential policy" for its operations in return for its investment in the country. In the case of its Zhengzhou operation, these "preferential policies" affected multiple facets of the company's operations, involving infrastructure, finance, labour, taxes, incentive bonuses and export logistics.[161]

A bounty of perks from the local government were estimated to be worth more than $1.5 billion to Foxconn (Figure 14). Most importantly, the Chinese government set up a customs facility in a bonded zone next to the factory where the land is regarded as foreign territory, thereby exempting Foxconn from costly and cumbersome taxation and trade regulation.[162] These benefits affect all stages of company operations from the planning and building of factories, to production, and post-production logistics. The scale of these incentives and the speed with which they were provided by the Chinese government would be impossible to replicate in the US.

[160] (Duhigg and Bradsher 2012) (Compare Camp 2014)
[161] (Barboza 2016a) Please see more detailed information on benefits given to Foxconn in the article.
[162] (Barboza 2016a)

Figure 14 Benefits supplied to Foxconn by the Zhengzhou government

Source: (Barboza 2016a)

4. Access to the world's largest consumer market

Apple routinely generates about two thirds of its annual revenue from iPhone sales. No other product, including the Mac computer, iPad or other services come close to generating the same level of revenue as the iPhone.[163] 1n 2016, the American market was the most profitable geographical region, accounting for about 40% of its annual income. Europe has traditionally been the second largest market, and the source of 20% of its revenue.[164] However, in the second quarter of fiscal 2015, Apple's revenue in China surpassed its revenue in Europe for the first time. Since then, despite intense competition from Chinese domestic smartphone vendors, the

[163] (Murphy 2017)
[164] (Murphy 2017)

country has been the Apple's second largest market.[165] Although economic growth in China has been slowing down recently (on top of strict Chinese government policies against foreign companies), with a population of 1.37 billion,[166] China will inevitably evolve into one of the world's biggest consumer markets and therefore offers great future growth potential in the high-end smartphone market. Thus, having its manufacturing hub in China is strategically important in the sense that it provides Apple with enviable access to the world's largest consumer market.

5. Efficient logistics and inventory management

After assembling all of the components, testing and packaging are done at the Foxconn Zhengzhou facility, and the finished products are transported to the Chinese customs facility located just outside of the factory. At customs, the products are sold to Apple Inc., and then resold to Apple affiliates around the world. Many multinational companies, including Apple, believed that shipping goods out of Chinese territory, and shipping them back to China again was a waste of time and resources.[167] Thus, during the planning stage of the Zhengzhou factory, Foxconn successfully negotiated with the Chinese government to have an efficient system in which final products are processed electronically as exported and imported at the customs facility next to the factory gate in the bonded zone. [168]

Officials stamp iPhones as "export" (from China) and then re-stamp them as "imports" (from overseas to China) at the customs facility. Once the products are declared as imports, a 17% Value Added Tax (VAT) and other national taxes are levied.[169] IPhones are then transported by trucks which can hold up to 36,000 iPhones, worth about US$27 million per load, to Apple's national distribution centers in Shanghai and other cities.[170]

For overseas markets, iPhones are shipped mainly by freight carriers from the airport just three miles away from the factory.[171] Boeing 747s can easily carry 150,000 iPhones each flight. Shipments by air are destined for consumers who buy from Apple's online store, or to US

[165] (Murphy 2017)
[166] (World Bank 2017a) 2016 data
[167] (Barboza 2016a)
[168] (Barboza 2016a)
[169] (Barboza 2016a) (Barboza 2016b)
[170] (Barboza 2016b)
[171] (SupplyChainOpz 2013) (Barboza 2016b)

warehouse facilities which include Elk Grove, Calfornia and a logistics hub in Louisville, Kentucky (Figure 11 on page 63).

It takes about two days for the 590-mile journey (950 kilometers) from Zhengzhou to Shanghai by road transport, and about three days for the 6,300-mile (10,139 kilometers) journey to get the product to a store in San Francisco.[172]

With this flexibility and scalability of Chinese production and logistics capability, Apple manages to have a disciplined and extremely efficient inventory management. Former Chief Operating Officer Tim Cook transformed Apple's supply chain. He viewed inventory as "fundamentally evil" and noted that inventory would lose 1% to 2% of its value each week under normal conditions, and lose more value even faster when economic times were tough.[173] In 2012 Apple's days of inventory (how long it will take to sell through the company's current inventory) was only 5.3 days, while Dell's days of inventory was 10.2 days and Motorola's was 29 days.[174] By minimizing inventory and maximizing production when demand increases, Apple can deliver a product just days after the launch announcement compared to other companies these require weeks and months.[175]

In 2016, Apple sold 211 million iPhones, 46 million iPads and 18 million Mac computers. All of them were manufactured overseas.[176]

4.4 Measuring the China-US Trade Deficit using the iPhone Case Study

As pointed out in Chapter 1, trade deficits are a red herring in debating the pros and cons of free trade. In addition, conventional trade metrics do not accurately take into account trade flows resulting from complex international supply chains.

[172] (Barboza 2016b) Mainly due to taxes and cost-effective transportation, iPhones cost more in China than retail price in the US. A 32-gigabyte iPhone 7 sold for around $776 in Shanghai versus $ 649 in New York.
[173] (Niu 2012)
[174] (Niu 2012) More detailed metrics on inventory management of Apple showed that Apple excels as to inventory turnover and days of inventory compared to Dell, Hewlett-Packard, Motorola Mobility and Research in Motion ('Blackberry').
[175] (Niu 2012)
[176] (Apple Inc 2016a)

At the end of March 2017, President Trump signed an executive order calling for a "90-day country-by-country and product-by-product study" of America's $500 billion annual trade deficit in 2016, of which $300 billion derived from the lopsided trade flows with China.[177] President Trump condemned trade deficits for destroying millions of jobs and stealing wealth from the US, as though it were a recent phenomenon which his administration would swiftly address. In fact, the US has been running trade deficits with the rest of the world since the 1970s, i.e. for almost a half a century.[178]

According to a 2010 Asian Development Bank study, trade deficits are a misleading metric for measuring a country's commercial health in a global context.[179] The report revealed that intertwined global supply chains made the calculation of actual trade imbalances difficult and that conventional trade statistics greatly inflate bilateral trade deficits between countries. The report estimated that the iPhone 3G imported into the US contributed $1.9 billion to the trade deficit with China in 2009. This was equivalent to 0.8% of the US trade deficit with China that year (Figure 15).[180] Conventional trade metrics credited the full value of an iPhone ($178.9 per unit) as China exports to the US; however, about 95% of this originated outside China, these contributions were from Japan, Germany, and South Korea.[181] The trade account should be calculated based on only the value added to the final product in China. If, for example, only the cost of $6.50 per unit for assembly, testing and packaging, multiplied by 11.3 million units sold the value of iPhones exported from China to the US would be only $73.45 million instead of $1.9 billion. Given that some of the lower value components are also made in China, these should be added to the calculation. Using value added as the basis for the trade balance calculation, Chinese manufacturers contributed only around 4% of the $1.9 billion deficit formally identified as the iPhone 3G contribution to the trade imbalance between China and the US.

[177] (Donnan and Mitchell 2017) (U.S. Department of Commerce 2017)
[178] (Donnan and Mitchell 2017)
[179] (Xing and Detert 2010)
[180] (Xing and Detert 2010) p. 5. Total iPhone export amount from China was calculated as 11.3 million iPhone units exported to the US with a manufacturing cost US$178.96 each.
[181] (Xing and Detert 2010) p. 5.

Figure 15 IPhone and the US trade deficit

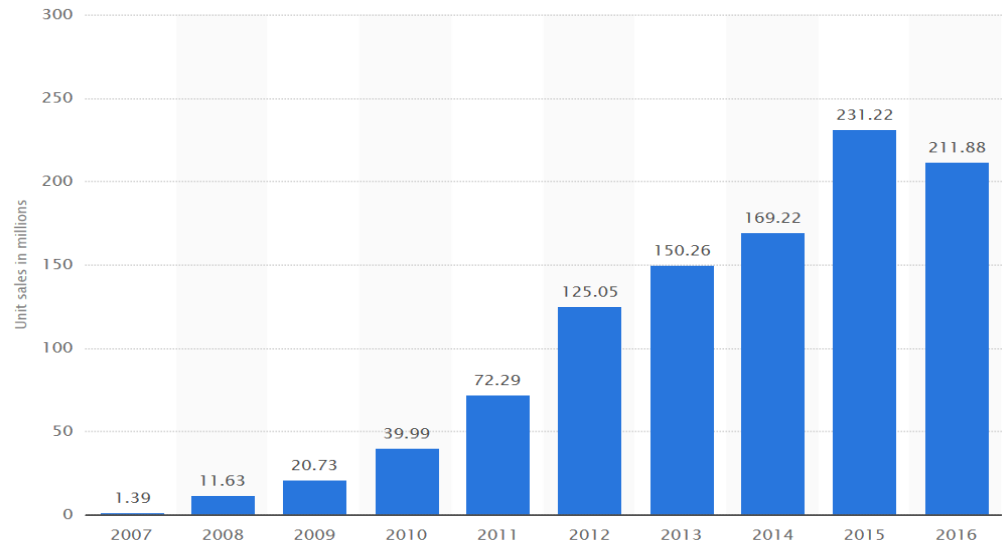
Source: (Xing and Detert 2010)

Using this value-added trade statistics approach, the ADB report estimated that in 2009 American manufacturers supplied about 6% of the components and parts of the iPhone 3G, valued at $121 million ($10.50 per unit, and multiplied by 11.3 million sold).[182] Thus, the contribution made by the US to iPhone components exported to China was $121 million. When this amount is compared with the amount of value added while the product was being assembled in China ($73 million), the US had a $48 million iPhone trade surplus with China in value added terms instead of the $1.9 billion cited in US trade statistics (Figure 15).[183] In effect, the components provided by American manufacturers were shipped back to the US as part of a finished iPhone and thus made a "round trip" as they were first exported and then reimported.

[182] (Xing and Detert 2010) p. 5. The authors mentioned that it was possible that these American companies produced the components outside of the US However, in their paper, they counted the American company's production value as American export to China.
[183] (Xing and Detert 2010) p.4. U.S. company component added value was calculated based on US$10.5 per unit multiplied by 11.3 million units sold or US$121 million. U.S. trade surplus calculation: U.S. value added US$121 million minus Chinese value added of US$73 million.

Conventional trade statistics double counted as both an export from the US and an import to the US. The value of these exports would not be a component of the value exported from China using value added as the basis for trade statistics.[184]

Figure 16 Unit sales of the Apple iPhone worldwide from 2007 to 2016 (in millions)



Source: (Statista: the Statistics Portal 2017c)

In 2015, Apple sold 231 million iPhone units worldwide (Figure 16). Applying the value-added calculation method for Apple iPhone 6's sales in 2015, the assembly and test cost performed in China was $11, which accounted for only 4.8% of the value of the material and manufacturing cost of $277 (Figure 13 on page 65). The assembly cost alone was around $4 per phone, or about 1.7% of the value added of the full manufacturing cost. Again, the cost of labor is minimal compared with the expense of components and other supply chain functions. If the value added base method had been adopted for trade in iPhone 6s, roughly only 5 % of $25 billion, or about $1.25 billion, would be credited as exports from China to the US.[185]

The Asian Development Bank report concluded:

[184] (Xing and Detert 2010) p.5.

[185] Calculation formula: 231 million iPhone sales times 40% = 92.4 million iPhones could be imported into the US in 2015. 92.4 million iPhone times $277/ cost per phone= $25.59 billion. This is one estimation for iPhone imports from China to the US and the amount of $25.59 billion could be included as U.S. trade deficit based on the conventional trade statistics. Based on the value-added method, iPhone exports of 92.4 million units times $11 (Apple iPhone 6's, the assembly and test cost performed in China at approximately $11 per unit) = $1,016 million.

> The sharp contrast between the two different trade deficit measurements indicates that conventional trade statistics are not consistent with trade where global production networks and production fragmentations determine cross-country flows of parts, components, and final products. Bilateral trade imbalances between a country used as a final assembler and its destination markets are greatly inflated by trade in intermediate products. These statistics provide a distorted picture about bilateral trade imbalances. The Sino-US bilateral trade imbalance has been greatly inflated.[186]

This Apple case demonstrates how traditional trade statistics, which are based on a final product's value when it is exported to a destination, fail to reflect the complexities of global supply chains where many steps such as design, manufacturing and assembly of products involve multiple countries. Many products exported from China are technically the products of American companies, and in 2010 a Wall Street Journal article pointed out that if trade statistics were adjusted to reflect the actual value contribution to a product by different countries, the size of the US trade deficit with China would be cut in half. [187]

4.5 Reshoring Apple Jobs

Many American politicians, including President Trump and President Obama, have wondered if Apple could manufacture some devices in the US instead of China or other countries.[188] Since the presidential campaign, President Trump has called for manufacturing jobs to be brought back to the US, which leads people to believe in returning jobs in assembly lines, such as General Motors' assembly factory in Detroit in its heyday decades ago. However, this image of production is just a small part of the vast manufacturing industry and does not represent the whole manufacturing world. The world has changed since then, and these jobs cannot be recaptured. Is it even possible or desirable for Apple to bring iPhone manufacturing back to the US? The obvious answer is 'no'. Even if it were possible, it would not be in Apple's interest to do so.

[186] (Xing and Detert 2010) p. 6.
[187] (Batson 2010)
[188] (Duhigg and Bradsher 2012)

Offshore manufacturing enables Apple to take advantage of an abundant supply of workers, just in time component availability, and manufacturing knowledge. Chinese factories offer Apple the flexibility it needs to produce a competitive product, particularly an ability to rapidly increase manufacturing volume in tandem with demand. These comparative advantages are impossible to replicate in the US. Also, global supply chain management enables Apple to have a disciplined and extremely efficient inventory management system which gives it a strong competitive edge in the tough global market. This global supply chain, including outsourcing, assembling and other manufacturing functions, is a complicated and sophisticated operation, and its complexity and benefits are often not fully understood and are completely omitted from the political debate.

Companies like Apple, which are selling products which are in great demand, have little choice but to rely on outsourcing on a global scale to meet demand. In the past, large electronics companies such as IBM, Hewlett-Packard, and Apple designed and manufactured their own products primarily for the domestic market. However, as globalization advances and technology become increasingly sophisticated, products are assembled from components sourced beyond national and firm boundaries.[189]

Realistically, no single country is the source of all innovation. Thus, many companies need specialized partners to bring innovative products to market in sufficient quantities to satisfy global demand.[190] The global supply chain system enables Apple to access suppliers who can offer the best quality components at competitive prices. Were Apple forced to make its products in the US, the company would lose its competitive advantage. The value added to the economy of the world as a whole and the US in particular, would be significantly diminished or vanish.

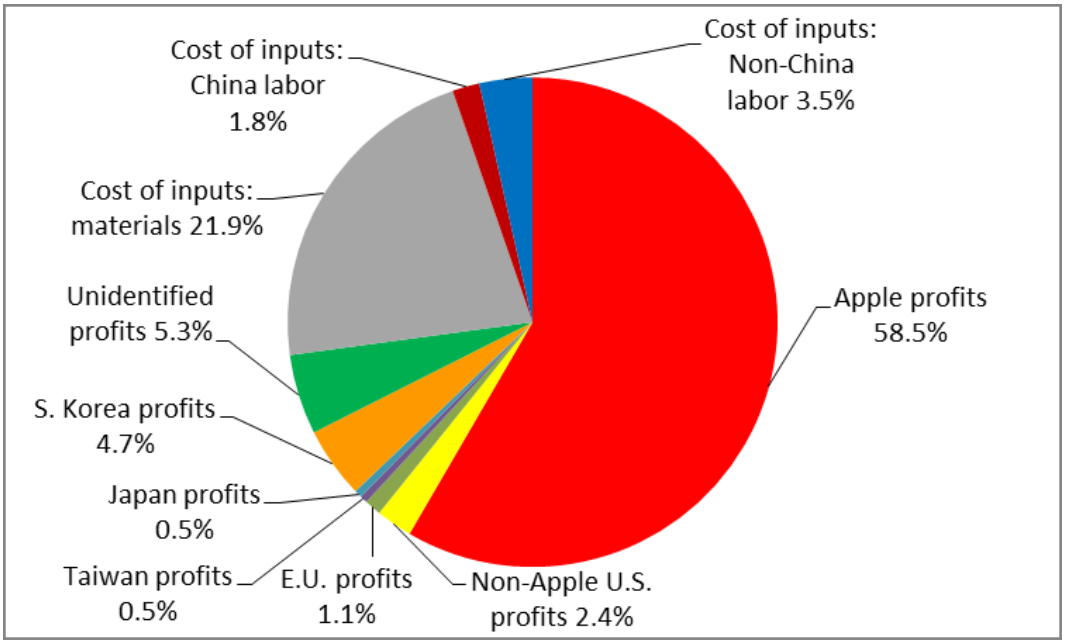
According to one analysis of the distribution of economic value from Apple iPad and iPhone's global sales,[191] in 2010, Apple captured the largest gross profit margin of 58.5% for iPhone4 and 30% for iPad. South Korean manufacturers such as LG and Samsung who supplied some of the expensive components like displays and memory chips followed with a gross profit margin of between 5% and 7% of (Figure 17 and Figure 18).[192] The rest of the sub-contractors' share of

[189] (Linden, Kraemer and Dedrick 2009)
[190] (Linden, Kraemer and Dedrick 2009)
[191] (Kraemer, Linden and Dedrik 2011)
[192] (Linden, Kraemer and Dedrick 2009)

gross profits were rather small, especially those captured by Chinese manufacturers, which were in the order of only 1.8% to 2%.[193] In general, companies whose components are innovative and embody proprietary technology obtain higher profit margins. The total cost of inputs and materials were relatively modest and amounted to only 21.9% of the price of iPhone 4, compared to Apple's 58.5% profit margin. For an iPad, the corresponding percentages are 31% for the cost of inputs and materials, and 30% profit margin.

In other words, Apple earns high margins by specializing in product design, software development, product management and marketing in the US. On the other hand, Chinese sub-contractors handled the high-volume but low value-added functions, and their earnings were much smaller compared to the firms which manufactured the more sophisticated componentry. Apple's innovation and management ability are critical, and these functions remain within the US headquarters because it would be difficult and expensive to replicate these competences elsewhere.

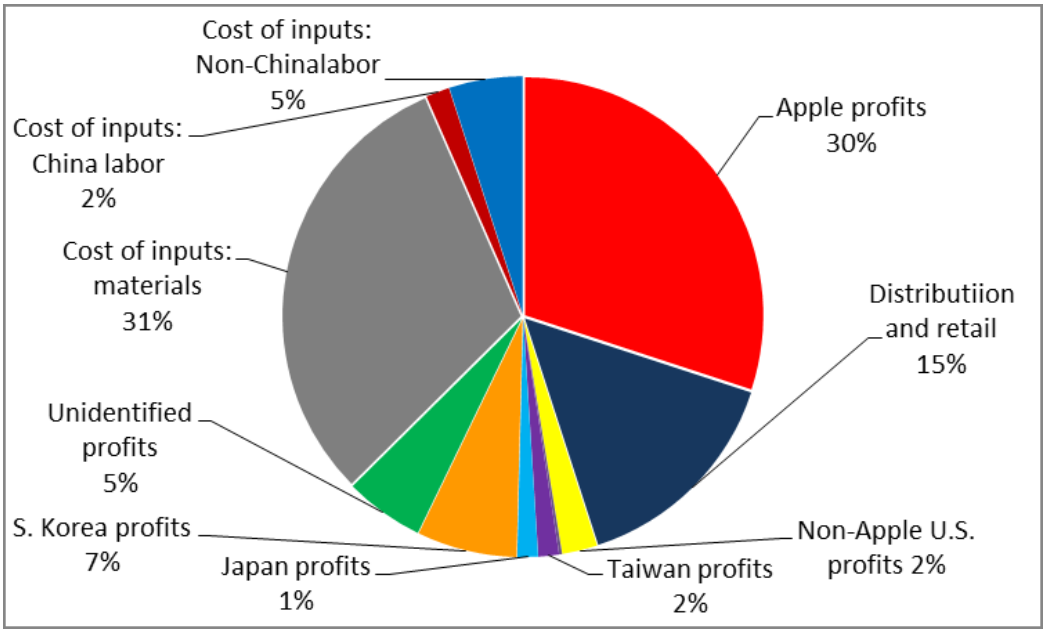
Figure 17 Distribution of value for iPhone, 2010



Source: (Kraemer, Linden and Dedrik 2011)

[193] (Kraemer, Linden and Dedrik 2011)

Figure 18 Distribution of value for iPad, 2010



Source: (Kraemer, Linden and Dedrik 2011)

By contracting out high-volume, low-wage labor functions to China, Apple is able to price its iPhones and iPads within the budgets of a large swath of consumers, and, as a result, many spin-off businesses have been created. As Ikenson of the Cato Institute has pointed out:

> Had all of the components been produced and all of the assembly performed in the United States, prices would be higher and this would have prevented those devices from becoming quite so ubiquitous, and the incentives for the emergence of spin-off industries, such as apps, accessories, Uber, and Airbnb, would have been muted or absent. [194]

As of January 2016, Apple estimated that it was supporting and creating 1.9 million American jobs, including the considerable community of application creators, software engineers and entrepreneurs building applications for iOS, as well as non-information technology jobs supported directly and indirectly through the "app" economy.[195]

[194] (Ikenson 2016)
[195] (Apple Inc. 2016b)

In effect, Apple has established a "designed in the US and made in China" global supply chain model, and generates enviable profit margins. It invests more than 10% of its gross profit in technology and research to develop the next generation of innovation.[196]

Since the Internet came into our daily lives in the late 1980s, the business world has been shifting in a direction it was previously impossible to imagine. New businesses such as Google, Amazon, Facebook, Uber, Instagram, and Airbnb have emerged. The digital revolution and new technology have radically changed the business environment, and the way businesses operate today is totally different from a couple of decades ago. The fundamental difficulty of trade issues is "to see what you don't see". Apple's global supply chain is a prime example of modern international manufacturing networks that are invisible to the consumers. Delivery of innovative devices, with reasonable retail prices and high profit margins in a competitive market, requires global partners and collaboration.

5. Boeing: Business Survival Requires Cooperation and Collaboration

In the next section, the case of the Boeing aerospace company is used to explore how globalization and the associated supply management chain enables a more traditional American manufacturing company to successfully adapt to a changing business environment. This example contrasts sharply with the Kodak case.

5.1 Boeing Profile

Boeing is one of the two largest aerospace firms in the world and America's largest single exporter (according to conventional trade statistics). Boeing celebrated its 100th anniversary in 2016.[197] Boeing is more of a traditional manufacturing company than Apple and does some of its assembly in the US where it employed 150,500 workers in 2016.[198]

[196] (Apple Inc 2016a) p. 39. According to 2016 annual report, Apple's gross margin rate was 39% (net sales $215 billion cost of sales $131 billion, thus gross revenue $84 billion), and research and development expense was $10 billion and net income after taxes was $46 billion (21% of net profit margin).
[197] (Boeing 2017a) p33. According to 2016 annual report, Boeing's total revenue was $94.57 billion, gross revenue of $5.83 billion (gross margin rate at 6.1%), research and development expense of $4.62 billion, net income of $4.89 billion (net profit margin rate at 5 %), and total assets of $90 billion.
[198] (Boeing 2017a) p.19. As of December 31, 2016.

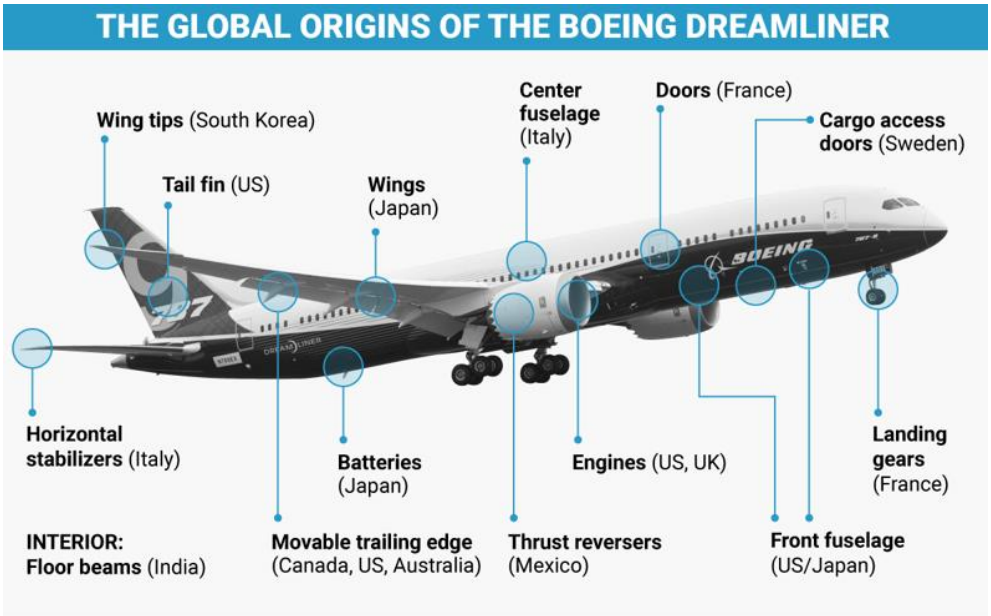
In February 2017, President Trump visited Boeing's factory in South Carolina, which is one of two locations where Boeing's latest 787 Dreamliner is assembled. The facility employs approximately 7,500 people.[199] In front of an audience of Boeing workers and dignitaries, President Trump vowed to protect US manufacturing jobs and said, "We want products made by our workers, in our factories, stamped with those four magnificent words: Made in the USA". [200]

The 787 Dreamliner is assembled in the US and the product is therefore 'made in the USA'. However, what President Trump does not see is that about 30% of the parts and components of this 'Made in America' product is purchased from foreign companies that make up Boeing's global supply chain.[201] The Dreamliner 787 has about 2.3 million parts which range from the 'fasten seatbelt' signs to the huge jet engines supplied either by General Electric in the US or Rolls-Royce in the UK.[202] Its wings and batteries originate in Japan, wing tips in South Korea, and floor beams in India. A further long list of components is supplied by many off-shore firms (Figure 19). In fact, the Dreamliner is so much a product of international collaboration that it could be called a "flying symbol of an inter-connected world economy".[203]

Through Boeing's extended global supply chain, the company spent $28 billion and procured 783 million parts from 5,400 factories worldwide in one year (Figure 20).[204] These 'made in the US' planes are delivered to more than 60 airlines worldwide. In 2016, Boeing earned approximately 59% of its revenues from non-US customers.[205]

[199] (B. Zhang 2017) (Boeing 2017d)http://www.boeing.com/company/general-info/
[200] (B. Zhang 2017)
[201] (Boeing 2017c)
[202] (Boeing 2017c) (B. Zhang 2017) (Boeing 2017a)The latest model 787-10 Dreamliner with maximum capacity 330 passengers with expected first delivery in 2018.
[203] (B. Zhang 2017)
[204] (Boeing 2017c)
[205] (Boeing 2017a)

Figure 19 Global Origins of the Boeing Dreamliner



Source: (B. Zhang 2017)

Figure 20 The Boeing Extended Global Supply Chain

Source: (Boeing 2017b)

According to Boeing's website, potential suppliers (tier 1 suppliers) are assessed with respect to a range of rigorous criteria, including quality of products, financial health, geographic location, on-time delivery and overall customer-supplier relations.[206] Also, the necessary skill to manage sub-tier supply chain contractors (tier 2 and other downstream manufacturers) who provide raw materials and other items to the first-tier Boeing suppliers, is a key criterion. Including these sub-tier suppliers, the total number of suppliers could be in the thousands.[207]

5.2 Global Trade and its Impact on the American Economy

The aerospace industry provides other instructive examples of how globalization benefits the American economy. For example, the American aerospace equipment company, Triumph Group Inc., headquartered in Pennsylvania, manufactures a wide range of components from aircraft wings to helicopter cabins, supplies various systems for its own use and the global OEM (original equipment manufacturer) market, and offers after sales services.[208] In 2016, about 38% of its net sales comes from sales to Boeing and other revenue come from US-based customers.[209] Triumph's CEO, Daniel J. Crowley, pointed out that they were under intense pressure from Boeing and Airbus to supply reliable components for passenger aircraft as required: "[w]hen we usually have challenges to deliver… it's because of lower-tier suppliers' capacity shortfall".[210] Triumph has 6,000 smaller, lower-tier suppliers in its own production supply chain. In the first financial quarter of 2017, the profit of Boeing's European rival company, Airbus, declined by more than 50% because delivery of its aircraft was held up by technical glitches identified in the

[206] (Boeing 2017c)
[207] (Kavilanz 2013) According to the article, details on the world suppliers list: Italian firm Alenia Aeronautica -the center fuselage: French firm Messier-Dowty -the aircraft's landing-gear system; German firm Diehl Luftfahrt Elektronik- the main cabin lighting; Swedish firm Saab Aerostructures- the access doors; Japanese company Jamco- parts for the lavatories, flight deck interiors and galleys.
[208] (Triumph Goup Inc. 2016) p.3, (Investopedia n.d.) According to Investopedia, a definition of 'Original Equipment Manufacturer- OEM' is a company whose goods are used as components in the products of another company, which sells the finished items to users. These firms are referred to as value added resellers (VAR) and work closely with the OEM.
[209] (Triumph Goup Inc. 2016) pp.6-8, 31. The company is a tier 1 and tier 2 aerospace components and system supplier. The company specializes in metallic and composite aero-structures and structural components, and manufactures a wide range of components from aircraft wings to helicopter cabins for the global OEM markets. The company also offers repairs, maintenance, and overhaul services. As of March 31, 2016, Triumph employed 14,602 workers of whom 9,341 were production workers in the US Revenue for the year ending March 31, 2016 was $3,886 million.
[210] (Hollinger 2016)

engines manufactured by the American supplier Pratt & Whitney, and by shortages of interior fittings and seats also supplied by an American business, Zodiac Aerospace.[211]

Like Apple, Boeing and its suppliers have been investing heavily to establish a tight network of suppliers with the overall objective of collaborating in order to produce reliable, competitively priced products which can be delivered in a timely manner. Boeing and its many suppliers take on significant risk developing their products, investing in production capacity, taking on long term contracts, and accepting unlimited liability while maintaining price competitiveness.[212] In a competitive market environment, participants survive by being innovative, having diverse product portfolios and controlling costs. [213]

President Trump's hardline stance on globalization threatens American firms which have invested heavily in global supply chain cooperation and partnerships.[214] Imposing import tariffs and limiting global trade would be effective for only a short period, and protect only a few American producers and some jobs. Eventually, trade restrictions would reduce business competitiveness, undermining the competitiveness of 'made in America' products in the international market and weakening the American economy as a whole.

In 2016, American companies sold $2.2 trillion worth of goods and services overseas, and American businesses and consumers purchased $2.7 trillion worth of imports.[215] The total value of international trading activity ($4.9 trillion) accounted for 26% of the total value of US GDP ($18.5 trillion). America's three biggest trade partners were Canada, Mexico, and China, and the combined total trade value with these partners ($1.65 trillion) was more than one-third of the total value of US trade ($4.9 trillion).[216] More importantly, in terms of employment, more than 27 million Americans, or about one in five, had jobs that were directly supported by global trade.[217]

[211] (Katz 2017)
[212] (Hollinger 2016)
[213] (Hollinger 2016)
[214] (White House 2017a)
[215] (M. J. Perry 2017a)
[216] (M. J. Perry 2017a)
[217] (M. J. Perry 2017a)

International trade is a vital part of the US economy and has a positive impact on each of the 50 states.[218] Based on 2015 data, five states, Michigan, Louisiana, South Carolina, Tennessee and Kentucky generated more than one third of their GDP from international trade.[219] These states have a significant presence in the manufacturing (auto and aerospace) and energy related industries. In 2016, exports of $150 million in automotive vehicles, parts and engines were the largest category of US exports, followed by commercial aircraft exports of $121 billion.[220] These manufacturers are highly integrated into global supply chains and have a huge economic impact and contribute significantly to employment in many US states. For example, the aerospace manufacturer Boeing in Washington State accounted for 60% of the exported value from the state in 2015, and employed about 35,000 non-management workers. [221]

Besides the aerospace sector, the auto industry is the most highly globalized industry. In general, imported auto parts constituted more than 50% of 'Made in the USA' vehicles sold under US brand names such as GM and Ford in the US. The North American auto industry relies heavily on cross-border trade. For example, manufacturers in Michigan purchase many parts from Mexico and export finished products to Canada, taking advantage of NAFTA. These industries' practices blur the distinction between 'domestic' and 'foreign' products and expand their factory floors beyond national borders, which are becoming irrelevant in the 21st century business environment.[222]

6. Creative Destruction in Action

As mentioned in Chapter 1, Joseph Schumpeter introduced the term "creative destruction". He pointed out that capitalism was a complex system in which two distinct processes operated simultaneously: a static component (in which technology was constant and where growth could be obtained by utilising the given technology over more resources) and an evolutionary component in which technology changed over time increasing the efficiency with which a given

[218] (M. J. Perry 2017b)
[219] (M. J. Perry 2017b)
[220] (Amadeo 2017)
[221] (M. J. Perry 2017b) (Hammerand 2017)
[222] (M. J. Perry 2017b)

quantity of resources were utilized. When describing the 'evolutionary' component of the economic process, he wrote in his book *Capitalism, Socialism and Democracy*:

> Capitalism, then, is by nature a form or method of economic change and not only never is but never can be stationary…The opening up of new markets, foreign or domestic, and the organizational development from the craft shop to such concerns as US Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism.[223]

He stated that this evolutionary character of capitalism came from "the new consumer goods, the new methods of production or transportation, the new markets, [and] the new forms of industrial organization that capitalist enterprise creates".[224]

History is littered with examples of creative destruction: automobiles replacing horse carriages, electric lights replacing gas lamps, cell phone devices replacing digital cameras, internet news replacing newspapers, and Uber replacing traditional taxi services. Michael Munger, a professor of economics at Duke University, has described this process as "[e]conomic competition implies the replacement of inferior systems of production and distribution by more efficient mechanisms; new and better ideas work through killing off the old ways, the old firms, and the old jobs".[225]

This "creative destruction" is, in essence, the same concept as Darwinian "survival of the fittest". Indeed, obsolete businesses have been replaced constantly by new ones. For example, the Fortune 500 is the list of companies which are incorporated and operate in the US and ranked by total revenues for their respective fiscal years.[226] Since 1955, the year in which the first Fortune 500 list was created, more than 1,800 companies have appeared on the list.[227] Comparing the first

[223] (Schumpeter 1943/1968) pp.82-83.
[224] (Schumpeter 1943/1968) p.83. Schumpeter also wrote "[w]hereas a stationary feudal economy would still be a feudal economy, and a stationary socialist economy would still be a socialist economy, stationary capitalism is a contradiction in terms" (Schumpeter 1951: 174).
[225] (Munger 2015)
[226] (Fortune 500 n.d.)
[227] (Fortune 500 2017)

1955 Fortune 500 list to the 2016 one, there were only 60 companies (12%) that appeared in both lists (see table below).[228] In other words, over 61 years, 88% of companies have fallen out of the Fortune 500 list of public companies. Some merged with other companies but many (including Kodak) went bankrupt and ceased operating.[229]

Table 1 The 60 Companies that Appeared in the Fortune 500 in both 1995 and 2016

3M	Deere	Lockheed Martin
Abbott Laboratories	Dow Chemical	Marathon Oil
Alcoa	DuPont	McGraw Hill (now S&P Global)
Archer Daniels Midland	ExxonMobil	Monsanto
Ashland	Freeport-McMoRan	Navistar
ATT	General Electric	NCR
Avon Products	General Dynamics	Northrop Grumman
Boeing	General Mills	Owens Corning
BorgWarner	General Motors	Owens-Illinois
Bristol-Myers Squibb	Goodyear Tire and Rubber	PepsiCo
Campbell Soup	Hershey	Pfizer
Caterpillar	Honeywell International	Procter and Gamble
CBS	Hormel Foods	Raytheon
Celanese	IBM	Rockwell Automation
Chevron	International Paper	Sealed Air
Coca-Cola Enterprises	Johnson and Johnson	Textron
ConocoPhillips	Kellogg	United States Steel
Crown Holdings	Kimberley-Clark	United Technologies
Cummins	Kraft Foods	Weyerhaeuser
CVS	Lear	Whirlpool

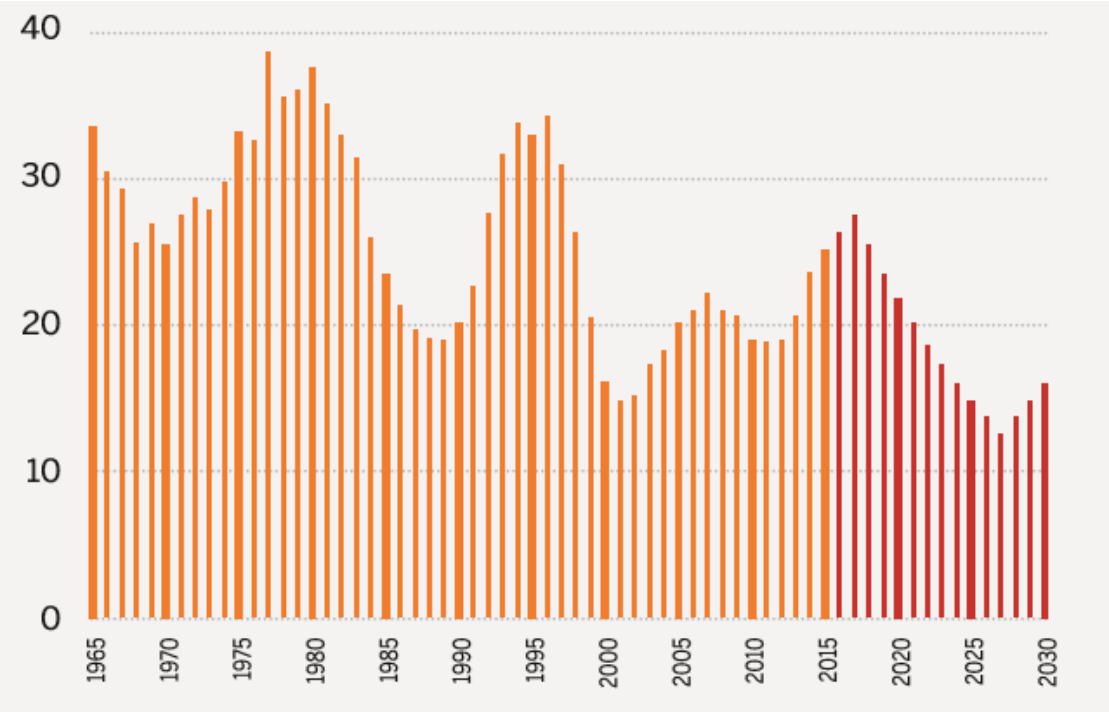
Source: (M. J. Perry 2015)

Another analysis undertaken by the business consulting firm Innosight, looked at the changes that have occurred in the Standard and Poor's (S&P) 500 list over the past half century.[230] The businesses included in the S&P 500 list are the most valuable public companies traded on the US stock exchange.[231] According to the report, companies in the S&P 500 Index in 1965 stayed in

[228] (M. J. Perry 2015)
[229] (M. J. Perry 2015)
[230] (Anthony, Viguerie and Waldeck 2016) p.2.
[231] According to Investopedia, the S&P 500 Index is an index of 500 American companies with market capitalization value about $2.5 billion. The 500 companies included in the S&P 500 are selected by the S&P Index Committee, a team of analysts and economists at Standard & Poor's. These experts consider various factors when determining the 500 stocks that are included in the index, including market size, liquidity and industry grouping. The S&P 500 is

the index for an average of 33 years, in 1990, average tenure in the S&P500 had narrowed to 20 years, and it is forecast to shrink to 14 years by 2026 (Figure 21).[232] The report stated that "Shrinking lifespans are in part driven by a complex combination of technology shifts and economic shocks, some of which are beyond the control of corporate leaders. But frequently, companies miss opportunities to adapt or take advantage of change".[233]

Figure 21 Average company lifespan on S&P 500 Index in years (rolling 7-year average)



Source: Innosight (Anthony, Viguerie and Waldeck 2016)

In the 6 years between 2009 and 2015, well-known names such as Eastman Kodak, J.C. Penny, the New York Times and US steel were replaced in the S&P 500 list by Facebook, PayPal, Netflix and Illumina, all companies with new products and services (Table 2).[234] In 2015 alone, 28 companies (5.6%) were replaced, and at the predicted rate of 'churn', about half the S&P 500

widely regarded as the most accurate gauge of the performance of American equities with significant capitalization. Source: http://www.investopedia.com/terms/s/sp500.asp

[232] (Anthony, Viguerie and Waldeck 2016) p. 2.

[233] (Anthony, Viguerie and Waldeck 2016) p.4.

[234] (Anthony, Viguerie and Waldeck 2016) p. 3.

firms will be replaced over the next 10 years.[235] Most important, since 1965 more than 1,600 companies appeared on the list at one time or another. However, only 64 companies (12.8%) had "endured on the list for all of the past 50 years".[236] Among them are big manufacturers like Boeing, General Electric, and Caterpillar, and consumer businesses such as Coca-Cola, 3M, and Proctor & Gamble.

Table 2 S&P 500 turnover from 2009 to 2015

EXITED THE S&P 500	ENTERED THE S&P 500
Family Dollar	Dollar General
Eastman Kodak	Facebook
Covidien	Regeneron
Computer Sciences Corp.	Accenture
Abercrombie & Fitch	Fossil Inc.
Sprint	Level 3 Communications
International Game Tech	Activision Blizzard
J.C. Penney	Trip Advisor
National Semiconductor	PayPal
Safeway	Universal Health Services
H.J. Heinz	Altera
US Steel	Under Armour
Radio Shack	Illumina
Dell Computer	Seagate Technology
Avon	NRG Energy
The New York Times	Netflix

Source: Innosight (Anthony, Viguerie and Waldeck 2016)

According to Mark J. Perry, an economist at the American Enterprise Institute, "[t]he constant turnover in the Fortune 500 is a positive sign of the dynamism and innovation that characterizes a vibrant consumer-oriented market economy, and that dynamic turnover is speeding up in today's hyper-competitive global economy".[237] The constant churning of the Fortune 500 and

[235] (Anthony, Viguerie and Waldeck 2016) p. 3.
[236] (Anthony, Viguerie and Waldeck 2016) p. 3.
[237] (M. J. Perry 2015)

S&P 500 companies occurs because, over time, business products and services are constantly evolving. Only companies, that deliver high quality products and services to customers at low prices with great after sales services, can survive in the competitive market. Consumers vote with their dollars and choose those products with better quality and lower costs. Ultimately, consumers are huge beneficiaries of Schumpeterian creative destruction.

On the other hand, this "survival for fittest" environment is tough on those businesses that are rendered obsolete and even tougher on their employees. In many cases, companies miss opportunities to adapt or evolve in response to changes in the market environment thereby making their eventual demise inevitable. Kodak, for instance, continued to apply existing business models to new markets, failed to respond to disruptive technologies and to invest in new growth areas. In the longer term, only companies that continually find ways to reinvent themselves, and transform themselves from their historic core business into new ventures are able to "control their own" futures.[238]

As technology advances, societies become wealthier, and the capital markets shift "resources from declining sectors to more valuable uses as workers, inputs, and financial capital constantly strive to maximize their returns".[239] Old jobs have been replaced by new more productive jobs which contribute more value to the economy (Table 3).

While technology replaces some jobs, it also creates new work in industries that were unimaginable in the past. According to a report issued by the business consulting firm McKinsey, "[o]ne-third of new jobs created in the United States in the past 25 years were types that did not exist, or barely existed, in areas including IT development, hardware manufacturing, app creation, and IT systems management". The report concludes that overall, the net impact of new technology on employment can be strongly positive.[240]

[238] (Anthony, Viguerie and Waldeck 2016) p.8.
[239] (Cox and Alm 2008)
[240] (Manyika, Technology, jobs, and the future of work 2017)

Table 3 Job Destruction and Job Creation from 1900 to 2016

Job Destruction	Year	Number of employees	Year	Number of Employees
Carriage and harness makers	1900	109,000	2016	Less than 5,000
Cobblers	1900	102,000	2016	Less than 5,000
Blacksmiths	1910	238,000	2016	Less than 5,000
Railroad employees	1920	2,076,000	2014	235,000
Farm workers	1910	11,533,000	2016	533,000
Job creation				
Auto mechanics	1900	-	2016	647,380
Engineers	1900	38,000	2016	2,499,050
Truck, Bus and Taxi drivers	1900	-	2016	3,863,100
Computer programmers/scientists/analysts etc.	1900	-	2016	3,997,370
Pharmacists	1970	114,590	2016	305,510

Source: Cox and Alm 2008, US Department of Labor Occupational Employment Statistics at https://www.bls.gov/oes/

New technology and globalization have been changing the nature of businesses across all industries and occupations. In the 21st century, a global supply chain is used not only in manufacturing industry but also in various other industries, including banking, accounting, legal services, auto manufacturing, and pharmaceuticals.[241] However, economic and technological changes have not been always welcome. An economist at the Federal Reserve Bank of Dallas W. Michael Cox and an economics writer Richard Alm wrote in their article *Creative Destruction*:

> [o]ver the past two centuries, the Western nations that embraced capitalism have achieved tremendous economic progress as new industries supplanted old ones. Even with the higher living standards, however, the constant flux of free

[241] (Duhigg and Bradsher 2012)

> enterprise is not always welcome. The disruption of lost jobs and shuttered businesses is immediate, while the payoff from creative destruction comes mainly in the long term. As a result, societies will always be tempted to block the process of creative destruction, implementing policies to resist economic change.[242]

As there is always some support for the *status quo* and resistance to change, this is particularly true in the political arena, where attention is frequently attracted by lost jobs rather than the new jobs created. They continue:

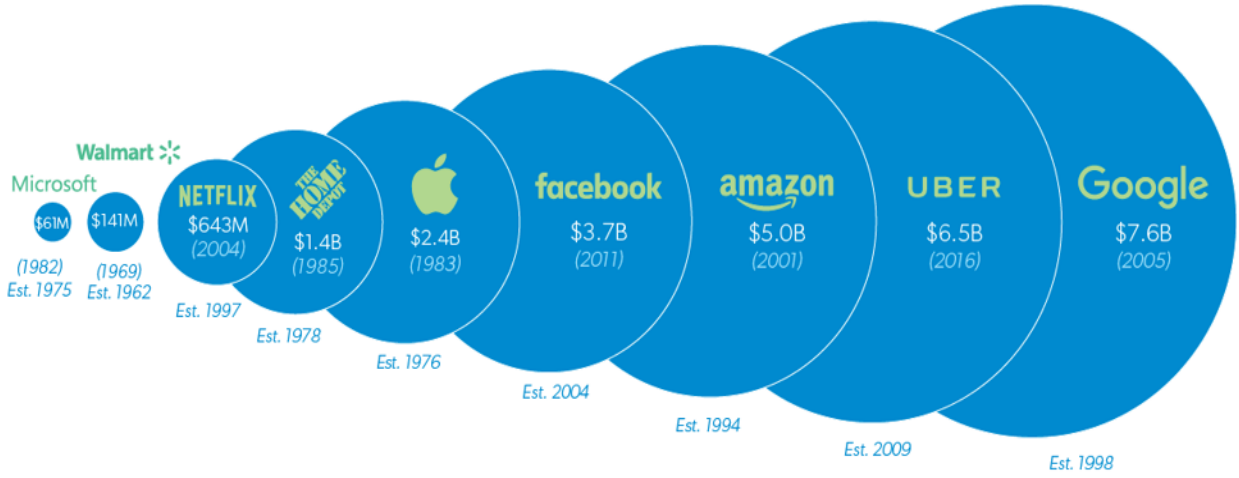
> [a]ttempts to save jobs almost always backfire. Instead of going out of business, inefficient producers hang on, at a high cost to consumers or taxpayers. The tinkering short circuits market signals that shift resources to emerging industries. It saps the incentives to introduce new products and production methods, leading to stagnation, layoffs, and bankruptcies. The ironic point of Schumpeter's iconic phrase is this: societies that try to reap the gain of creative destruction without the pain find themselves enduring the pain but not the gain.[243]

The graphic below (Figure 22) compares sales revenue for nine companies in their seventh year of operation in inflation adjusted dollar in 2016 value. Surprisingly Google's revenue ($6.1 billion in 2005) or Uber Technologies Inc.'s ($6.5 billion in 2016) were much larger than those reported by Microsoft and the retail giant Walmart in their 7th year in existence.[244]

As technology advances, the economy is increasingly integrated at a global scale and is heavily dependent on digital telecommunication. The costs associated with starting a business and the other fixed and operation costs can be dramatically reduced, and businesses can grow rapidly around an innovative idea which is readily accepted in the world market.

[242] (Cox and Alm 2008) This article is an introduction to a new edition of Schumpeter's, *In Capitalism, Socialism, and Democracy.* Please see at http://www.econlib.org/library/Enc/CreativeDestruction.html
[243] (Cox and Alm 2008)
[244] (M. J. Perry 2017c)

Figure 22 Company Sales Revenue at Year 7 in Inflation Adjusted 2016 Dollars



Source: M. J. Perry (2017c)

For example, Uber's 7th year of operating revenue of $6.5 billion in 2016 was more than 46 times greater than Walmart's sales in its seventh year in 1982.[245] The nature of business is fundamentally different, as a comparison between the retail giant Walmart and the transportation provider Uber highlights. Each new business innovation renders many existing businesses obsolete. Much of the justification for protection of existing businesses and the employment they provide amounts to a counterproductive action to slow or halt the process of technical change.

6.1 Make Work Bias

Modernization inevitably causes certain types of jobs to disappear. The process of technical change over time increases productivity. All the economies of the so called 'developed' countries have experienced a shift away from labor intensive agriculture, to less labor-intensive manufacturing and then to more service-oriented industries. These shifts brought many benefits including higher wages, better working conditions, and quality of life improvements.

In the US, some manufacturing jobs have disappeared, but this has been the trend for decades. President Trump's obsession with bringing back manufacturing jobs to America reflects a

[245] (M. J. Perry 2017c)

concept described by Caplan (see Chapter 1) as a "make work bias".[246] Politicians tend to judge economic performance not by productivity, but by number of jobs. Looking back through 200 years of American history, one can see the shift in the labour force. In 1870, a majority of the workforce, 53%, were farmers and at that time one farmer could only support five people. In 2016, less than 2% of the workforce was engaged in the agriculture sector, and one farmer could feed 168 people.[247] More important than the decline in the number of farmers, is the increase in their productivity and efficiency. In 2015, American farmers produced 262% more food with 2% fewer inputs (labor, seeds, feed, fertilizer, etc.) compared with 1950.[248]

Politicians would be ridiculed if they exhorted their citizens to go back to farming on the land with horse power to "Make America Great Again". Efforts to turn back the clock by repatriating manufacturing jobs are just as ludicrous, apart from the fact that those who have recently lost their jobs in manufacturing are a significant political constituency, whereas the descendants of displaced farm labour are generally gainfully employed in other sectors of the economy.

The objective of President Trump's policy should be to encourage the evolution of the economy instead of focusing on employing more people in positions that are no longer economically viable. The strength of the economy does not depend on the number of people employed, but on the value added to the economy by the people who are employed.

7. The Invisible and Inconvenient Truth of Global Trade for President Trump

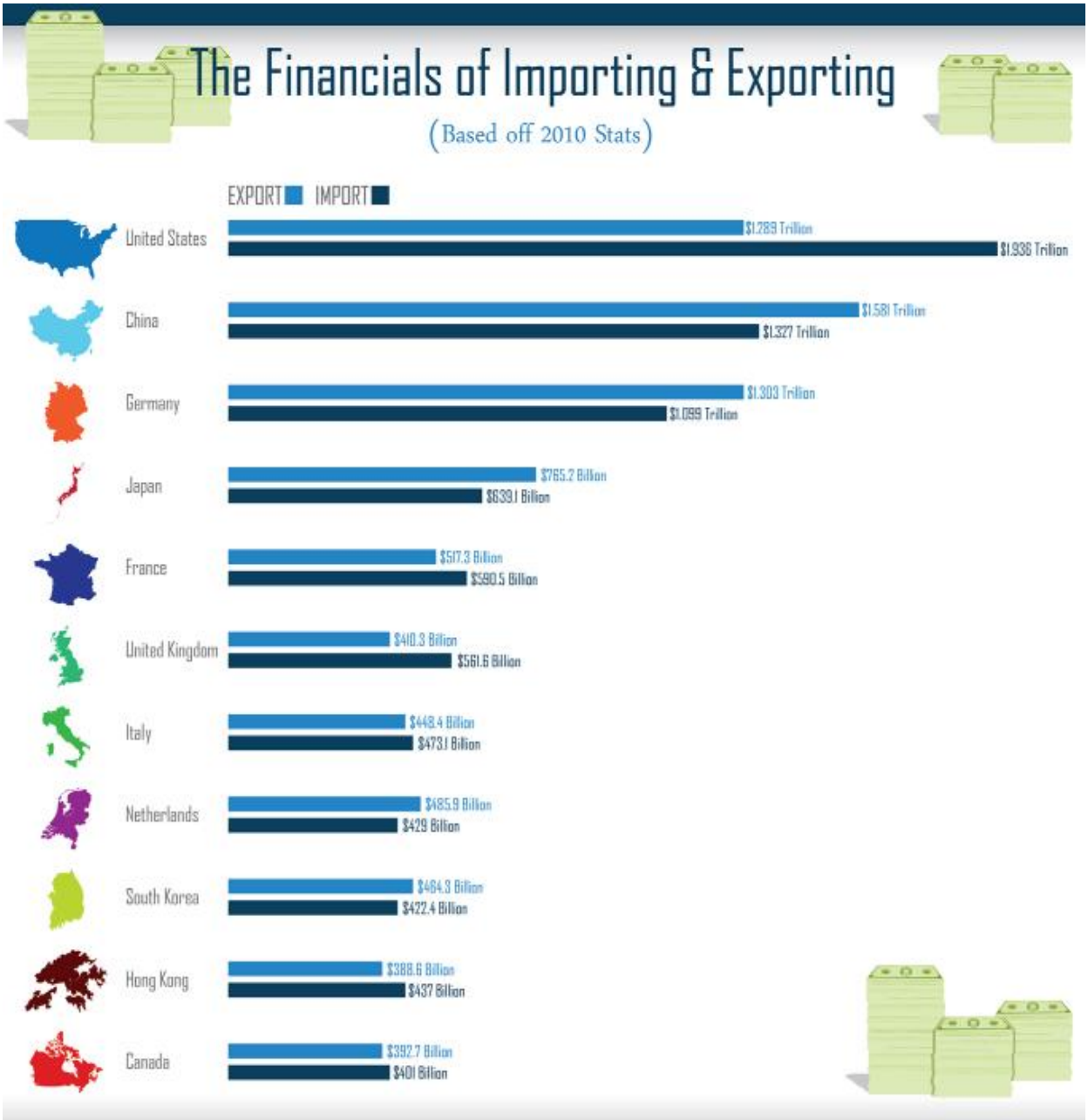
7.1 Correlation between Imports and Exports

An analysis of the economic impacts of trade on each American state's GDP demonstrates how imports (inputs) and exports (final products) are interrelated and affect the US economy as a whole. Since the US is already well-integrated into global supply chains for inputs, parts, and other supplies (Boeing and GM), and for final products (Apple iPhone), it is safe to say that US imports generate US exports and vice versa.

[246] (Caplan 2014)
[247] (World Bank n.d.), (U.S. Bureau of the Census 1949) p.63.
[248] (American Farm Bureau Federation 2017)

No country has only exports or imports. Trade involves exchange, whether those exchanges involve goods and services only, or involve financial capital for payments and investments. In general, major exporting countries are also major importing countries (Figure 23).

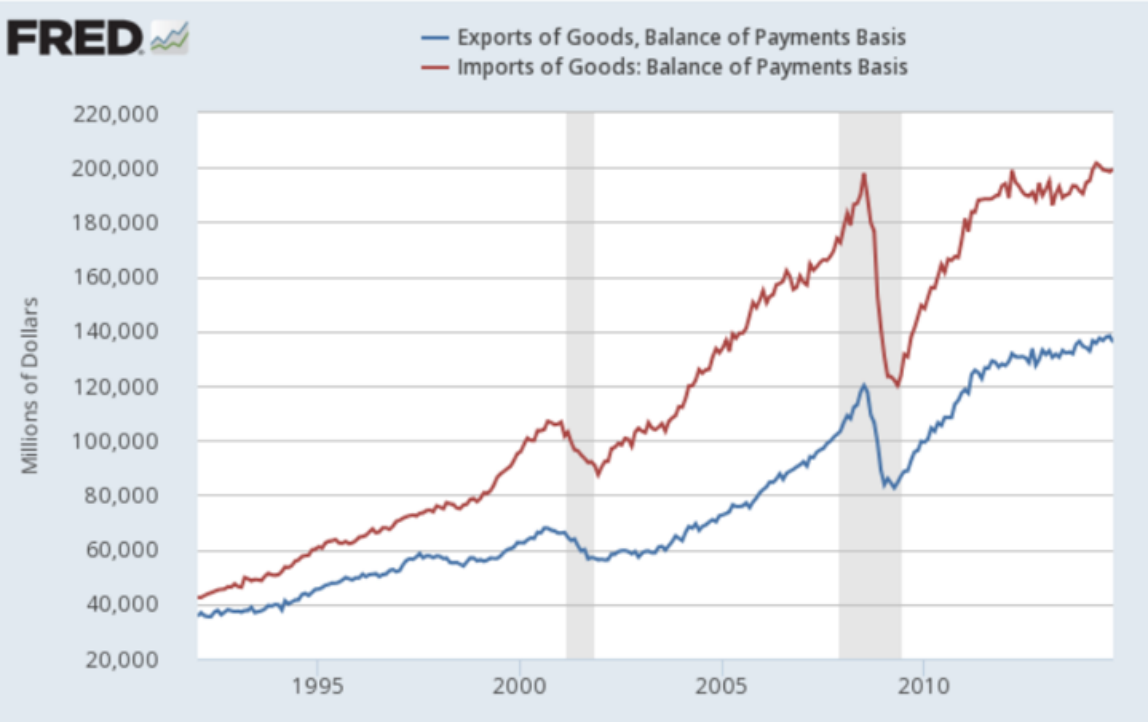
Figure 23 The Financials of Exporting & Importing (based on 2010 data)



Source: (Visually 2017)

The top ranked international trading countries have more or less comparable levels of exports and imports in terms of value. The fundamental reason for this is that imports and exports are "two sides of the same coin".[249] Historically US exports and imports values have moved in tandem (Figure 24).

Figure 24 US Exports and Imports from 1990-2015



Sources: (Federal Reserve Bank of St. Louis): Original data from US Bureau of Economic Analysis, US Bureau of the Census.

Government trade policies, which have a reduction in imports as their objective, would eventually adversely affect exports. Similarly, although unlikely, any policy which sought to reduce exports would eventually reduce the level of imports. President Trump's argument centers only on imports and therefore misses the big picture in the globalized trade world. As Irwin has stated, "If a government undertakes policies that systematically reduce the volume of

[249] (Irwin 1996) According to Irwin, this correlation has been debated since the 1840s in England, with respect to whether repeal of the Corn Laws, legislation that limited British grain imports, would increase exports. More historical debate regarding this matter is in Irwin's paper.

imports, it also systematically reduces the volume of exports. The reasons may be indirect and less than obvious, but they are still present and have to be reckoned with". [250]

7.2 A Tax on Imports is Equivalent to a Tax on Exports

Another point which is usually ignored in the political discussion of trade policy and generally escapes the attention of the general public is that a "tax on imports is equivalent to a tax on exports". Any constraint on imports acts, in effect, as a constraint on exports".[251] President Trump criticized the 1994 NAFTA trade deal as a "one-sided deal", and stated that Mexico's trade surplus with the US since 1995 was evidence that Mexico was "taking advantage" of access to the US market.[252]

Based on 2016 US trade data, more than half of all goods imported from overseas into the US were orders from American manufacturers and businesses, and most of these items were used as intermediate goods for the production of final goods which are made available on the open market. As Table 4 below shows, these intermediate goods included capital goods (industrial machines, semiconductors, equipment machinery, tools, parts etc.) and industrial supplies (chemicals, petroleum products, lumber, plastics, metals, etc.). Capital goods accounted for 27% of US goods imports, industrial supplies for 20%, and automobile parts & engines (excluding finished vehicles) accounted for 7%.

On the other hand, imported consumer goods such as apparel, cell phones, toys, games, etc. as ready-to-use final products accounted for only 26% of the total goods imported (Table 4 and Figure 25). In other words, American businesses are the largest consumers of imports by a large margin, and US consumers are relatively minor purchasers of imports.

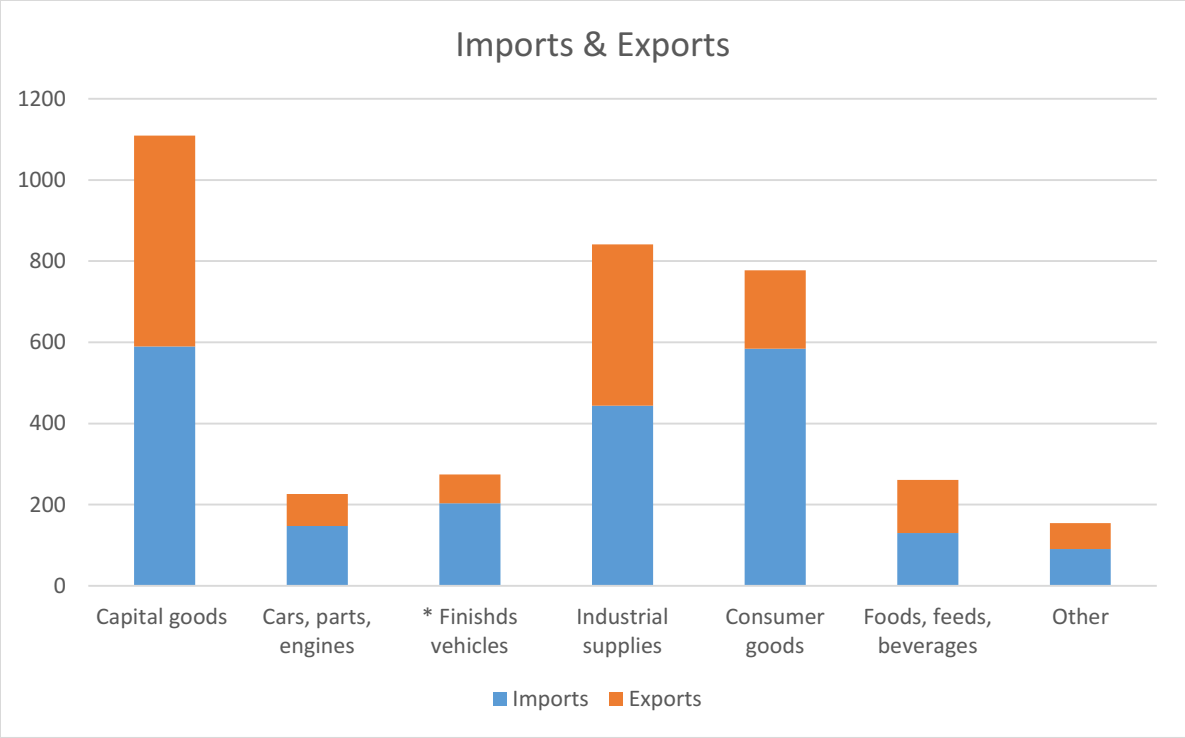
[250] (Irwin 1996) p.9.
[251] (Irwin 1996) p.2.
[252] (Bartash 2017)

Table 4 US Imports and Exports by End-Use Category and Commodity

2016 (in billion dollars)			% Share of Goods Traded	
End-use category	Imports	Exports	Imports	Exports
Capital goods	589.98	519.36	27%	36%
Cars, parts, engines	147.19	78.91	7%	5%
* Finished vehicles	203.06	71.06	9%	5%
Industrial supplies	443.77	397.76	20%	27%
Consumer goods	583.79	193.65	26%	13%
Foods, feeds, beverages	130.26	130.73	6%	9%
Other	90.89	63.16	4%	4%
Total	2209.92	1459.84	100%	100%

Source: (U.S. Department of Commerce 2017)

Figure 25 US imports and Exports by End-Use Category and Commodity



Source: Author's calculation based on US Department of Commerce's data. *in billion dollars in 2016 data.

Mexico has benefitted from the substantial growth of its automobile industry since NAFTA came into effect in 1994.[253] In 2015, the US bought more than $40 billion worth of OEM auto parts from Mexico, which were used by American manufacturers in the assembly of their products (Figure 26).[254]

Figure 26 Trade between the US and Mexico in 2015

Source: (Bartash 2017)

[253] (NAFTA n.d.)
[254] (Bartash 2017)

If imports from Mexico were to be subjected to import tariffs and the other restrictive measures President Trump has proposed, component prices would rise. This would occur whether or not the parts in question continued to be imported from Mexico, which would inevitably be the case in the short term, or whether in the medium or longer term these components were manufactured in the U.S either by automakers themselves or by third party domestic component suppliers. GM and Ford assembly plants in Michigan would incur increased costs for their inputs. In the end, increases in the price of imports would result in higher prices for vehicles assembled in the United States, and ultimately lead to reduced sales, and job losses in the businesses affected. [255]

Mexico benefited from NAFTA and has become a major producer of automobiles, electronics and appliances, and more Mexicans are employed in these sectors as a consequence of American offshoring. Labor intensive functions are visible targets for segments of the American public and for politicians. However, it is worth remembering that American manufacturers benefit hugely through outsourcing these functions and the resultant intra-industry trade, because their productivity and competitiveness in the world market are significantly enhanced. American businesses have many options when it comes to where and when they procure inputs and where they allocate investment. Selling more "Made in America" products needs more foreign partners and imports of raw materials and components.

Restricting imports and imposing tariffs on parts, components, equipment and finished products would reduce the competitiveness of American businesses. The sales volume of products such as Boeing aircraft, GM cars, and Apple iPhones would decline. Such restrictive trade measures would also lead to the reallocation of resources such as investment away from export-oriented manufacturers toward industries which are protected in various ways from foreign competition.

History is littered with cases where protective measures which benefit only a few politically influential producers have negatively impacted other US businesses. For example, US Steel successfully lobbied for protection from imports in 1984. Although these measures were intended to protect the steel industry, they adversely affected industries which consumed steel

[255] (M. J. Perry 2017b)

such as Caterpillar and other "metal-bashing" businesses.[256] In the past few years, US anti-dumping duties on hot-rolled steel flat products cases against seven countries have been debated. In August 2016, the US Department of Commerce determined that the US steel industry was materially injured by imports, and announced antidumping and countervailing duty orders on imported steel.[257] In response, the American Institute for International Steel (AIIS) expressed concern about the scope and nature of the investigation, and published a warning statement:

> "…protectionist policies that would limit the availability of steel and drive up its price,…While this competition may indeed reduce the profits of domestic manufacturers, other steel-related businesses and consumers benefit from not having to pay the artificially high prices that would result from measures that restrict trade".[258]

Another example which dates from the mid-1980s occurred when the US implemented an anti-dumping agreement with Japan involving the high technology industry which manufactured dynamic random access memory (DRAM) semiconductors.[259] This measure tried to protect the American semiconductor industry but instead harmed US based computer manufacturers such as IBM and Hewlett-Packard which had many foreign competitors.[260] The Computer System Policy Project (CSPP) was formed in response by the companies which used DRAM as a key component to counter the lobbying power of the Semiconductor Industry Association (SIA).[261]

These cases should be borne in mind because they show how restrictive trade policies have an adverse impact on the viability of individual businesses and in aggregate, on the national economy. In addition to the impact on the export prices of "Made in America" products and hence on the volume of exports, these policies reduce the living standards of Americans by denying them access to foreign finished goods and "Made in America" products at competitive prices. Furthermore, restrictions on foreign imports benefit foreign competitors who continue to

[256] (Irwin 1996) p.16
[257] (U.S. Department of Commerce, International Trade Administration 2016) Antidumping duties against Australia, Brazil, Japan, Korea, the Netherlands, Turkey and the United Kingdom, and countervailing duties against Brazil, South Korea and Turkey.
[258] (American Institute for International Steel 2017) AIIS is the only steel related trade association which for over sixty years has supported free trade.
[259] (Irwin 1996) p.16.
[260] (Irwin 1996) p.16.
[261] (Irwin 1996) p.16.

have access to reliable and cost-effective inputs and components, and weaken the American manufacturers who compete in the international market. Hence, it is quite possible that Boeing aircraft would be displaced by Airbus, and Apple iPhones would lose a significant share of the global market to its rival companies such as the Chinese firm Huawei and the Korean firm Samsung. If Boeing were to lose business to foreign rivals, it would adversely affect 140,000 employees in the US, and more than 13,600 US business partners including production suppliers, non-production vendors and subsidiaries of companies these represent an additional 1.5 million jobs in the US.[262]

7.3 Consumer Welfare

Adam Smith wrote the following about the role of the consumers in trade and economic activities:

> Consumption is the sole end and purpose of all production; and the interests of the producer ought to be attended to, only so as it may be necessary for promoting that of the consumer. The maxim is so perfectly self-evident that it would be absurd to attempt to prove it. But in the mercantile system, the interest of the consumer is almost constantly sacrificed to that of the producer; and it seems to consider production, and not consumption, as the ultimate end and object of all industry and commerce. [263]

Smith criticized government policies for protecting producers and neglecting consumers. In any protectionist trade environment, consumers are "evidently sacrificed" and obliged to pay higher prices for products caused by the regulation. He continued:

> A great empire has been established for the sole purpose of raising up a nation of customers who should be obliged to buy from shops of our different producers all the goods with which these could supply them. [264]

The point of the above statement is that raising consumer welfare should be the ultimate purpose of the national governments. The export of American goods and services to the world are of significant importance to the national economy and, moreover, imported components make many

[262] (Boeing 2017b)
[263] (Smith 1904/1776) Book IV, Chapter VIII, Conclusions of the Mercantile System. Section IV. 8.49
[264] (Smith 1904/1776) Book IV, Chapter VIII, Conclusions of the Mercantile System. Section IV. 8.53.

American-made products more competitive as well as improving the standard of living for consumers.

Imported consumer goods, from electronics to clothing to toys, give consumers greater buying power and a broader array of products from which to choose. Imported food means that seasonal variation in the availability of home grown food is a thing of the past and year-round access to a wide range of tropical products originating outside the US (bananas, avocados and coffee, to name some of the more popular items) is ensured.

In the US, a basic 21-inch color TV entertainment center from the Sears Christmas catalogue cost $750 in 1964 (Figure 27), which was about $5,800 if the price is expressed in 2016 dollars.[265]

Figure 27 Silvertone 21-inch color TV $749.95 in the 1964 Sears Christmas Catalogue

Source: (M. J. Perry 2016)

According to Perry, instead of just one color TV, as Figure 28 below shows, today's $5,800 could buy 12 electronics items including five kitchen appliances (refrigerator, gas stove, washer and dryer, and freezer) and seven state-of-the-art electronics devices (a Samsung 55 inch Smart

[265] (M. J. Perry, 2016)

HDTV, a Toshiba Satellite 15.6″ laptop computer, a Garmin 5 Inch GPS, a Canon EOS Rebel T5i DSLR Camera, a Sony 1,000 Watt, 5.1-Channel 3D Smart Blu-Ray Home Theater System, an Apple iPod Touch 64GB MP3 Player (6th generation), and an Apple iPhone 7 Plus.

Figure 28 What $5,800 would buy in 2016

Source: (M. J. Perry 2016)

What does this fall in prices indicate? First of all, TV prices have been going down drastically. In general, prices of goods in high demand fall, since more businesses invest in production to fill that demand and successively improve the productivity of the assets they use. In 1964, in order to purchase a Sears 21-inch color TV for $750, an American working for the average hourly wage of $2.56, had to work for 293 hours (7.6 weeks, or almost two full months).[266] In 2016, to purchase $500 Samsung 55-inch Smart HDTV, an American employed at the average hourly

[266] (U.S. Bureau of Labor Statistics 2017) Average hourly earnings of production and nonsupervisory employees, total private, seasonally adjusted data. In, November, 1964 data, an average hourly and weekly wage were $2.56 and $98.82 respectively.

wage of $21.74, had to work for only 23 hours or three days.[267] In 2016, there were 1.59 billion TV sets in the world.[268]

Another example is that of the mobile phone, the first commercial version of which was released by Motorola in 1983.[269] The Motorola Dyna TAX 8000X model cost an American buyer $3,995 and one could talk for about 30 minutes before the battery needed recharging. Thirty-two years later, in 2015, more than 4 billion people or more than 60% of the world population were using mobile phones.[270] In fact, more people have access to mobile phones than proper toilets.[271]

Falling prices mean more purchasing power for consumers, and reflect the opportunity consumers now have to obtain a great deal of more food, clothing, appliances, and convenient services, such as ordering items through Amazon, compared to the past. As John Tamny, an economic and financial journalist put it:

> The declining prices are a sign of rising living standards for all simply because they represent increased access to formerly unattainable goods and services, along with looming access to products we don't yet know we want. Who was "demanding" the internet in the early '90s, Uber in the '00s, or an iPhone (that mobile phone experts roundly dismissed) in 2004? [272]

7.4 Protectionism is not the Solution

Over the last half century, many products that were beyond the imagination of most people have been created through technological innovation and high levels of productivity. Consumers have been able to obtain a variety of goods with lower prices, higher quality, and good after-sales service. The living standards of the majority of people have improved considerably as a consequence. If consumers were stuck in 1964 when people had to work for two full months to purchase a TV, it goes without saying that the market for other luxury items such as mobile phones with many functions, iPads, and lap top computers would be extremely limited.

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[267] (U.S. Bureau of Labor Statistics 2017) In November, 2016 data, an average hourly and weekly wage were $21.74 and $730.46 respectively.
[268] (Statista: the Statistics Portal 2017b)
[269] (Goodwin 2017)
[270] (Statista: the Statistics Portal 2017a)
[271] (Global Giving 2017)
[272] (Tamny 2017)

Donald Boudreaux (2016), an economics professor at George Mason University, has pointed out that trade is the most efficient mechanism through which consumers obtain goods and services they need at minimum cost (inputs).[273] Taking advantage of the division of labor and trade, consumers work and earn money at their specialties and then transform their hard-earned money into the goods and services they desire. Thus, an ability to engage in trade benefits all who voluntarily participate, exactly as Adam Smith observed more than 200 years ago.

As Adam Smith put it, the wealth of a nation, in terms of economic growth and rising living standards, depends on improvements in the welfare of all its citizens. In turn, these improvements in consumer welfare create new businesses and competition. To maximize these welfare improvements, the national interest is best served when it is aligned with consumer well-being and not with the interests of uncompetitive producers.[274]

Any trade policy restricting imports impoverishes consumers because it restricts consumer access to goods produced at the lowest possible cost and thereby from having the additional purchasing power that would exist if such products were accessible.[275] Trade sometimes takes place within a country where it is restricted to interaction among fellow citizens; however, when trade with foreigners is possible, "it doesn't matter whether [that] production takes place on the same side, or the other side, of imaginary lines we call city, state and national borders *vis-à-vis* the location of the consumer".[276] There is no reason to restrict trade which benefits consumers on the basis of production locations.

The powerful forces of international trade and global competition encourage businesses to manufacture goods like TVs, laptops, and appliances using global supply chains. When utilizing resources in the world, businesses are able to take advantage of economies of scale and the division of labor. Low value-added functions such as assembly can be undertaken where labor costs are cheaper, freeing up resources that can be devoted to high value-added functions such as product development, research, and managing an effective global supply chain. A variety of

[273] (D. J. Boudreaux 2016)
[274] (Smith 1904/1776) Book IV, Chapter VIII, Conclusions of the Mercantile System. Section IV. 8.53.
[275] (M. J. Perry 2016)
[276] (M. J. Perry 2016)

innovative and high-quality products and services are created and offered to consumers at the lowest possible cost.[277]

Trade policies focusing on national territories are becoming more obsolete, and ignore complicated and intertwined global supply chains. As is often the case, the political framework lags behind and fails to grasp the reality of the 21st century business environment. According to Larry Elliot in an article in the Guardian newspaper, "[p]olitical decision makers are too often caught in traditional, linear and non-disruptive thinking or too absorbed by immediate concerns to think strategically about the forces of disruption and innovation shaping our future".[278]

According to President Trump's website, trade deals have caused the demise of blue-collar towns and cities. He stated that, "[b]y fighting for fair but tough trade deals, we can bring jobs back to America's shores, increase wages, and support US manufacturing". [279] President Trump believes that starting trade wars with other countries and implementing protectionist measures will improve the American economy. However, many economists and empirical studies on protectionist trade policies in the past suggest otherwise. The Federal Reserve Bank of St. Louis undertook an empirical study of 31 US protectionist trade cases in the 1980s.[280] During the 1980s, protectionist measures were pushed and implemented worldwide due to "various economic problems" including the large and persistent balance of trade deficits in the US, the hard times experienced by several industries and the slow growth of many foreign countries.[281] These economic problems are "*déjà vu* all over again" in the current economic situation in America.

According to the Federal Reserve Bank research involving 31 protectionist measures, the policy cost consumers $64 billion (in 1986 dollars) per year (Table 5).

[277] (M. J. Perry 2016)
[278] (Elliott 2016)
[279] (White House 2017a) (White House 2017b)
[280] (Coughlin, Chrystal and Wood 1988)
[281] (Coughlin, Chrystal and Wood 1988) p.1.

Table 5 Case Studies of Trade Protection in the US in 1980s

Case	Consumer Losses (millions, per year)	Producer Gains (millions, per year)	Annual Consumer Losses per Job Saved (1986 dollars)	Annual Consumer Losses per Job Saved (2016 dollars)
Manufacturing				
Book Manufacturing	$500	$305	$100,000	$219,000
Benzenoid Chemicals	$2,650	$2,250	$1,000,000	$2,190,000
Glassware	$200	$130	$200,000	$438,000
Rubber Footwear	$300	$90	$30,000	$65,700
Ceramic Articles	$95	$25	$47,500	$104,025
Ceramic Tiles	$116	$62	$135,000	$295,650
Orange Juice	$525	$390	$240,000	$525,600
Canned Tuna	$91	$74	$78,000	$170,820
Textiles and Apparel	$27,000	$22,000	$42,000	$91,980
Carbon Steel	$6,800	$3,800	$750,000	$1,642,500
Ball Bearings	$45	$21	$90,000	$197,100
Specialty Steel	$520	$420	$1,000,000	$2,190,000
Nonrubber Footwear	$700	$250	$55,000	$120,450
Color TVs	$420	$190	$420,000	$919,800
CB Radios	$55	$14	$93,000	$203,670
Bolts, Nuts, Large Screws	$110	$60	$555,000	$1,215,450
Prepared Mushrooms	$35	$13	$117,000	$256,230
Automobiles	$5,800	$2,600	$105,000	$229,950
Motorcycles	$104	$67	$150,000	$328,500
Services				
Maritime Industries	$3,000	$2,000	$270,000	$591,300
Agriculture and Fisheries				
Sugar	$930	$550	$60,000	$131,400
Dairy Products	$5,500	$5,000	$220,000	$481,800
Meat	$1,800	$1,600	$160,000	$350,400
Fish	$560	$200	$21,000	$45,990
Mining				
Petroleum	$6,900	$4,800	$160,000	$350,400
Lead and Zinc	$67	$46	$30,000	$65,700
	$64,823	**$46,957**	**$235,712**	**$516,208**
	Total	**Total**	**Average**	**Average**

Source: (M. J. Perry 2017e)[282]

[282] Original data from (Coughlin, Chrystal and Wood 1988)

The textiles and apparel industry incurred the largest loss of $27 billion per year (1986 dollars). In 25 of the 31 cases, consumer losses were more than $100 million per annum.

In 2016 dollars, the average cost per job saved was $516,208. In 28 of the 31 cases, the cost was more than $100,000 per year, which was far higher than the annual salary paid for the job. In four cases: benzenoid chemicals, carbon steel, specialty steel, and bolts, nuts and screws, the cost per job saved exceeded $1 million annually.[283] Domestic producers were the primary beneficiaries of these protectionist policies (Table 5). However, the report also mentioned that foreign producers benefited from the policies too, because their product prices became reasonable compared to artificially high US domestic prices, and improved their competitiveness relative to US products.

The report continued:

> [t]he empirical evidence is clear-cut. The costs of protectionist trade policies far exceed the benefits**.** The losses suffered by consumers exceed the gains reaped by domestic producers and government. Low income consumers are relatively more adversely affected than high-income consumers. Not only are there inefficiencies associated with excessive domestic production and restricted consumption, but there are costs associated with the enforcement of the protectionist legislation and attempts to influence trade policy. [284]

Another significant case in 2009 involved imposition of import tariffs on Chinese tires levied by the US.[285] These tariffs were introduced in response to a petition from the United Steelworkers union which represents tire manufacturing workers. It claimed that the domestic tire industry was materially injured by imports from China because they caused "market disruption". President Obama imposed punitive tariffs on tires imported from China, raising the rate from 4% to 35% in September of 2009 (and then reducing the rate to 30% in 2010, and then 25% in 2011).[286]

This case is typical of ongoing Chinese-US trade disputes, and US political efforts to 'insource' jobs back to America. However, the research shows that these protectionist measurements saved

[283] (Coughlin, Chrystal and Wood 1988) p.6.
[284] (Coughlin, Chrystal and Wood 1988) p.14.
[285] (Hufbauer and Lowry 2012) p.1.
[286] (Hufbauer and Lowry 2012) pp.1, 2.

a maximum of 1,200 of American tire builders' jobs whose annual average salary was $40,070. The total cost to American consumers was around $1.1 billion in 2011. In other words, the cost per job saved was over $900,000 annually which was paid by American taxpayers. [287]

American domestic tire producers gained some benefit from this protectionist policy. But the union members who lost jobs received only a small share of the "money extracted from the pockets of American households". [288] The major beneficiaries of these country specific tariffs turned out to be other low-end tire producers in Asia and Mexico whose tires were substituted for Chinese supply. [289] Basically the tariffs did not have any material impact on American tire businesses, and had an adverse effect on the American economy. US consumers spent more on tires, thereby limiting their ability to spend on other retail goods. The loss of jobs attributable to this scaling back of domestic retail spending was estimated to be 2,531.[290] Adding further to the loss, China retaliated by imposing anti-dumping duties on US exports of chicken parts, costing the American poultry industry an estimated $1 billion in lost sales.[291]

The research concluded:

> Admittedly, targeted protection can be highly popular with US trade unions and individual firms. In some circumstances, denying China access to the US market might help reform Chinese policies. But tire safeguards provoked Chinese retaliation, not compliance. In this instance safeguard tariffs extracted more than one billion dollars annually from American households, causing a net loss of jobs in the American economy, when job losses in the retail sector are off set against job gains in the manufacturing sector. Collecting a billion dollars in taxes or tolls, and spending the money on renewing dilapidated infrastructure, would create some 7,000 jobs in construction and many more in manufacturing, a far better outcome for the US economy. …The best thing about the tire tariffs is that they expire in September [2012].[292]

[287] (Hufbauer and Lowry 2012) pp.1, 7.
[288] (Hufbauer and Lowry 2012) p.13.
[289] (Hufbauer and Lowry 2012) p.10.
[290] (Hufbauer and Lowry 2012) pp.1, 13. (Rapoza 2012)
[291] (Hufbauer and Lowry 2012) p.1
[292] (Hufbauer and Lowry 2012) p. 14.

Why then are such costly protectionist policies repeatedly advocated by politicians, unions, some industry associations, voters, and even many economists when empirical studies suggest that such policies amount to the nation imposing those policies self-inflicted harm on its economy? Mark J. Perry, an economist at University of Michigan explained:

> From a political viewpoint, protectionism has an obvious payoff because it generates political support, votes, and financial contributions for protectionist presidents and politicians from the beneficiaries - domestic industries and their workers - who are protected from foreign competition by government fiat. Fortunately for the protected industries and their political enablers, the groups that shoulder the burdens and costs of protectionism - millions of dispersed consumers and thousands of invisible, hard-to-identify workers who lose their jobs - are unorganized and therefore completely disregarded by protectionist politicians.[293]

Indeed, protectionist policies benefit some groups that are visible, identifiable and measurable. This provides great opportunities for smartphone shots of President Trump[294] while harming the most important group, American consumers (especially low-income households). Politicians who are interested in re-election respond to the demands of politically powerful groups while dispersed consumers, particularly the poor, don't have a strong voice.

Economic theory and much empirical evidence shows that the costs of protectionism accruing to American consumers will always be greater than the benefits realized by the protected industries and their workers. Moreover, protectionist policies result in lower economic growth rates than the rates otherwise associated with free trade policies.[295]

7.5 The Benefits of Global Partnerships

Aerospace giant Boeing, which has survived long enough to enter the second century of its business history, discussed in its 2016 annual report how challenging it is to adapt and excel in the competitive world market:

[293] (M. J. Perry 2017d)
[294] (Waldmeir 2017)
[295] (Coughlin, Chrystal and Wood 1988) p.14.

> We aspire not only to be the best in aerospace, but also an enduring global industrial champion—a top performer in every aspect of our business, delivering superior value to our customers, employees, shareholders, communities and partners. This bold goal requires that we set—and achieve—higher expectations for our work and recognize that we now compete with companies in other sectors for capital, influence, talent and positioning in a business environment that is getting tougher, more complex and more global every day. These realities—and the aggressive existing and emerging competition we face in the aerospace industry—demand that we relentlessly drive productivity and affordability to win in our markets and fuel our investment in the products and services that will drive future growth.[296]

These companies that strive and are successful are adding value and wealth to society by creating new demands, new goods and services, and new jobs and businesses.[297] Contrary to the perceptions of the general public and politicians, global market competition and the transformation it provokes are not zero-sum games. Businesses are not just replacing and stealing each other's business, but rather adding a greater volume of transactions and more value to the economy. Consequently, the size of the world economy has been growing for decades. Trade and increasing reliance on global supply chains are the mechanisms on which this growth depends. Boeing's 2016 annual report talks about achieving its goals by:

> ...leveraging the unique competitive advantage we have in operating as One Boeing…such as engaging our supply chain to reduce costs and improve quality, breaking the cost curve on our development programs, implementing advanced manufacturing and design technologies, and creating global scale and depth by growing our presence and partnerships in key markets around the world.[298]

No single country is the source of all innovation. Maximizing global partnerships and collaborations which facilitate the scaling-up of production to meet global demand are necessary for businesses to optimize investment, and to increase productivity through economies of scale

[296] (Boeing 2017a) p.7.
[297] (Schwab 2016) p.37.
[298] (Boeing 2017a) p.8.

and the division of labor.[299] In the long run, high productivity and new innovations create more added value and profits. These are necessary for businesses to have sustainable growth.

As long as the US market remains dynamic and open, many US companies will be successful. This success brings significant benefits to the US economy, which is shared by consumers, investors and those in high-paying jobs. However, once those successful companies become complacent and fail to invest in order to adapt to changing market conditions such as in Kodak case, the global market will quickly shift resources away from the US to more promising opportunities elsewhere. Global business operations increasingly blur the distinction between "domestic" and "foreign" products, to the point of making them irrelevant. When it comes to global competition and the allocation of resources, the importance of local, national and regional boundaries fade, and all businesses in the world are both prospective partners and competitors. Whoever can offer great products with the best prices will succeed and survive in the globalized world.

8. Conclusion – Will Protectionism Help?

Is President Trump's trade policy, protecting and subsidizing existing manufacturers to prevent job losses, an effective strategy? Historical evidence suggests the answer is no.

First, manufacturing output in the US has increased even as employment has fallen due to increased automation and productivity. Therefore, subsidizing manufacturing businesses probably leads to more automation, and less jobs for low-skilled workers. Second, there have been significant variations in economic performance among sub-sectors within the manufacturing sector. For example, lower productivity sub-sectors such as textile and textile product mills, apparel, leather, and allied products, recorded about a 50% reduction in their contribution to GDP between 1998 and 2012.[300] China, Vietnam and other developing countries have a comparative advantage in these labor-intensive businesses.

[299] (Ikenson 2009) p. 1.
[300] (Hicks and Devaraj 2015) p.4.

American low skilled workers cannot compete and do lose jobs eventually against this global reality. Unless these workers upgrade their skills in other business areas and increase their mobility, they will not be able to obtain new jobs with equal or better conditions. After all, only 10% of the work force is employed in the manufacturing sector. Many service sectors such as education and health services, professions and business sector, have increased employment and experienced healthy economic growth (Figure 4 on page 48). Can this political obsession with manufacturing be justified? Does it make sense economically and socially?

There are significant unintentional consequences of the "Make America Great Again" and "Buy American" protectionism policies which adversely impact American consumers. The US has relatively low tariffs, less than 2% on average. However, in 2016, average tariff rates on apparel and clothing accessories (11%), footwear (14%), and vegetables (11%) rose for basic necessities. [301] Together with these import tariffs, other non-tariff measurements such as government subsidies on industries and restrictive requirements for trade (rules of origins, local content requirement etc.), these costs have been disproportionately burdensome for low income American consumers and small businesses. Also, restricting access to the American market for developing countries impedes their development, and in return constrains the expansion of global markets for US products and services.

Simplistic anti-trade 'sound bites' attract lots of attention. However, economic benefits that accrue from expanded trade are easily and intentionally ignored by politicians, labor unions, uncompetitive industries and often by the media. Offshoring and outsourcing assembly and other functions make high-profile targets of some constituencies of American voters, and politicians are keen to take advantage of this public discontent. However, attempting to bring back low-value added functions to the US is not an effective economic policy because it diminishes the productivity and competitiveness of American business. Also, targeting the trade deficit without understanding the interrelationship between the flow of goods and services, and the flow of capital is also misleading. Protectionist trade policies premised on false arguments can only harm the US economy.

[301] (World Trade Organization) Tariff Analysis Online data base. http://tao.wto.org/report/TariffAverages.aspx

The American economy, job creation, and the standard of living of each American are enhanced by global trade. Involvement in global trade provides American consumers with the best possible products available at competitive prices.[302] Nonetheless, President Trump never mentions the potential impact on the welfare of American consumers in any of his pronouncements on trade policy.

As stated in the introduction to this chapter, protectionism is a politically successful strategy despite being a "superficial and short-sighted" policy which ignores the complexities and dynamics of the global market.[303] Isolating its own economy from the rest of world will impoverish and weaken the United States, and lead to job losses and a reduced standard of living for many US citizens. President Trump's mantra "Buy American, Make America Great Again" is seductive, but it will make "America weak again, not great again".[304]

[302] (M. J. Perry 2017b)
[303] (M. J. Perry 2017b)
[304] (M. J. Perry 2017d)

CHAPTER 3. PROTECTIONISM AGAINST FOREIGN PRODUCTS:

A CASE AGAINST OIL PALM PRODUCTION AND A CRITIQUE OF THE "FOOD MILES" PERSPECTIVE

> By means of glasses, hotbeds and hotwalls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about 30 times the expense for which at least equally good can be brought from foreign countries. Would it be a reasonable law to prohibit the importation of all foreign wines, merely to encourage the making of Claret and Burgundy in Scotland?
>
> Adam Smith, 1776. [305]

1. Introduction

In a free market, competition forces economic actors to optimize resources to survive. Specialization, trade and technology all increase food production leading to surpluses and a higher standard of living for all. Consumers and activists are sometimes bamboozled into making choices for social or environmental reasons which (they claim) can't be measured by mere economics but which go against their own best interests and the interests of those they are trying to 'help'. This chapter examines how self-serving special interest groups often use such arguments to persuade well-meaning people to support interventions in the market. It demonstrates how these interventions fail to achieve social and environmental goals, and how unfiltered prices lead to better environmental outcomes as well as higher standards of living for producers and consumers.

The first section examines the oil palm production case where special interest groups tried to influence French consumers to support a tariff on palm oil (largely from Malaysia and Indonesia) using arguments about health, social justice and the environment. Although not easy, it is possible to measure such claims. This chapter debunks the criticism that palm oil is a less healthy option than other vegetable oil alternatives and shows that oil palm plants have much higher yields per acre than other alternatives. Reducing palm oil production in favour of other alternatives would therefore result in more cultivated land, less efficient use of other resources,

[305] (Smith 1904/1776) Volume1, Chapter II, 122.

higher costs to consumers, and less income for small, poor farmers in developing countries who, consequently, might resort to illegal logging or other less desirable activities.

The second section focuses on the 'food miles' concept which encourages consumers to "buy local", (and even to pay more for the local products) and discourages the consumption of imported products because of concerns ranging from rising energy costs and perceived environmental degradation to health to social and economic issues. This chapter shows how measurement is possible (although complex and not easy for consumers to understand), and does not support these claims. It uses examples, such as New Zealand versus UK apples, to show how the unfiltered market price provides the best indicator of the most efficient use of resources, and leads to making the most out of natural conditions (climate, land and water availability). Thus, pursuing comparative advantage by growing agricultural products at the most economical location is the best option to reduce human impact on the natural environment, use less land, and improve the quality of the environment and the economic circumstances of producers and consumers.

2. A Case against Oil Palm Production and Palm Oil

2.1 Taxing Palm Oil for the "Greater Good"

In June 2016, France's National Assembly finally scrapped a new tax plan, the "Nutella tax" on imported palm oil which is used in the famous chocolate spread.[306] The tax bill was first approved by the Senate under pressure from environmental groups. The main justification for this additional tax was that oil palm plantations cause deforestation and undermine biodiversity.[307]

Another argument used to pass this tax bill was that palm oil was one of the least taxed vegetable oils in France. Under an existing special tax on oils for food consumption, the tax rate is determined by weight; palm oil however, was already taxed more heavily than olive oil.[308] The

[306] (Farand, Chloe. 2016) "France moves to cut "Nutella tax" after protests". Independent, March 19.
[307] (De la Hamaide, Sybille. 2016) "French parliament scraps planned extra tax on palm oil". Reuters, June 23.
[308] (Coquart, Patrick. 2016) "Will the French Avoid €11 Million in Additional Taxes on Palm Oil?" EPICENTER. European Policy Information Center, May 23.
Based on Coqueart's calculation in March 2016, the special taxes on oils intended for consumption were €103.71 per ton for palm oil, €113.24 for copra and palm-kernel oils, €170.13 for peanut and corn oils and €188.96 for olive

new "Nutella tax" was based on 'how and where products were produced', in other words, on subjective environmental 'sustainability criteria'. Sustainability criteria can't be clearly identified and the degree of emotion and concern on these subjects varies considerably among countries. These criteria are arbitrary and inconsistent.

Does this punitive tax policy, targeting only one type of vegetable oil based on the production method, make sense? Is it possible for political measures to protect the environment without any unintended consequences? Indonesia and Malaysia, the world's two largest producers, claimed the tax bill was discriminatory and contravened international trade rules.[309] Their economies rely heavily on the agricultural sector, and the tax burden would have 'put thousands of small farmers out of work'.[310] Even more importantly, why should consumers pay more for alternative products?

According to a 2015 Center for Economic Policy Research (CEPR) report, government policy interventions that discriminate against foreign commercial interests have increased.[311] For instance, during 10 months in 2015, a total of 539 measures that harmed foreign trade interests were taken by governments worldwide. More than 80% of them were implemented by G20 countries.[312] France was among the worst in the list in terms of the number of times they discriminated against foreign commercial interests.[313] Among industries, the agricultural products sector was the second most frequently hit.

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oil. Calculated tax rates tax based on prices per ton were 17% tax for palm oil, and 4.6% for olive oil. Palm oil would have been taxed at 32% with this tax plan.

[309] (De la Hamaide, Sybille. 2016)

[310] (De la Hamaide, Sybille. 2016)

[311] (CEPR 2015) The Tide Turns? Trade, Protectionism, and Slowing Global Growth. The 18th Global Trade Alert Report, London: CEPR Press. p. 17.

These interventions include: 1. (Directly) import restriction including tariff increases, import quotas, and import bans. 2. Public procurement measures where government contracts are shifted away from foreign bidders to local firms. 3. Export taxes and restrictions. 4. Export incentives, including subsidised trade finance. 5. Bailouts and non-export related fiscal incentives (including tax breaks and subsidies). 6. Other measures.

[312] (CEPR 2015) p.19.

[313] (CEPR 2015) p.19.

2.2 Background

Human beings have used oils and fats for thousands of years as a source of food, illumination, or as lubricants for machinery and soap.[314] At the turn of the 20th century, improvements in refining technologies and long distance transportation turned palm oil into a globally traded commodity and a dominant force in the global vegetable oil market.[315] According to the United States Department of Agriculture (USDA) data, in 2014/15, palm oil contributed more than 30% of the world vegetable oil production, the bulk of which (above 85%) was produced in Malaysia and Indonesia.[316]

Palm oil has long been denigrated by its opponents (who were often historically producers of alternatives, in this case it was soy bean producers) as being "impure, unhealthy, outright dangerous, and a threat to the environment".[317] As with all other agricultural production in history, palm oil production takes place on formerly 'wild' land. Western non-governmental organizations (NGOs) such as Friends of the Earth and Greenpeace have been especially active in denouncing the expansion of this industry as the cause of massive deforestation and a loss of habitat for precious wildlife such as orangutans.[318]

Their campaigns have affected many corporate policies. Nestlé excluded the Indonesian paper and palm producer, Sinar Mas Agro Resources and Technology, from its supply chain. Since 2010, one of the largest grocery retailers in the world, Carrefour has purchased Green Palm certified oil for its own brand of products sold in France, and committed itself to purchasing only Certified Sustainable Palm Oil by 2015.[319] For its part, another mass French retailer, Casino banned palm oil from all its food products due to health concerns, while committing itself to

[314] (Berger, K.G and S.M. Martin. 2000) Palm oil. *The Cambridge World History of Food*. In Eds. Kenneth F. Kiple and Kriemhild Coneè Ornelas. Cambridge University Press. Chapter II.E.3. p.397.
[315] (Berger, K.G and S.M. Martin. 2000)
[316] (USDA Foreign Agriculture Service) *Production, Supply and Distribution Online.* http://www.fas.usda.gov/psdonline/
The nine major vegetable oils in this dataset are coconut, cottonseed, olive, palm, palm kernel, peanut, rapeseed, soybean, and sunflower oil.
[317] (Gustafsson, Fredrik. 2007) *The Visible Palm: Market Failures, Industrial Policy and the Malaysian Palm Oil Industry.* Almqvist & Wiksell International. p.87
[318] (Greenpeace 2007) *Cooking the Climate.* Greenpeace UK Report.
[319] (Roundtable on Sustainable Palm Oil 2012) Carrefour Launches First RSPO Trademarked Cooking Oil in Indonesia*, RSPO newsletter*, July 12.

purchasing only certified 'sustainable' supplies for its other non-food products. In the meantime, the World Wildlife Fund (WWF) published its "Palm Oil Buyers' Score" which assessed the palm oil buying practices of 130 plus major retailers and consumer goods manufacturers.[320]

In the following section, we will examine oil palm production from a broader perspective. While it is not perfect, palm oil displays a number of advantages over actual and potential alternatives in terms of its versatility, productivity, price and volume availability. These attributes make it a superior product. Boycotting palm oil would fail to deliver any environmental and economic benefits, while severely hurting the growth prospects of impoverished communities.

2.3 Health and Nutritional Value

Commercial palm oil is extracted from the fruit of the oil palm tree (*Elaeis guineensis*) native to West Africa, a botanical relative of the coconut.[321] Palm oil use goes back at least 5,000 years to ancient Egypt,[322] but only became a truly global commodity over a century ago when its production took off in other parts of the world characterized by tropical climates with high annual rainfall located within 10° of the equator.[323]

The oil palm produces two different types of oils: crude palm oil (CPO) from the fibrous mesocarp[324] and crude palm kernel oil (CPKO) from seed kernels whose composition is actually closer to coconut oil.[325] Between 80% and 90% of palm oil production is destined for human food consumption either as frying and cooking oil or as an ingredient in a wide range of food products. The remaining 10% is consumed by various industries, from biodiesel to cosmetics and pharmaceutical producers. The unique property of palm oil when compared to its most common alternatives (typically rapeseed (canola) and soybean oils) is that it is semi-solid at room

[320] (WWF 2016) *Palm Oil Buyers' Score Card 2016, Measuring the Progress of Palm Oil Buyers.* http://palmoilscorecard.panda.org/
[321] (Wood. B.J. 1987) Growth and production of oil palm fruits In Gunstone. F.D. ed., *Palm oil.* Critical Reports on Applied Chemistry Volume 15. John Wiley & Sons. p.12.
[322] ((Berger, K.G and S.M. Martin. 2000) P.397.
[323] (Wood. B.J. 1987)
[324] Only olive oil and palm oil are extracted from the mesocarp (i.e., the fleshy middle layer of the pericarp of a fruit, between the exocarp and the endocarp).
[325] (O'Keefe, Sean Francis.2000) An Overview of Oils and Fats with a Special Emphasis on Olive Oil. *The Cambridge World History of Food*. Eds. Kenneth F. Kiple and Kriemhild Coneè Ornelas. Cambridge University Press. p.381.

temperature with a specific origin melting point between 33ºC and 39ºC.[326] This makes it an ideal product to work with.

Palm oil has often been accused of being less healthy than other alternatives. To better understand the issue, however, one must first get acquainted with some basic nutritional facts. Fats consist mainly of four types of fatty acids: polyunsaturated fatty acids (PUFA), monounsaturated fatty acids (MUFA), saturated fatty acids (SAFA) and trans fatty acid (TFA).[327] In France and elsewhere, the use of palm oil in food preparation has been criticized because it contains saturated fatty acids which can increase the levels of the LDL (low density lipoprotein) cholesterol.[328] In general, zero TFA, less SAFA, and more MUFA and PUFA, oils are healthier options.[329]

Palm oil is a healthier source of solid fats than hydrogenated vegetable oils (soybeans or rapeseed oils). To make soybeans or rapeseed oils solid or semi-solid at room temperature and thus more resistant to oxidation, partial hydrogenation is needed. In the process, artificial trans fatty acids are formed. The intake of trans fats has been linked to heart disease, increased levels of unhealthy LDL cholesterol and lowered levels of 'good' HDL (high density lipoprotein) cholesterol.[330] Palm oil's "trans fat free" property makes it a much better substitute for many animal fats like tallow or other partially hydrogenated vegetable oils.[331]

Products rich in saturated fats have qualities such as better oxidative stability and a high melting point which make this ingredient creamier and especially suitable for confectionary manufacturers. Practically, there are significant trade-offs since less saturated fat means less functionality, less flavor and texture, less stability and higher costs.[332] Once all trade-offs are

[326] Malaysia Palm Oil Council (MPOC) This unique property derives from its approximate 1:1 ratio of unsaturated to saturated fatty acids. It contains 40% oleic acid (monounsaturated fatty acid), 10% linoleic acid (polyunsaturated fatty acid), 45% palmitic acid and 5% stearic acid (saturated fatty acid).
More information at http://www.mpoc.org.my/The_Oil.aspx.
[327] (FEDIOL) *Facts on Fats*. http://www.fediol.be/data/1330349750TRYPT%20FACTS%20ON%20FAT.pdf
[328] (Miserey, Yves. 2010) L'huile de palme, mauvaise graisse omniprésente, *Le Figaro*, February 9.
[329] (FEDIOL) *Innovation in Processing and Reformulation of Vegetable Oils and Fats, FEDIOL Nutrition Factsheet*. http://www.fediol.eu/data/1324550245Factsheet%20Innovation%20in%20processing%20%26%20reformulation%209Dec11.pdf
[330] (Miserey, Yves. 2010)
[331] Trans fat free is a property that makes palm oil a substitute for many animal fats like tallow or other partially hydrogenated vegetable oils such as soybean and rapeseed oil.
[332] (FEDIOL)

factored in, palm kernel oil, palm oil, or a blend of these with other liquid oils are typically the most practical and economical options.[333] For example, there is a growing demand for palm kernel oil products as ingredients in the production of non-hydrogenated trans-fat free margarine.[334] As for nutrition, the bottom line is that, as the founder of modern toxicology, Doctor Paracelsus, observed nearly five centuries ago, it is the dose that makes the poison.

Palm oil is also stable at high heat and rich in anti-oxidants, carotenes (vitamin A) and vitamin E. These characteristics make it ideal for frying, and extend the shelf life of the food products in which it is used. It significantly boosts the nutritional and health content of foods, especially in developing countries.[335] Apart from food usage, tocotrienols (a type of vitamin E) is found in abundance in palm oil. It is used by, among others, the high-end cosmetics manufacturer Crabtree & Evelyn as an active ingredient to increase sunscreen efficiency by reducing UV ray penetration which causes cellular ageing.[336] Due to innovations in processing and reformulation, there is an increasingly wide range of uses for palm oil products.

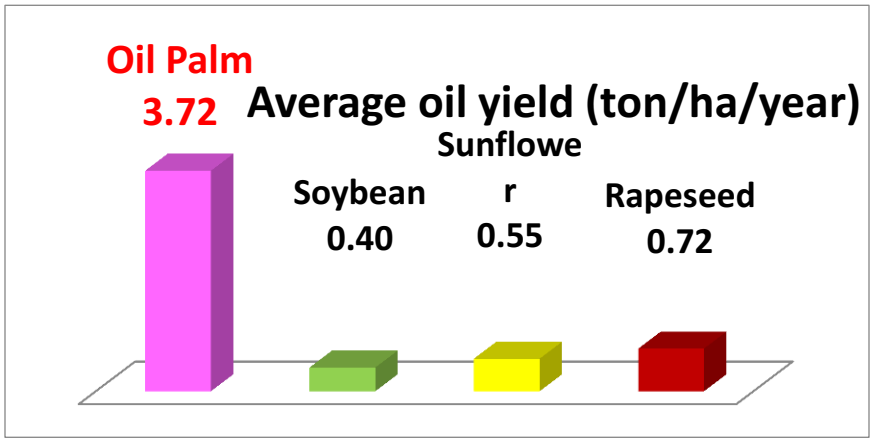
2.4 Low Inputs, Low Land Usage and High Yields

From 1980 to 2011, the annual world production of palm oil increased more than 10-fold, from 4.5 million tons to 55 million tons.[337] Much of this expansion took place in Indonesia and Malaysia because of good growing conditions, and advances in cultivation, refining and transportation technologies.[338] In 2011, Malaysia and Indonesia produced 36.3% of the total global edible oil supply using only 5.3% of the area planted to oilseeds, a result entirely attributable to the high productivity of palm oil production.[339] According to Oil World 2007 data, oil palm yielded an average of 3.72 tons of oil per hectare compared to 0.40 tons and 0.72 tons

[333] (FEDIOL)
[334] (MPOC) *The Oil*. http://www.mpoc.org.my/The_Oil.aspx
[335](Malaysia Palm Oil Board) http://econ.mpob.gov.my/economy/exporters/EID_exporter.htm
[336] (Ching, Tee 2012) Palm Oil's 'secret, bountiful yield'. *New Sunday Times*, April 22.
[337] (Corley, Hereward and Tinker, Bernard. 2003) *The Oil Palm* (4th Edition). Blackwell Science. p.13.
(MPOC) Palm Oil Fact Slides, Resource Centre. http://www.mpoc.org.my/Palm_Oil_Fact_Slides.aspx
[338] (Berger, K.G and S.M. Martin. 2000) p.397; (Erixon, Fredrik. 2012) *The Rising Trend of Green Protectionism: Biofuels and the European Union*. ECIPE Occasional Paper. No. 2/2012 European Center for International Political Economy. p.18.
[339] (MPOC)

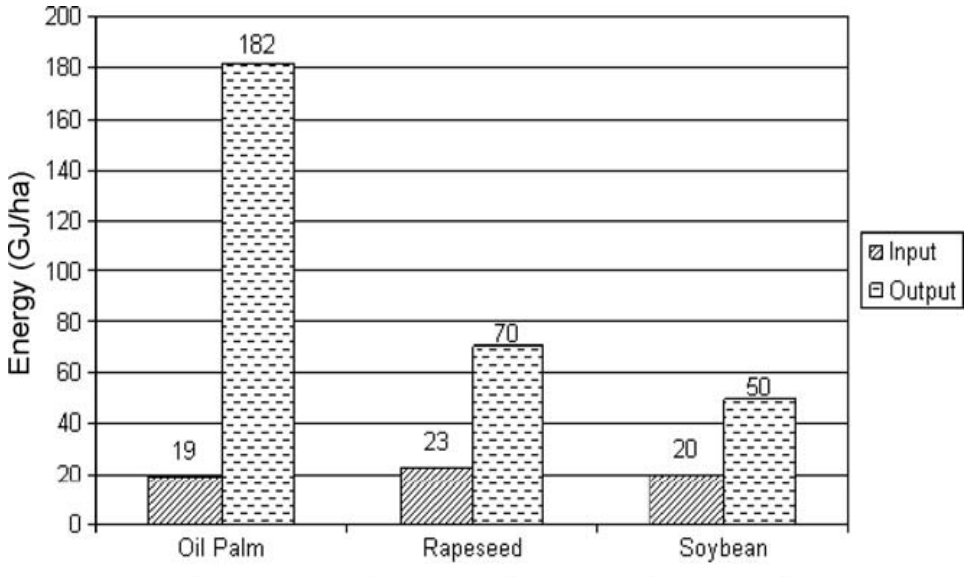
respectively for soybeans and rapeseed (Figure 29).[340] In other words, oil palm trees produce almost 10 times more oil per hectare than soybeans and more than 5 times more oil than rapeseed.

Figure 29 Average Annual Oil Yield for Major Edible Oil Crops



Source: (Oil World 2012)

Figure 30 Energy input and output ratio[341]



Output/Input	Oil Palm	Rapeseed	Soybean
GJ/ha	9.6	3.0	2.5

Source: (Wood B.J. et al.1991)

[340] (Oil World. Oil World Statistics by ISTA Mielke GmbH).
[341] (Wood B.J. et al. 1991)

In terms of unit of input per unit of output, oil palm also requires significantly less fertilizers, pesticides and fuel per unit produced than rapeseed and soybeans, in the end delivering over three times more oil per unit of input (Figure 30).[342]

Along with this high productivity, South East Asian and South American countries also have the lowest production costs for edible oil crops (the EU and other countries have higher costs attributable to a range of factors, from high fertilizer usage to higher taxation).[343] According to Oil World, the crude palm oil price was on average 10% to 30% lower than soybean and rapeseed oils.[344]

Another advantage of oil palm production is the relative reliability of its supply. While all large-scale agricultural production is subjected to various natural hazards (from droughts and floods to frost and hurricanes), oil palm is a perennial plant that is productive year-round and has a useful life of between 20 to 25 years. Modern breeding techniques and ever more sophisticated production technologies have delivered an affordable, versatile and high-quality supply. All of these combined advantages of palm oil explain its success in world markets.

2.5 Palm Oil and Deforestation

All agricultural activities involve conversion of what were once 'wild' areas. In many cases, however, the increased production of a particular agricultural commodity can be achieved by switching production on a plot of land that is already cultivated. This has been the case for palm oil.

In Malaysia for instance, the surface area devoted to palm oil production in 2011 was about 5 million hectares, a fivefold increase since 1975. Approximately 1.39 million of those hectares were the result of conversion from other tree crop production such as rubber, cocoa, and coconut. It is also worth pointing out that while the surface area devoted to palm oil production increased by a factor of five, total production increased more than 16 times between 1975 to 2011 (from

[342] (Wood B.J. et al. 1991) The energy balance of oil palm cultivation, *Proceedings of the 1991 PORIM International Palm Oil Conference*.
[343] (Erixon, Fredrik. 2012) p.19.
[344] (Oil World. Oil World Statistics by ISTA Mielke GmbH).

1.1 million ton to 16.6 million tons) because of much higher yields.[345] A case can thus be made that improvement in yields since 1975 actually 'spared' perhaps as many as 15 million hectares of land.

Activists from advanced economies, who are quick to denounce deforestation in faraway lands, should also keep in mind that, perhaps as much as nine tenths of all deforestation caused by human beings since the emergence of civilization occurred before 1950.[346] People needed to clear massive amounts of forested land in order to provide themselves with shelter, food, warmth and a multitude of objects.

The significant increase in the use of coal in the early decades of 19th century, however, marked the beginning of a reversal of this trend which was later accelerated by the advent of natural gas and petroleum. These not only acted as substitutes for the use of biomass fuels, but also drastically improved agricultural productivity and eliminated the use of draught animals, which consumed a significant portion of agricultural crops.

France was perhaps the first major country to experience what has since been termed a "forest transition" as its forest area expanded by one-third between 1830 and 1960, and by a further quarter since 1960. Similar trends, although of varying intensity and scope, have been occurring in all major temperate and boreal forests and in every country with a per capita Gross Domestic Product exceeding US $4,600.[347] This is also the case for some developing economies, most notably China and India, which have not yet reached this threshold.[348] Only with a more efficient use of land and increased wealth will they be better able to devote more resources to the protection of ecosystems. Fortunately, with economic development and its attendant productivity gains, and development of substitute products, reforestation has become a trend in all advanced economies.

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[345] (MPOC) Palm Oil Fact Slides, Resource Centre.
[346] (Williams, Michael. 2001) The history of deforestation. *History Today* (July), pp. 30-37. For a more scholarly treatment, see (Williams, Michael. 2002) *Deforesting the Earth.* University of Chicago Press.
[347] (Kauppi, Pekka E., Jesse H. Ausubel, Jingyun Fang, Alexander S. Mather, Roger A. Sedjo and Paul E. Waggoner.2006) 'Returning Forests Analyzed with the Forest Identity. *Proceedings of the National Academy of Sciences* 103, (46): 17574-17579.
[348] (Kauppi, Pekka E., Jesse H. Ausubel, Jingyun Fang, Alexander S. Mather, Roger A. Sedjo and Paul E. Waggoner 2006)

2.6 The Consequences of Boycotting of Palm Oil Products

World population growth, improved standards of living and biofuel mandates mean that the demand for vegetable oil is bound to increase significantly in coming decades.[349] Any deliberate move to reduce palm oil production in locations like Malaysia and Indonesia thus inevitably implies a shift in production towards lower yielding and more expensive substitutes.[350] These would have a few unavoidable consequences:

1) Increases in land and resources requirements

A Plant physiologist, R.H.V. Corley calculated several scenarios to meet future vegetable oil demand using various alternative sources of supply. According to his medium variant scenario in which 9.2 billion human beings in 2050 consume 25 kg per person per year of vegetable oil, total global demand will be 240 million tons - about 30% more than the 2016 production level. This additional demand will require between 12 and 19 million hectares devoted to palm oil production or 95 million hectares devoted to soybean production.[351] Of course, as discussed above, soybean production will not only require significantly more land, but also more inputs such as fertilizers, pesticides, water and fuel.

2) Higher price of foods and consumer products in the EU

Palm oil is used in the production of many food and consumer products. A switch to costlier and less reliable substitute oils would negatively affect both manufacturers and consumers.

3) Undermining the Roundtable on Sustainable Palm Oil (RSPO) and sustainable palm oil sources

Sensational anti-palm oil campaigns have tarnished the image of both the product and its producers, resulting in retailers and manufacturers switching away from palm oil. These campaigns undermine the market for certified "sustainable oil" at a time when the Roundtable on Sustainable Palm Oil (RSPO) has been expanding its scope. In 2017, 19% of the world's palm oil production (12 million tonnes) was certified "sustainable". With their all or nothing stance,

[349] (Corley, R.H.V. 2009) How much palm oil do we need? *Environmental Science and Policy*. Vol.12. Issue 2, pp.134-139.
[350] (Corley, R.H.V. 2009)
[351] (Corley, R.H.V. 2009)

negative campaigns hinder real progress in the industry, and prevent the realization of meaningful and sustainable economic, environmental and social benefits in both developed countries and developing countries.[352]

4) Delaying economic development in Malaysia and Indonesia

In both Malaysia and Indonesia, the palm oil industry represents a viable and significant growth industry. In Malaysia, the industry provides employment to more than half a million people, and livelihood to approximately one million people working with this industry.[353] Any restrictions on this industry will primarily affect small farmers who lack alternative employment and might resort to less desirable activities such as (often illegal) logging.

2.7 Conclusion

Today, most oil palm activists pressure manufacturers and retailers to boycott palm oil on environmental grounds. Since oil palm spares more land and delivers more accessible, abundant and affordable calories to people worldwide than any other source of vegetable oil, such an attitude is short-sighted. It will ultimately fail to achieve the alleged broader goals of environmental remediation and improvements in the living standards of poorer populations.

Given a significant increase in the demand for vegetable oil, the real question is how this strong demand can be met most efficiently, economically and sustainably. The emphasis should be on encouraging better agronomic practices and improving governance in less advanced economies.[354] Whether these are voluntary or required by law, sustainable policies also need to be based on sound science, and to be workable and verifiable throughout the supply chain.[355] Human ingenuity has long delivered, and can continue to deliver, ever greater output ever more efficiently, in the process providing both economic and environmental benefits. The palm oil industry is no exception.

[352] (Corley, R.H.V. 2009)
[353] (MPOC) http://www.mpoc.org
[354] (OECD-FAO 2012) *Agriculture Outlook 2012-2021 Summary*.
[355] (FEDIOL 2010) *FEDIOL Views on Sustainability*, May 03.

3. A Critique of the "Food Miles" Perspective

3.1 Introduction

In his bestselling popular science book, *Twinkie, Deconstructed*,[356] writer Steve Ettlinger demystifies the origins, complex manufacturing processes, and numerous uses of some of America's most common ingredients and food additives. He takes his readers on a journey to locations as diverse as sugar plantations in Florida, oil fields and vitamin manufacturing plants in China, phosphate mines in Idaho, chemical plants in Louisiana and Switzerland, and many others. In doing so, he gives them a glimpse of how thoroughly globalized our modern food production and distribution system has become. The mind-boggling reality described by Ettlinger explains many public anxieties that frequently surround the modern agri-industrial supply chain.

Due to concerns such as rising energy costs, perceived environmental degradation, health and economic welfare, there has been renewed interest in the promotion of locally produced food. 'Food miles' is the term used by activists seeking to discourage the consumption of items produced in remote locations.

This section examines the origins and validity of this concept and the movement it has engendered. Because of its British origins and comparatively greater impact in Western Europe than in North America, much of this discussion will revolve around European Union (EU) cases, but our argument and recommendations are equally valid in the US context.[357]

The evidence suggests that food miles are, at best, a marketing fad, but one which so severely distorts the environmental impacts of agricultural production that it could be liable to prosecution under false advertising statutes. More importantly, it constitutes a dangerous distraction from the real and serious issues that affect modern food production.

The first part of this section discusses the origins of recent food activism and summarizes the food miles perspective. The second part provides a concise history of food production with

[356] (Ettlinger, Steve 2007)
[357] See, for example (Weber, Christopher L., and H. Scott Matthews 2008)

emphasis on the main drivers behind the globalization of this industry. The third part summarizes the available evidence on the environmental impact of food transport and documents how selecting items based on their country of origin is not a criterion which helps consumers behave in a more environmentally sustainable manner.

On the contrary, this thesis suggests that food purchases from more productive places (typically with lower prices) have many advantages, including more efficient use of capital, energy, and labor; reduced environmental impact; and significant economic benefits for producers and workers in less developed regions. The final part of this section offers some policy recommendations regarding both the food miles perspective and agricultural policy in general.

3.2 The Recent Food Activism Movement

3.2.1 From 'Organic' and 'Fair Trade' to 'Slow' and 'Local' Food

'Organic', 'fair trade', 'slow', and 'local' are associated with movements these stated goals urge consumers to express their preferences or opinions against the offerings of large multinational corporations and conventional retailers. Interestingly, since the cooptation of the organic and fair trade movements by corporations ranging from Nestle to Wal-Mart, activists have shifted their focus to the food miles issue.

The term 'food miles' was coined by Tim Lang, City University (London) Professor of Food Policy, and two of his colleagues to refer to the distance food items travel from producers to consumers. From their perspective, the further food and other agricultural products are transported, the more fossil fuels are burned and the greater the adverse impact on the environment. Lang later explained his thinking in the following terms: "We wanted people to think about where their food came from, to re-inject a cultural dimension into arcane environmental debates about biodiversity in farms". [358]

The food miles movement has gained much momentum in the last decade and a half, especially in the United Kingdom where it has a reached and influenced a broad audience of environmental

[358] (Lang, Tim 2005) "Origin Unknown", *The Guardian*, August 3.

activists, producer associations, retailers, media personalities, and governmental organizations.[359] In 2005, the UK Department for Environment, Food and Rural Affairs (DEFRA) produced one of the first substantial reports on the concept.[360] The following year 'food miles' became part of the green strategy of large food retailers when Tesco's CEO, Sir Terry Leahy, announced his company's pledge to reduce CO_2 emissions by targeting air-freighted products.[361]

Working with the Carbon Trust company,[362] Tesco launched a £500 million eco-plan to reduce the company's carbon footprint, an initiative that was followed by Marks & Spencer's similar £200 million five-year plan. In March 2007, both retail giants introduced their new "air freighted" label as an interim measure to induce consumers to buy more local, low carbon products and fewer air-freighted products. In the meantime, the Soil Association, the self-described "leading [UK] campaigning and certification organization for organic food and farming",[363] announced proposed changes along similar lines to its standards for air-freighted products (Figure 31).

Figure 31 'Air freighted' Label

Source: Natural Choices, http://www.naturalchoices.co.uk/Carbon-footprint-labeling-finally?id_mot=7

[359] Significantly, however, a 2006 study of consumer awareness of the food miles issue in the UK found that only about a third of shoppers were familiar with the concept. See (MacGregor, James, and Bill Vorley, eds. 2006) "Fair Miles? Weighing environmental and social impacts of fresh produced exports from Sub-Saharan Africa to the UK (Summary)" *Fresh Insights* 9 (London: IIED & DFID, October 2006).
[360] (Smith, Alisa, Paul Watkiss, Geoff Tweedle, and others 2005) *The Validity of Food Miles as an Indicator of Sustainable Development*. DEFRA: ED50254 Issue 7, July.
[361] TESCO is the UK's largest grocer and is also the world's third largest grocery retailer with group sales of £56 billion in 20016/17, operating in 12 international markets and employing over 476,000. https://www.tescoplc.com.
[362] The Carbon Trust was set up by the UK government in 2001 as an independent company. Its mission is to accelerate the move to a low-carbon economy by working with organizations to reduce carbon emissions and develop commercial low-carbon technologies.
[363] According to its press releases, the Soil Association verifies the organic credentials of 70 % of the UK's $4 billion organic produce market and certifies products on the basis of three principles: minimizing pollution and waste; incorporating social justice and rights; and ecologically responsible production. https://www.soilassociation.org.

In the United States, the popularity of the food miles movement led to the selection of the term 'locavore' (originally coined in 2005 by Seattle based writer Sage van Wing) as the Oxford American Dictionary's word of the year for 2007. Locavores shop at farmers' markets or even grow or pick their own food because they value the alleged greater freshness, taste, nutritional value, and safety of locally grown foods. Implicit in this movement is that this lifestyle combines healthy eating with a high standard of environmental stewardship. Not surprisingly, this perspective has created a trend among gourmet restaurants, where prominent chefs like Alice Waters of *Chez Panisse* (California) rely on local suppliers for 'pure and fresh ingredients'.[364] The locavore mentality is further reflected in the development of magazines such as *Backyard Poultry*, websites such as thecitychicken.com and backyardchickens.com, and public television programs such as "Growing Local, Eating Local".[365]

3.2.2 The Case for Food Miles

The case put forward by food mile activists can be summed up under four types of alleged benefits:[366]

- *Environmental*: Because locally grown food items travel shorter distances than those produced in more remote locations, they are said to generate less CO_2 and other greenhouse gas emissions. More diversified local food production systems are also viewed as more environmentally sustainable than large, export-oriented systems where only a small number of crops may be planted.

- *Social*: The globalization of the food-supply chain is said to have eroded the community ties that once existed between geographically proximate food producers and consumers. Rebuilding these ties would generate significant social benefits.

- *Health*: There is much concern over the safety and quality of conventionally-produced food grown or raised in countries with lower health, safety, and environmental standards.

[364] Waters is also a strong advocate of farmer's markets and sustainable production. http://www.chezpanisse.com
[365] See http://www.pbs.org/now/shows/344/index.html
[366] For statements to this effect, see (Pirog, Rich 2004) "Food Miles: A Simple Metaphor to Contrast Local and Global Food Systems", *Hunger and Nutrition* (Summer 2004), and (Paxton, Angela 1994) *The Food Miles Report: The Dangers of Long Distance Food Transport*.

Food produced in closer proximity to consumers in more developed economies is also often viewed as fresher and therefore more nutritious and better tasting.

- *Economic*: Locally produced food improves the economic circumstances of (mostly small-scale) farmers who otherwise struggle in the face of international competition, along with the fortunes of smaller stores which cannot access the international food market as easily as large food retail chains, thereby improving the economic viability of rural communities and independent retailers in advanced economies.

While intriguing, the food miles perspective fails to address the rationale behind the development of our modern agricultural production and distribution systems. In other words, why is it that past consumers in advanced economies unambiguously rejected not only the rural lifestyle, by moving *en masse* out of farming-related activities, but also increasingly favored food items produced in ever more remote locations? To provide some context to the current debates, we now turn to a brief history of the main drivers behind the latter shift.

3.3 On the Development of Modern Agriculture and Food Supply Networks

3.3.1 From Subsistence to Commercial Agriculture

The distinction between subsistence agriculture and commercial agriculture is fundamental to any discussion of food production. In subsistence agriculture, food is consumed in the community in which it is produced. Crops are stored at the end of the growing season and drawn down until the next harvest, while domesticated livestock provides some variety in the diet and serves as a form of insurance against crop failure. Because of bad weather, plant and agricultural diseases, pest infestations, and an inability to draw on the surplus food generated in other agricultural regions, individuals living in subsistence agricultural production systems were, and still are, subjected to recurring famines and starvation. This situation only began to change on a significant scale in Western Europe in the late 18th century with the development of the mass transport of foodstuffs and large-scale storage facilities.

Commercial agriculture, on the other hand, implies some reliance on trade with producers in more remote locations. A typical example occurs between communities specializing in raising livestock and those primarily involved in crop production. Increasingly sophisticated commercial relationships between specialized producers, often indirectly linked through intermediaries, underlie the concept of development. Once specialization in agriculture raises productivity to levels where adequate food can be generated by a decreasing proportion of the population, individuals are increasingly free to develop expertise in other fields and collectively contribute to improving living standards in other ways.

Agricultural producers in advanced economies generally specialize in a few crops or in one type of livestock, purchasing either all or the vast majority of their own food and other necessity items from retail outlets like any urban family. Because of the high productivity made possible by modern technologies, however, they often generate enough surplus to enter international trade where, along with exports from other lines of business, they create the capacity to import products—including foodstuffs—which are produced more efficiently abroad, contributing to a higher standard of living for all parties than would otherwise be the case.

The most advantageous locations for the production of particular agricultural products obviously depend on a number of factors ranging from transportation costs, links to markets, and political stability to the availability of land, financial capital, and labor. Most crops and livestock, however, can be produced across a wide variety of conditions using different techniques. The world trade market and the price system then provide a benchmark against which to compare these alternatives and enable selection of the most efficient one.

Of course, this does not imply that different approaches cannot coexist. For example, wheat is grown labor intensively on postage stamp-sized irrigated land plots in Kyrgyzstan, extensively on “mechanically elaborate but agronomically primitive” large scale, dry-land farms in Canada and Argentina, and in Europe on intensively managed, smaller-scale holdings that use numerous mechanical applications of fertilizers, pesticides, and herbicides to generate yields that are typically significantly higher than those obtained without those inputs. Of course, different wheat varieties used for different purposes—such as the production of bread, pasta or cake—are more

suited to some physical environments than others, but again, trade markets spontaneously reward the most efficient and productive arrangements in each case. Similar differences and complex arrangements exist across a wide variety of food commodities.

Agricultural producers typically have limited scope to influence the price they receive for their products, so their profitability depends heavily on the success of their efforts to reduce production costs. In a market economy, the suitability of a given location as a source of a particular food is ultimately expressed in terms of the total cost of production at that location. For example, while it is possible to grow bananas in Iceland, this was never done on a large scale because they have always cost much less when shipped in from tropical countries.[367] Unfortunately, however, because of the strategic importance of the rural vote, the apparently simple concept of raising food where it is least expensive to do so is complicated by a broad spectrum of government interventions that have long distorted prices through subsidies, regulations, and constraints. These together make it very difficult to determine underlying production costs. As an illustration, if government subsidies are paid on the basis of land farmed, the value of land rises to reflect not only its productive potential, but also its economic potential as a means of accessing government assistance. From the consumers' perspective, the price of domestically produced agricultural products is reflected not only at the supermarket, but also in the proportion of the taxes allocated to farm-related programs.

State spending on agriculture is often both high and ineffective.[368] Among nations, agricultural policy is a major source of friction, and it is no coincidence that trade in agricultural products is the major impediment to reduce constraints on international trade. Suffice it to say that trade and development policies that affect agricultural commodities further complicate efforts to determine the cost structure of agriculture in both exporting and importing countries.

[367] Banana production did and does take place in Iceland as an experiment to use water from hot geysers productively, but prohibitive costs have always ensured that the total volume remains insignificant.
[368] U.S. agricultural policy is so notoriously complicated that U.S. agricultural economist Vernon Ruttan has referred to farm bills as "a full employment act" for his colleagues. For U.S. farm spending, see (Pasour, E. C. Jr. 2005). In his book *Plowshares and Pork Barrels: The Political Economy of Agriculture*, he pointed out that in 2002, spending by the US Department of Agriculture on initiatives designed to increase the prices received by farmers amounted to $37.8 billion, while initiatives to reduce producer price cost taxpayers $11.4 billion.

3.3.2 Yes, We Have Lychees! The Modern Food Supply Chain

Historically, the food trade has been driven by the urbanization process and its accompanying lifestyle changes. The first food items shipped on a large scale and over long distances to urban populations were, for the most part, valuable and easily preserved commodities such as cereals, sugar, coffee, tea, and cocoa.[369] As transportation (trains and steel ships) and preservation technologies (canning and refrigeration) improved, new items such as meat were increasingly shipped over long distances under the control of increasingly large food conglomerates. Among fresh fruits and vegetables, as early as the 1870s, bananas—which could tolerate long-distance transportation[370]—were produced and shipped over thousands of kilometers by what would in time become major distributors like Dole, Chiquita, and Del Monte. As urban populations grew and became wealthier, so did the demand for fresh fruits and vegetables. By the 1920s, the US production and distribution system had become sufficiently sophisticated to supply lettuce and tomatoes year-round.

In the 1980s, two major developments—the extension of seasonal production using alternative production systems (large-scale greenhouses) and the diversification of production locations—provided increased variety and a year-round steady supply of fresh fruits and vegetables. These advances were further reinforced by product capacity expansion, a growing awareness of the nutritional benefits associated with fresh products, and the establishment of large scale, temperature controlled logistic systems (refrigerated containers and cold-storage facilities). As a result, the range, quality, volume, price, and reliability of traded varieties increased rapidly, especially for exotic fruits and vegetables (such as lychees, passion fruit, and Chinese cabbages), salad greens (such as arugula and chicory), and baby vegetables.

[369] (Friedland, William H. 1994) The Global Fresh Fruit and Vegetable System: An Industrial Organization Analysis", in *The Global Restructuring of Agro-Food Systems,* ed. Philip McMichael. New York: Cornell University Press, 173–189.

[370] The innovation that facilitated the long-distance transportation of bananas by sea was the use of ripening rooms near the point of retail sale where green bananas were ripened in a methane-rich atmosphere.

According to a World Bank report,[371] the volume of fruits and vegetables (including processed products) traded worldwide increased 30 % between 1990 and 2001. While the monetary value of world imports grew 7 to 8 % annually during the 1980s, it dropped to 2 to 3 % a year during the 1990s because of a decline in world prices for many products and the stagnation of EU imports due to market saturation.

The growth rate for the demand for some products, especially tropical fruits such as papaya, mango, and pineapple, has nonetheless remained constant at around 8% annually during the 1990s. The European Union (28-member states), NAFTA (the United States, Canada, and Mexico), China, India, and Japan now dominate the world trade in fruits and vegetables. The European Union is one of the largest fruit and vegetable markets for non-EU countries, especially those in sub-Saharan Africa. Intra-regional trade is also significant in NAFTA countries, which are the world's second largest fruit and vegetable market. As incomes rose and diets diversified, some major food exporters have also become significant importers of a wide variety of food products since the 1990s.

For developing economies, fruits and vegetables—both fresh and processed—are not only important items in agricultural trade, but also, in many cases, the agricultural segment with the greatest growth potential. Significant successful countries in the world market in 2016, are China, India, Mexico and Vietnam in vegetable exports, and Costa Rica, Ecuador, and Mexico in fresh-fruit exports.[372] In all cases, exporters supply products that are not grown or are not in season in importing countries.

Fruit and vegetable markets are strongly demand driven and are ultimately a function of consumers' income levels and population composition and dynamics. Population size, age, and ethnic composition affect the overall demand for specific items. Some important trends include the following:

[371] (Diop, Ndiame and Steven M. Jaffee 2005) "Fruits and Vegetables: Global Trade and Competition in Fresh and Processed Product Markets", in *Global Agricultural Trade and Developing Countries*, eds. M. Ataman Aksoy and John C. Beghin. Washington, DC: World Bank, 2005, 237–257.
[372] World Integrated Trade Solution data: https://wits.worldbank.org/

People with higher incomes increase expenditures on a wide array of fruit and vegetable products, while simultaneously creating a demand for processed products, and reliable year-round availability.

- More leisure hours and the increased availability of leisure activities raise the opportunity cost of preparing meals at home.

In short, the global trade in fresh fruits and vegetables is demand driven, highly competitive, dynamic, and requires significant capital and labor investments. Private and large scale global supply chains, with vast amounts of experience, knowledge and capital, and government policies favouring trade are necessary for success in this market.

Because food miles activists fail to understand or address the numerous factors that have shaped our modern food supply chain, their main claims and prescriptions for sustainability have little validity.

3.4 The Case Against Food Miles

The most problematic aspect of the food miles perspective is that it ignores productivity differentials between geographical locations. In other words, activists assume that producing a given food item requires the same amount of inputs independently of where and how it is produced. The distance traveled between producers and consumers, along with the mode of transportation used, becomes the only determinant of specific food item's environmental impact. But any realistic assessment must reflect both transport to final consumers *and* the total energy consumption and greenhouse gas emissions associated with production. While the complexity of "seed-to-plate" processes is quite mind-boggling, researchers have shed much light on the issue using the so-called Life Cycle Assessment (LCA) methodology.[373] The following summarizes their main findings, beginning with the transportation component that is at the heart of the local food debate.

[373] For a broad and accessible introduction to the purpose, scope, and limits of LCA, see the webpage of the Environmental Protection Agency. http://www.epa.gov

3.4.1 Environmental Effect: Energy and CO_2 Emissions

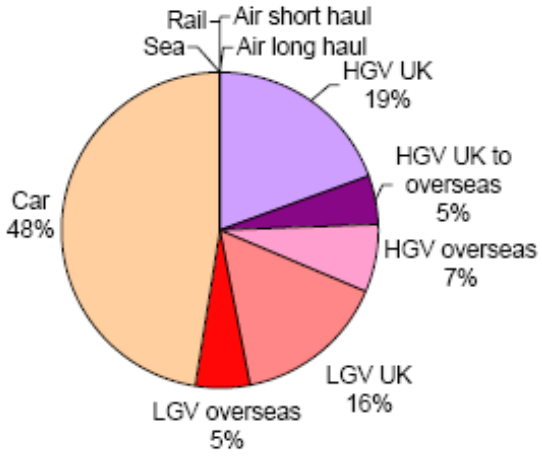
1. Transportation Mode/Load

The Department of Environment, Food, and Rural Affairs (DEFRA) in the UK published what is probably the most comprehensive analysis of the food miles controversy.[374] Researchers used two measurements for food transport: vehicle kilometers (the distance traveled by vehicles carrying food and drink regardless of the amount being transported) and ton kilometers (distance multiplied by load).[375] They obtained the following results:

1) *Vehicle kilometers*: 82% of the estimated 30 billion food miles associated with UK-consumed food are generated within the United Kingdom, with car transport from shop to home accounting for 48% and heavy goods vehicles (HGV, tractor-trailer combinations) for 31% of food miles. Remarkably, air transport amounted to less than 1% of food miles.

   The large share accounted for by cars is the result of individual families making many small-volume trips to transport food from store to home. Comparatively, these cars are much more inefficient than bulk transportation modes that move food from the point of production to the retail location.

Figure 32 Vehicle kilometers

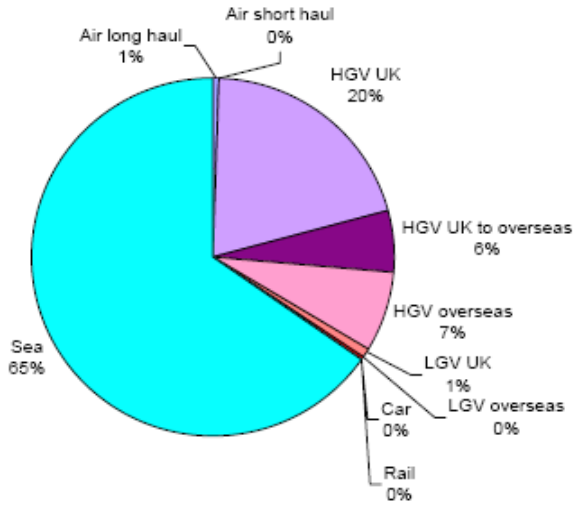


Source: DEFRA

[374] (Smith, Watkiss, Tweedle, and others 2005)
[375] Here a ton is used to indicate the metric measurement of 1000 kilograms (kg), where 1 kg = 2.2 lbs.

2) *Ton kilometers*: Sea transport accounts for 65% of food miles, but this doesn't mean that this mode of transport is the most polluting in terms of greenhouse gas emissions. Transportation by sea is a highly energy-efficient way to move goods, and its "vehicle" kilometers account for less than 1% of total vehicle kilometers. In other words, moving New Zealand apples to the UK using highly efficient, diesel-powered container ships consumes very little energy per apple when compared to moving them by car from a supermarket to a relatively nearby residence.

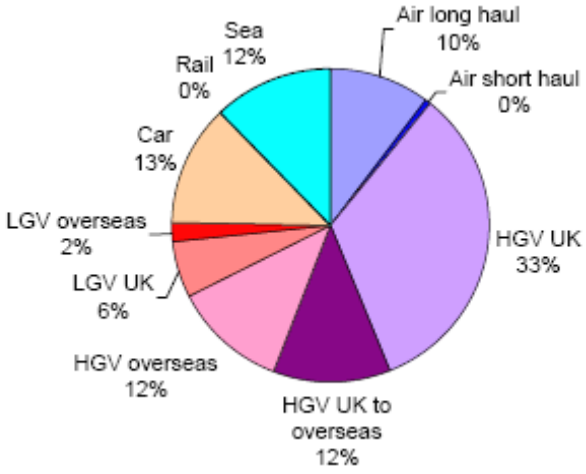
Figure 33 Ton kilometers



Source: DEFRA

3) *CO_2 emissions*: Food transportation in the UK accounted for 1.8% of total CO_2 emissions in 2002, with tractor trailers and air transportation (including both import and export products) respectively accounting for 57% and 10% of this total, and sea transport accounting for 12%.

Figure 34 CO^2 emissions



Source: DEFRA

In short, according to the DEFRA report, food miles (or "vehicle kilometers") and environmental burden (in terms of CO_2 emissions) are not directly correlated. While air freight is typically singled out by activists as the most environmentally damaging and most energy-intensive mode of food transport, it is actually a minor contributor to total CO_2 emissions (10%).

In the United States, a LCA (Life Cycle Analysis) study confirmed the plausibility of these findings by showing that 11% of GHG emissions related to food are from the transportation segment as a whole. Moreover, the "food miles" segment (from producers to retailers) contributed only about 4% of total emissions, while 83% came from producing the food.[376]

The concept of food miles is therefore a profoundly flawed sustainability indicator. Its proponents typically fail to factor in the efficiency of transportation modes as well as loads transported.

2. Production Stage

Growing concerns over food miles have resulted in a significant increase in the number of LCA studies on the topic. The comprehensive literature review on the subject is authored by New

[376] (Weber, Christopher L., and H. Scott Matthews 2008)

Zealand researchers Caroline Saunders and Peter Hayes.[377] While the scope and focus of the 27 studies reviewed (17 of which were funded by UK sponsors) varied, they shed valuable light on the picture of energy consumption and CO_2 emissions for the whole agricultural production chain. In short, according to the available data, the most energy-intensive segments (and therefore those providing the best target for reducing energy use) of the agricultural production chain were not related to the transportation but to the production stage (Figure 35).

Figure 35 Life Cycle Analysis Scope and Input

SCOPE	PLAYER	INPUT
1. Raw material for production	Farm	Seed, land, fertilizer, water herbicide, pesticide, etc.
2. Production		Capital (machinery, facility buildings, etc.) Energy (fuel, electricity, oil) Labor
3. Packaging		
4. Distribution	Supply chain	Storage Waste Transportation Labor
5. Consumption	Consumer	Transportation Preparation Waste
6. Disposal		Recycle Waste Transportation

Source: by author

[377] (Saunders, Caroline and Peter Hayes 2007) *Air Freight Transport of Fresh Fruit and Vegetables.* New Zealand: AERU, Lincoln University.

3. Production Method

The DEFRA study compared emissions from energy used for UK and Spanish tomatoes and factored in the production stage and post-production transfer from Spain to the UK by land transportation. In this context, UK tomato production emits 2394 kg of CO_2/ton compared to 630 kg/ton for Spanish tomatoes, with the significant difference being accounted for by the energy requirements of UK greenhouse production (about 90% of the energy used in this production), while Spanish production takes place in unheated, plastic-sheeted greenhouses.

In general, physical environments that require significant heating and/or cold protection technologies entail much greater energy consumption than more favorable climates, often on a scale that dwarfs the energy requirements associated with the transportation of agricultural products from more remote locations. This misplaced emphasis on transported distance from producers to retailers as a sustainability indicator hurts poorer economies and undermines their capacity to devote more resources to environmental protection. This point will be addressed in greater detail in later sections.

4. Product Type, Preparation and Storage

The type of product is an important factor in determining total energy consumption/CO_2 emissions.[378] In other words, a product is energy intensive or less environmental friendly if it is preprocessed or requires much cooking preparation. Such products include frozen and ready-prepared fruits and vegetables. Low greenhouse gas-emission products are typically seasonal, require no heating and protection, are not highly perishable, and travel short distances. Common examples are staple root vegetables and tubers (carrot and potatoes), cabbages, and staple indigenous fruits (apples and pears). Interestingly, however, a study on the CO_2 emissions associated with Swedish organically grown potatoes found that the most significant factors in this respect are household shopping, storage, and preparation—especially in the latter case since potatoes cannot be eaten raw and require much energy to cook.[379] A study by Martin C. Heller

[378] (Garnett, Tara 2006) "Fruit and Vegetables & UK Greenhouse Gas Emissions: Exploring the Relationship", working paper, Food Climate Research Network, UK.
[379] (Mattson. B. and E. Wallén 2003) "Environmental Life Cycle Assessment (LCA) of Organic Potatoes", *Acta Horticulturae* 619: 427–435.

and Gregory A. Keoleian at the University of Michigan, similarly pointed out that home cooking and storage require much energy.[380]

The importance of seasonality, in terms of energy input and CO_2 emissions, is also often easily forgotten by activists and consumers. In their study, Caroline Saunders and Peter Hayes at the University of Lincoln, calculated out-of-season cold storage energy input and CO_2 emissions for UK apples kept in this state for an average of six months.[381] According to their scenario, UK apple storage energy consumption was 2069 mega joule/ton and CO_2 emissions for production 85.5 kg of CO_2/ton.

These amounts are comparable to the transportation energy consumption required to ship New Zealand apples to the United Kingdom (2030 MJ/ton), but far exceed those required to produce New Zealand apples (60.1 kg of CO_2/ton). In other words, because New Zealand is located in the southern hemisphere where the growing season coincides with the northern hemisphere's winter, shipping freshly picked New Zealand apples and selling them quickly to UK consumers during their winter season entails less greenhouse gas emissions than the purchase by UK consumers of UK apples that have been in storage for several months.

Another study by Milà i Canals, Cowell, Sim, and Basson further factored in seasonal storage and storage losses.[382] In this scenario, local apples, stored between five and nine months with normal storage loss rates, increased total primary energy use by 8 to 16%. This high level of cold storage energy consumption indicates that out-of-season storage should be avoided (at least if uneconomical) and that importing out-of-season alternatives can provide significant environmental benefits.

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[380] (Heller, Martin A. and Gregory A. Keoleian 2000) *Life Cycle-Based Sustainability Indicators for Assessment of the US Food System,* Center for Sustainability Systems report no.CSS00-04, Ann Arbor: University of Michigan, December.

[381](Saunders, Caroline and Peter Hayes 2007) Apples and similar fruits are frequently kept in storage with higher than normal CO_2 concentrations. Temperature control involves either maintaining lower than ambient temperatures to inhibit spoilage or maintaining higher than ambient temperatures to prevent freezing, depending on the location.

[382] (Milà i Canals, Llorenç, Sarah J. Cowell, Sarah Sim, and Lauren Basson 2007) Comparing Domestic Versus Imported Apples: A Focus on Energy Use*", Environmental Science and Pollution Research* 14, no. 5: 338344.

5. Consumer Shopping and Food Handling Behavior

Consumers' transportation choices, such as walking or biking as opposed to driving, obviously affect the total CO_2 emissions associated with their food purchases. The magnitude of this impact, however, is also typically underestimated by activists and consumers. A UK consumer, driving six miles to buy Kenyan green beans, emits more carbon per bean than flying them from Kenya to the United Kingdom.

Another largely overlooked issue is the way consumers handle their food. Tara Garnett at the University of Surrey points out that 25% of all produce grown ends up as waste.[383] Another British study conducted by the Waste & Resources Action Programme[384] analyzed the trash of 2,138 households and estimated that more than 6.7 million tons of food—roughly a third of the food bought by consumers—was thrown out in the UK every year. According to the authors of the report, 61% of this food waste (consisting mostly of fresh fruits, vegetables, and salads, and amounting to approximately 70kg/year/person) could be avoided with better shopping and meal planning. Food waste costs were estimated to be on the order of £10.2 billion (about USD$19.5 billion) and the cause of 18 million tons of CO_2 emissions per year in the UK—an amount equivalent to the annual emissions of one fifth of the British car fleet.

In sum, while activists and consumers tend to focus exclusively on the transportation distance between producers and retailers, they are unaware of the typically greater impact of their own shopping and food handling behavior on CO_2 emissions.

3.4.2 Social Effect

About 40% of the UK's air-freighted fresh fruit and vegetable imports have originated from sub-Saharan countries such as South Africa, Ghana, Tanzania, Uganda, Zambia, and Kenya.[385] Kenyan producers' successes (especially in terms of green beans, green peas, and fresh flowers), however, eventually drew the ire of European food and environmental activists concerned that

[383] (Garnett, Tara 2006)
[384] (WRAP) "The food we waste", http://www.wrap.org.uk
WRAP is a nonprofit company established in 2000, backed by government funding from England, Scotland, Wales, and Northern Ireland, that "helps individuals, businesses and local authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change".
[385] (MacGregor, James, and Bill Vorley, eds. 2006).

since these goods were air freighted, they were "the epitome of unsustainable consumption". As a result, a series of initiatives, campaigns, and measures were launched that triggered considerable fears on the part of African governments and producers.[386] The facts of the Kenyan case are instructive.

In 2016, Kenya's export of vegetables, roots, tubers, and other edible vegetables totaled $293 million and made it the 31th largest exporting country in this category.[387] In another export category, cut flowers and flower buds of a kind suitable for bouquets or ornaments, Kenya exported $689 million worth of merchandise and was the 4th largest exporter in the world. Indeed, Kenyan cut-flower exports accounts for 14% of the total export value, and is the leading supplier of cut flowers to the European Union. [388]

Because of their characteristics (light weight, high value, perishable), 9% of fresh fruits and vegetables exported from Kenya to the UK are air freighted, [389] adding, for example, an additional 2 to 18 pence to the cost of each pack of organic Kenyan green beans. [390] Intercontinental air freight adds 8 kg of CO_2 to the atmosphere per kg transported, about 200 times more emissions and 12 times more energy than sea transport.[391] However, a much larger volume of CO_2 emissions is released by UK passenger flights each year. Indeed, passenger flights amount to 90% of all emissions from airlines, with cargo flights amounting to about 5%. Furthermore, less than 0.1% of total UK emissions of CO_2 are contributed by fresh fruit and vegetable air-freighted imports. Interestingly, 60 to 80% of Kenyan fresh agricultural products are transported in the cargo hold of passenger flights.[392] When passenger-related emissions are factored in, CO_2 emission levels for air-freighted exports are much lower.

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[386] (Garside, Ben, James MacGregor, and Bill Vorley 2007) "Miles better? How 'fair miles' stack up in the sustainable supermarket", *Fresh Perspectives* 9. London: IIED, December. (Turney, Roger) "Organic Growth", *Air Cargo World Online.*

[387] (International Trade Statistics) *Trade Competitive Map*.http://www.intracen.org/itc/market-info-tools/trade-statistics/

[388] (Riungu, Catherine 2005) "Why Kenya Dominates Export of Flowers to the EU Market", *The East African,* February 21. http://www.theeastafrican.co.ke/business/-/2560/245890/-/7oem2tz/-/index.html.

[389] (MacGregor, James, and Bill Vorley, eds. 2006)

[390] (Freshinfo 2008) "Airfreight proposals vilified by industry", April 8, 2008.

[391] (MacGregor, James, and Bill Vorley, eds. 2006)

[392](MacGregor, James and Muyeye Chambwara 2007) "Room to move: 'ecological space' and emissions equity", *Fresh Perspectives* 14. London: IIED, December.

In one study, Adrian Williams at Cranfield University, contrasted production of cut flowers in Kenya and the Netherlands destined for the UK market.[393] For every 12,000 cut roses produced, Kenyan producers released 6,000 kg of CO_2, as opposed to 35,000 kg of CO_2 for their Dutch competitors. Overall, Kenyan rose production is much more efficient and environmentally friendly than Dutch production, reflecting that 99% of Dutch emissions were caused by heating- and lighting-intensive production systems, whereas Kenyan flower production relies mostly on natural sunshine. In contrast, 91% of Kenyan emissions were attributed to the 4000-mile transport from Kenya to the UK. This study provides a striking illustration of the impact of environmental differences between production locations.

When the food miles controversy broke out, supporters of Kenyan exporters were quick to point out that greenhouse gas emissions associated with air-freighted produce exports were miniscule in comparison with the impact of tourist air travel by citizens of importing nations. They further argued that Kenyan agriculture, often relying on manual labor instead of farm machinery and chemical weed control, integrated pest management instead of applications of chemical pesticides, and organic rather than chemical fertilizers, was inherently more competitive in terms of its carbon footprint than its first-world counterpart. Of course, CO_2 emissions per capita vary widely from country to country, but the global average is currently estimated to be about 3.6 tons per person per year. Interestingly, the UK average of 9.2 tons is considerably higher than the African average of 1.04 tons and the Kenyan average of 0.2 tons.

These figures highlight the hypocrisy underlying the campaign by the Soil Association and other rich-country activists who claimed that the distance traveled by imported organic produce implied significant environmental damages in the form of greenhouse gas (GHG) emissions. This claim was demonstrated conclusively to be inaccurate and misleading along the lines already discussed in this paper:

1) The distance traveled by a product between producer and consumer was not indicative of the relative "cost" to the environment as expressed in terms of GHG emissions.

[393] (Williams, Adrian 2007) *Comparative Study of Cut Roses for the British Market Produced in Kenya and the Netherlands,* Précis Report for World Flowers. Cranfield University.

2) The mode of transportation and volume of goods transported by each mode played a crucial role in the amount of GHG emissions attributable to each product. Not surprisingly, the greatest volume of emissions was often incurred by tractor-trailers in the UK.

3) Very insignificant volumes of food travel by air compared to other modes of transportation. There is no reason to suppose that the share of air-freighted foodstuffs is going to increase significantly.

4) Importing foods over long distances from producers that use low-carbon technologies is likely to be less environmentally damaging than employing locally grown alternatives, especially out of season.[394]

3.4.3 Economic Impact

Responding to the arguments put forward by the local food movement, a growing number of community groups and social activists have taken up the challenge of subsisting (at least temporarily) on a (mostly) local diet. The most radical individuals in this respect are the promoters of the so-called 100 mile diet, who voluntarily limit their food consumption to items grown or caught within a 100-mile radius of their residences.[395] One of the best-documented cases is a Canadian couple based in southwest British Columbia (perhaps Canada's most ecologically diverse and productive agricultural region) who took up this eco-challenge for a year and documented their experiences online and in a book.[396] Their experiment quickly highlighted some fundamental problems with the 100-mile diet approach:

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[394](Williams, Adrian 2007) Nonetheless, the UK Soil Association continued to insist that it did not intend to target all air-freighted produce, but merely that it sought to withhold its "organic" certification from produce that failed to meet its own ethical trade standards or the Fair Trade Foundation's standards. This, however, raises the important issue of who is best placed to determine whether a product is traded fairly or not. For a more detailed discussion of the issue, see (Berndt, Colleen 2007) *Does Fair Trade Coffee Help the Poor*? Arlington, VA: Mercatus Center.

[395] The small family of Bruntisland, Fife, Scotland, provides a UK example. For six months they have adhered to and publicized the "Fife Diet" which is restricted to food—mostly vegetables, meat, and fish—raised in the region and caught in adjacent waters. (McKie, Robin 2008) "How the Myth of Food Miles Hurts the Planet, *"The Observe*r, March. It should be noted that Fife is a particularly remote and windswept northerly county of Scotland.

[396] (Smith, Alisa and J. B. MacKinnon 2005) "Living on the 100-Mile Diet", The Tyee, June 28. http://thetyee.ca/Life/2005/06/28/HundredMileDiet.
(Smith, Alisa and MacKinnon 2007) *The 100-Mile Diet*. *A Year of Local Eating.* Toronto: Random House Canada.

- Cost: Locally grown organic products or substitutes for conventional products, in general, cost more (often significantly more) than conventional products.[397]

- Lack of variety: Sugar, rice, lemon, ketchup, olive oil, peanut butter, orange juice, and flour could not be produced locally. In winter, only a very narrow selection of vegetables was available.

- Time: The time spent acquiring and preparing food (for both immediate and later consumption) was comparable to holding a part-time job.

Of course, these problems were actually mitigated by the fact that the couple involved did not forego access to a wide range of services, such as sophisticated health care, which were available to them only because food imports made it possible for other individuals to specialize in non-agricultural activities. Still, this experiment does help illustrate the large and very tangible benefits of trade and the sophisticated division of labor it allows.

3.4.4 Health and Security

Industry-initiated and government-sponsored promotional campaigns to "buy local" are nothing new, as food producers and some consumers have long considered food items produced within their political borders (and, ideally, grown organically) to be inherently more desirable for alleged health and security reasons. There is, however, no guarantee that locally produced food is inherently safer than food produced elsewhere under the watchful eyes of advanced countries' retailers whose very survival is dependent on their capacity to deliver affordable and safe food to consumers. Ironically, a LCA study sponsored by DEFRA has raised questions about the claims repeatedly made in favor of organic foodstuffs in general, the first of which is that organic farming is good for the environment.[398] It is similarly difficult to argue that a country is safer if it

[397] The 100-mile couple mentioned that the cost was a big problem, for example, locally grown organic salad mix cost $17.99 a pound, and honey cost $11 a kilo instead of $2.59 a kilo for sugar.

[398] (Johnston, Rob 2008) "The great organic myths: Why organic foods are an indulgence the world can't afford", *The Independent*, May 1. Interestingly, the "attack is the best form of defense" strategy employed by the Soil Association seems to be coming unstuck. The organic food movement in the UK, which is mostly confined to the wealthy southeast of the country, is also under attack from the Food Standards Agency, which maintains that "the weight of current scientific evidence does not support claims that organic food is more nutritious or safer than conventionally produced food". (Revill, Jo 2008) "Organic Food 'No Benefit to Health,'" *The Observer*, March 30.

relies entirely on local crops that are always subject to bad yields or outright failures rather than on numerous foreign suppliers.

Of course, most health, safety, and environmental concerns raised over foreign food supplies are often thinly veiled protectionist measures. For example, the early involvement of the British Soil Association in the food miles controversy was quickly denounced as an ill-disguised protectionist move by a lobby group with a vested interest in protecting its (high cost) members from offshore competition. In the US, a country-of-origin labeling (COOL) proposal that would have required retailers to provide customers with country-of-origin labeling for beef and other perishable products previously exempted from this requirement was discussed in the context of the 2002 US farm bill. COOL proponents (primarily uncompetitive crop growers and cattle producers) tried to link this provision with safety and health concerns, such as BSE (mad cow disease) and FMD (foot and mouth disease). A trade analyst at the Cato institute, Daniel J. Ikenson put it that this proposal ultimately aimed to "saddle others with what should be the marketing costs of domestic producers and to reduce import competition".[399]

Not surprisingly, COOL faced strong opposition from retailers (who would bear the cost of this requirement) and serious implementation difficulties, leading to its postponement until March 2009, when COOL labeling was finally implemented. This ruling covers a variety of commodity such as beef, lamb, pork, chicken, and goat, wild and farm-raised fish and shellfish, perishable agricultural commodities (fresh and frozen fruits and vegetables), peanuts, pecans, ginseng and macadamia nuts.[400] This listing is totally arbitrary. In the beef case, COOL labeling discriminates against many countries where the BSE risk is negligible.[401]

[399] (Ikenson Daniel J.2004) *Uncool Rules: Second Thoughts on Mandatory Country of Origin Labeling*, Free Trade Bulletin no. 7 (Washington, DC: The Cato Institute, Center for Trade Policy Analysis, 2004). See also (Brester, Gary, John M. Marsh, and Joseph Atwood 2004) "Who Will Bear the Cost of Country-of-Origin Labeling?" C*hoices*, 4th.

[400] (U.S. Environmental Protection Agency (EPA)). *The eRulemaking.* https://www.regulations.gov/

[401] (Boland, Michael A., Lautaro Perez, and John A. Fox 2007) "Grass-Fed Certification: The Case of the Uruguayan Beef Industry*", Choices*, 1st quarter.
(World Organization for Animal Health 2017*) Protecting animals, preserving our future*.
http://www.oie.int/animal-health-in-the-world/official-disease-status/bse/list-of-bse-risk-status/

Furthermore, in practice, investigating and documenting the full array of environmental impacts of specific items and conveying this information to consumers at the point of sale proves to be an extremely difficult task. For example, brands familiar to UK consumers (such as Walkers Crisps and Boots the Chemist), along with retail giant Tesco, were committed to implementing "carbon-labeling" policies that would quantify and communicate the total CO_2 emissions of specific items from the production stage to the retail shelf. While the cost of obtaining a reasonably accurate estimate of emission per item turned out to be at least $10,000,[402] in practice the inherent complexity and trade-offs involved in the modern food production and distribution chain probably make all such attempts debatable and arbitrary.

In short, while it is often assumed that locally grown foods are both less energy consuming (and therefore less CO_2 emitting) and more beneficial in terms of safety, security, and health, there is no solid evidence to back any of these claims.

3.4.5 Other Considerations

1. Labeling Information and Consumer Behavior

Studies of consumer behavior undertaken as a consequence of the food miles controversy tend to confirm a long-established divergence between what consumers say they prefer (in this case, a strong preference for local food) and their actual shopping behavior, which demonstrates the greater importance of factors such as price, time, convenience, variety, and year-round availability. Indeed, Tesco's and Marks & Spencer's early enthusiasm for food miles confirmed that "air freighted" labels have no discernable impact on sales.[403] Meanwhile, consumers seem to continue to appreciate the convenience and choices offered by large supermarkets as opposed to the more limited options typical of smaller retail outlets.[404]

Similarly, while a study conducted in the context of the US COOL debate suggests that US consumers might be willing to pay a premium for COOL labeled American meat on the assumptions that it is fresher and safer than its imported counterparts, no credible research

[402] (Green, Heather and Kerry Capell 2008) "Carbon Confusion", *Business Week*, March 6.
[403] (Freshinfo 2007) "Tesco and M&S Admit Airfreight Apathy", November 2007.
[404] (Chambers, Stephanie, Alexandra Lobb, Laurie Butler, and others 2007) "Local, National, and Imported Foods: A Qualitative Study", *Appetite* 49: 208–213.

guarantees that COOL labels would boost demand for US meat to the point that it would offset additional labeling costs. Moreover, a case has been made that labels describing attributes such as grass-fed, organic, and free range—or other factors, such as color, quality grade, and price—exert more influence than COOL labelling on consumers' purchasing decisions.[405]

2. Toward a Valid Indicator for Sustainable Production and Development

In recent decades, market mechanisms have delivered remarkable results in providing ever more diverse, healthy, and affordable food to consumers. Many activists, however, suggest that these favorable trends have been purchased at the expense of ever increasing environmental degradation. Assuming that all human beings should be provided adequate nutrition, however, this proposition is highly debatable in that certain amount of environmental degradation should be acceptable in order to provide people with food.

In short, there is a long-standing debate between proponents of alternative approaches to agricultural production—mostly those pushing the local food movement—and their opponents, who suggest that concentrating agricultural production in the most favorable regions is the best way to minimize human impacts because doing so "spares" much land that can then be returned to or remain in a "natural" state. This debate seems to be over and to have been won by the latter group.[406] It is evident that the global trade market and the price mechanism developed precisely for the purpose of avoiding the root cause of the food miles controversy: the ability to address competing interests with a common yardstick.

3.5 Policy Discussion

3.5.1 Trade Barriers

Feeding a rapidly growing world population in a sustainable manner requires long distance trade to ensure that food is produced most efficiently in the most suitable locations. Developed countries' agricultural subsidy regimes and protectionist trade policies impede the ability of

[405] (Umberger, Wendy J. 2004) "Will Consumers Pay a Premium for Country-of-Origin Labeled Meat?" *Choices,* 4th quarter.
[406] (Matson, Pamela. Peter Vitousek 2006) "Agricultural Intensification: Will Land Spared from Farming Be Land Spared for Nature?" *Conservation Biology* 20, no. 3: 709–710.

developing nations to realize their full economic potential. Subsidies exert a considerable burden on taxpayers, mainly through efficiency losses and the distortion of relative market prices. In other words, most subsidies are, in the end, harmful to both the environment and the economy, although they might end up lowering consumer prices in other jurisdictions. According to one review of the literature,[407] estimated total subsidies worldwide to six economic sectors (agriculture, fishery, energy production, transport, water, and forestry) hovered around $1 trillion per year. Agriculture was the most heavily subsidized and receives $376 billion, $207 billion (55%) of which can be described as "perverse subsidies" that had negative impacts on both the economy and the environment.

Tariffs are the most common instrument used to protect local fruit and vegetable markets. Compared to other industries, the average agricultural tariff, at 16.7 %, is rather high.[408] The European Union, Japan, and the United States use a wide range of protectionist tools to varying degrees.[409] The net effect of the trade inhibitions that arise from the subsidy regimes and trade policies of developed nations is to keep developing (and, ironically, also developed) countries poorer than they would otherwise be. Along with inappropriate domestic policy environments, poverty, rather than the potential to produce more food, is the main reason for food insecurity in many jurisdictions. Trade restrictions imposed by developed nations and the subsidy regimes that distort what trade is permitted, are largely to blame for food shortages in the developing world. As one observer has pointed out, trade restrictions and various European government policies tainted by "befuddled romanticism", from campaigns against genetically modified foods and low-wage produce to "save the peasant" farm reforms, have resulted in sub-Saharan Africa now having *less* commercial agriculture than it did 50 years ago.[410] It must be pointed out, however, that numerous trade barriers and other institutional deficiencies (such as lack of or inadequately enforced property rights) are also contributing factors in less-developed economies.

[407] (Kjellingbro, Peter M., and Maria Skotte 2005) *Environmentally Harmful Subsidies.*Copenhagen, Denmark: Environmental Assessment Institute, September.
[408] (Diop, Ndiame and Steven M. Jaffee 2005)
[409] (Anderson, Kym, Will Martin, and Dominique van der Mensbrugghe 2005) "Distortions to World Trade: Impacts on Agricultural Markets and Farm Incomes". *World Bank Policy Research Working Paper* no. 3736: 24.
[410] (Collier Paul 2007) *The Bottom Billion*. Oxford, UK: Oxford University Press.

According to a World Bank report, developing countries would capture about $85.7 billion in real income from the full liberalization of the global merchandise trade.[411] The global liberalization of agricultural and food markets would contribute about 63 % of the total global gains, but many barriers would need to be surmounted to achieve these benefits. In short, removing barriers to free trade aligns the commercial interests of all actors involved in the food-supply chain to provide an ever more reliable, higher-quality, and affordable supply of food items to consumers. As a result of these processes, one can observe, among other things, a constant need to tap supplies from places with complementary growing seasons and to use air freight to fill unexpected gaps in the supply of products shipped by sea.[412]

As illustrated, barriers to the trade of food represent a major problem. Although small compared to these bigger issues, the local food movement only exacerbates the problems outlined above. Any attempt to legislate this current fad will have far-reaching negative consequences. However, even if not legislated, there is a misunderstanding, summarized in this thesis, about the benefits and costs of buying locally produced foods.

3.5.2 Real Impact of Mandating Local Production Purchases

Food-mile advocates don't appear to understand the full ramifications of their arguments. The most obvious is that the immense majority of individuals living in advanced economies are food consumers rather than producers. Coercive policies based on food mile thinking, like all trade barriers to agricultural products, can therefore only affect consumers negatively.

1. The Direct Costs of Hypothetical Food-Mile Legislation

Food mile activists sometimes promote the economic benefits of local purchases, at least inasmuch as they imply higher incomes for local producers. Missing from this perspective, of course, is the fact that, if forced by political intervention, farmers' gains can only come at the expense of consumers who will be forced to pay higher prices for similar food items, or similar

[411] (Martin, Anderson, and Dominique van der Mensbrugghe 2005) "Distortions to World Trade".
[412] As the automotive components industry has moved to just-in-time (JIT) component supply similar costly measures are sometimes required because the reliability of the supplier is at risk if it has to stop the assembly line for want of a particular part. In many respects the logistics of the fresh fruit and vegetable market is JIT because of the perishable nature of the product.

prices for lesser-quality food items, than would otherwise be the case (if not, there would be no need to adopt coercive policies to penalize agricultural items produced in more distant political jurisdictions).

2. Limited Choices and Supply

Restrictive "local food" policies would imply, even in the world's most productive agricultural areas, a drastic reduction in the quantity and diversity of foods available to consumers. Smaller supplies of meat, soybeans, cereals, fresh fruits and vegetables - even if somewhat compensated by increased local production of a few items (for example, potatoes, beets, and onions) - would result in lower amounts of calories available per individual and reduced vitamin, protein and mineral intakes.[413] In this context, reduced population levels and living standards would be mandatory. Of course, in the absence of substitutes (rice, soybeans, etc.), people suffering from food allergies would be more affected than most in this context, especially those who experience violent reactions to items such as gluten, dairy products, and eggs, which are commonly used in food preparation.

Western Europe during the two world wars provides an interesting historical parallel, as continental countries were cut off from the foreign food shipments they had come to rely on. For example, the Allied naval blockade of Germany during World War I created such misery that by 1916, the German population was surviving on a diet of dark bread, slices of sausage without fat, turnips, and an individual ration of three pounds of potatoes per week. As observers put it at the time, the German women "who stood in the pallid queues before shops spoke more about their children's hunger than about the death of their husbands".[414] Anticipating similar problems, officials of many European countries adopted measures to increase agricultural self-sufficiency before and at the beginning of World War II. As a result, large areas of pastureland and "idle" land were plowed under, increased subsidies were devoted to farming, and people were drafted

[413] Of course, the situation would be made even worse if food additives such as vitamins and minerals, which are currently produced in a few highly efficient locations, were similarly affected by "local food" restrictions.

[414] (Raico, Ralph 1990) "The Politics of Hunger: A Review", *Review of Austrian Economics* 3, no. 1: 253–259. Other factors, such as wartime planning and the dominance of a dietary perspective that required the diversion of tubers and cereals to produce more meat for German soldiers also played a role in this respect.

to work in agriculture. The number of chickens and pigs was curtailed drastically in order to make the grain, potatoes, and skim milk they were fed available to the human population.[415]

In short, the available evidence suggests that hypothetical food mile legislation could only be used with parsimony. Indeed, it could perhaps oblige retailers to show the area of origin of each product they sell and perhaps compel them to offer a certain percentage of products from local producers. Beyond this, and because it would dramatically reduce the diversity of products available to consumers, such legislation would impose severe costs on consumers and society. For these reasons alone, the temptation to legislate a limit on the mileage food can travel before being sold to the final consumer should be resisted. It would make consumers worse off, would not be environmentally friendly, and would damage to the economy.

3.6 Conclusion

The appeal of the food-mile perspective, with its promise to reconnect people with food, neighboring producers, and seasonality while delivering environmental, economic, health, and social benefits, is superficially obvious. Unfortunately, these issues are generally discussed in an emotional context, based on activists' distrust of large corporations and romanticizing of subsistence agriculture. The benefits claimed by food miles proponents have little basis in fact yet provide a new set of rhetorical tools to bolster protectionist interests that are fundamentally detrimental to most of humankind. Subsistence agriculture, which is ultimately what the food miles concept boils down to, is of course feasible, but it implies significant trade-offs that may not be readily apparent to most people who fail to understand that our modern food supply chain is a demonstrably superior alternative that has evolved through constant competition and ever more rigorous management efficiency.

Ideally, in a world characterized by free trade and the absence of agricultural (and other) subsidies, prices would go much further toward coordinating supply and demand for a wide variety of foods in a manner that is both economically and environmentally efficient. The underlying principle is very simple. As Adam Smith wrote more than two centuries ago, it is the

[415] (Vogt, William 1948) *Road to Survival.* New York: William Sloane Associates, Inc.

“maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy”. By continually eliminating inefficiency and promoting productivity, market processes would ensure an ever increasing, healthier, and more affordable food supply while simultaneously always reducing inputs per unit and, over time, their environmental impacts.

The course of the debate over food miles is nonetheless instructive for policy makers. It illustrates the importance of questioning claims made by organizations with a vested interest in a particular form of public policy, and for digging deeper for information that either supports or refutes the claims. Above all, it highlights the need to remain focused on the issues that are important—in this case, the greenhouse gas emissions (GHG) of highly subsidized first-world agriculture, the trade imbalances that prevent both developed and developing countries from realizing the mutual benefits of freer trade, biofuel subsidies, and third-world poverty—and to avoid being distracted by “tempests in teacups”. With the population of the planet rapidly heading for an estimated 9 billion people over the next few decades, numerous food policy issues other than food miles should preoccupy policy makers.

CHAPTER 4. TRADE AGREEMENTS: THE PURPOSE & OPTIONS

1. Introduction

Despite a proliferation of 'Free Trade Agreements' there is a huge gap between the concept and the practice of 'free trade'. There is a wide variation in arrangements between and among trading partners/countries, ranging from very liberal (Hong Kong/Singapore/New Zealand) to very restrictive (North Korea). Nations have increasingly turned to bilateral and regional agreements to increase trade since negotiations on a global scale, involving all members of the World Trade Organization (WTO) ended in failure with the collapse of the Doha Round in 2008. This chapter looks at a brief history of recent trade agreements, particularly two of the larger regional agreements: NAFTA and TPP, and discusses future trade agreement options for Britain after Brexit.

Modern trade negotiations are often more about politics than about realizing free trade. Politicians either ignore or do not understand how the nature of trade leads to benefits for many people both at home and abroad. Also, special interest groups exert influence both on trade negotiations and subsequent interpretation of the rules in order to limit competition, and thus agreements favour producers at the expense of consumers. The results of recent trade agreements are not auspicious for consumer welfare. According to Kevin Dowd, Professor at Durham University and a member of Economists for Free Trade in the UK, multilateral trade deals have achieved little trade liberalisation in over two decades.[416]

Tariff reductions under GATT (General Agreement on Tariffs and Trade) and WTO (World Trade Organization) contributed significantly to the liberalization of trade. The important issue of more recent trade agreements has been non-tariff barriers.[417] Attempts to address these issues, such as harmonization of rules, have produced mixed results. Furthermore, other regulations

[416] (Dowd 2017) p.29.
[417] (Dowd 2017) p.29. He points out that the Trans-Pacific Partnership (TPP) does not even mention 'trade' in its title., p. 10, Dowd stated that "Nowadays achieving free trade is not so much about tariffs or classic bread –and – butter trade policies…Many restrictions to genuine free trade arise from in areas such as the environment, consumer protection, health and safety, and data security".

prompted by social and environmental concerns often end up being thinly disguised protectionism and, as such, are controversial.

Overly strict and complex non-tariff measures (NTMs) have become non-tariff barriers (NTBs) protecting domestic industry from foreign competitors,[418] and negatively influencing cross-border trade. In general, trade gains from reducing NTBs are more difficult to achieve than gains from reducing tariffs, because such barriers are more resistant to reform due to the complexity or novelty of the issue or its political sensitivity.[419] These regulatory restrictions have become pervasive and counterproductive.[420]

Under the North American Free Trade Agreement (NAFTA), trade among Canada, Mexico, and the US increased dramatically. The Trump administration's protectionist proposals to renegotiate NAFTA risk increasing costs for intermediate goods and encouraging firms to look outside the existing trading bloc for new suppliers. With America's withdrawal from TPP, the future of that trade deal is now up in the air. Furthermore, the US's departure offers China a huge opportunity to strengthen its ties with Pacific Rim partners, something which may ultimately be detrimental to the US.

The UK is now faced with renegotiating its trade position as a result of the Brexit vote. There is therefore an opportunity to make trade liberalization and maximization of consumer benefits the objective of new trade agreements. To achieve this, trade agreements should be simple, unilaterally decided, and involve minimal levels of regulation. They should guarantee the free movement of goods, services and capital as much as possible.[421] Of the existing trade agreement options in effect today, the best choice for Britain would be to adopt a unilateral non-tariff and free trade policy based on existing WTO rules rather than agree to a less advantageous or even punitive trade agreement with the EU.

[418] (International Trade Center (ITC) 2017)
[419] (Dawson and Bartucci 2013) p.15.
[420] (Dowd 2017) p.10.
[421] (Dowd 2017) p.31.

In general, 'mutual recognition agreements' work well among developed countries where regulations and standards are high enough and legal systems are functioning well. The mutual recognition arrangement is a preferable option to regulatory harmonization. The mutual recognition arrangement reduces the complication of negotiation, decreases transaction costs, improves efficiences and innovations, and benefits consumers in the form of lower prices and increased variety.[422] However, it is difficult to implement this kind of agreement with developing countries where the standards of the legal system and regulatory institutions are not at the levels of developed countries.

2. Trade Agreements

2.1 Evolution of Trade Regulation

During the 17th and 18th centuries, mercantilist ideas about trade were popular: trade was considered a zero sum game and there was a focus on encouraging exports and discouraging imports. Following the adoption of ideas about the benefits of free trade from Smith and Ricardo and the subsequent liberalization of trade policies, there was a significant increase in living standards for most people. While there has been an overall trend towards greater liberalization in the last 250 years, there have been some periods in which protectionist legislation has increased.

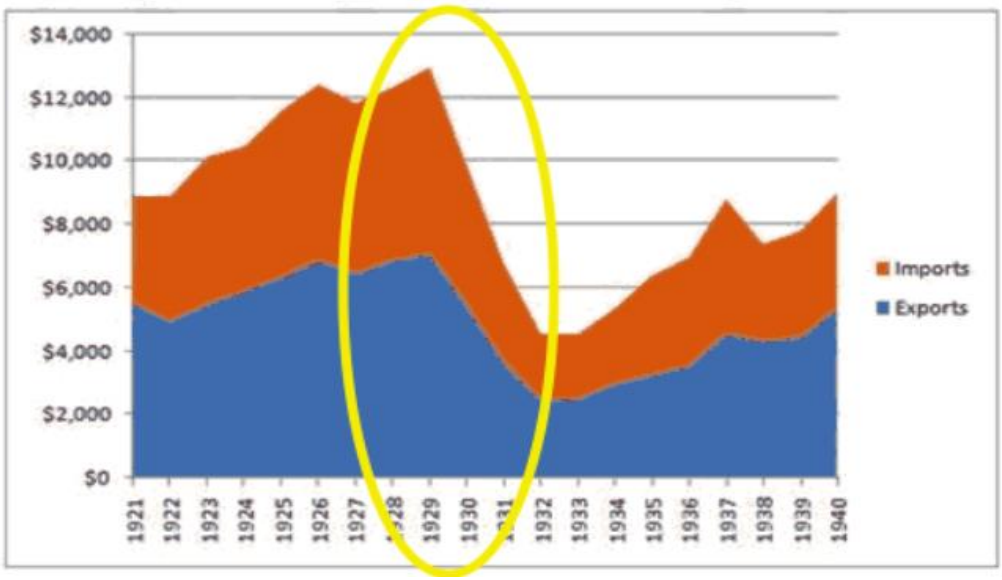
For example, the Smoot Hawley Tariff Act of 1930 marked the high point of tariff levels in the US. It raised import duties on 20,000 products by an average of 20% in an effort to protect American businesses and farmers.[423] Other nations retaliated by raising tariffs on American products and, within three years, US exports and imports with Europe shrank by 66% and global trade collapsed (Figure 36). While this isolationist trade policy was not necessarily the cause of Great Depression, it played a major role to make this economic slump longer and more severe.

As discussed in Chapter 2, exports tend to move in tandem with imports and the Depression provides a classic illustration. When the negative effects of protectionist policies and the consequent retaliations by other nations were recognized, the Reciprocal Trade Act was passed

[422] (Dowd 2017) p. 31. (Australia Government, Department of Education and Training 2017)
[423] (Gendreau 2017) (Parker 2016)

in 1934 to reduce tariff levels and promote trade liberalization. This reversal of US trade policy ushered in a new era of declining barriers to trade.

Figure 36 US exports and imports (nominal USD) from 1921 to 1940



Source: (Addis 2017)

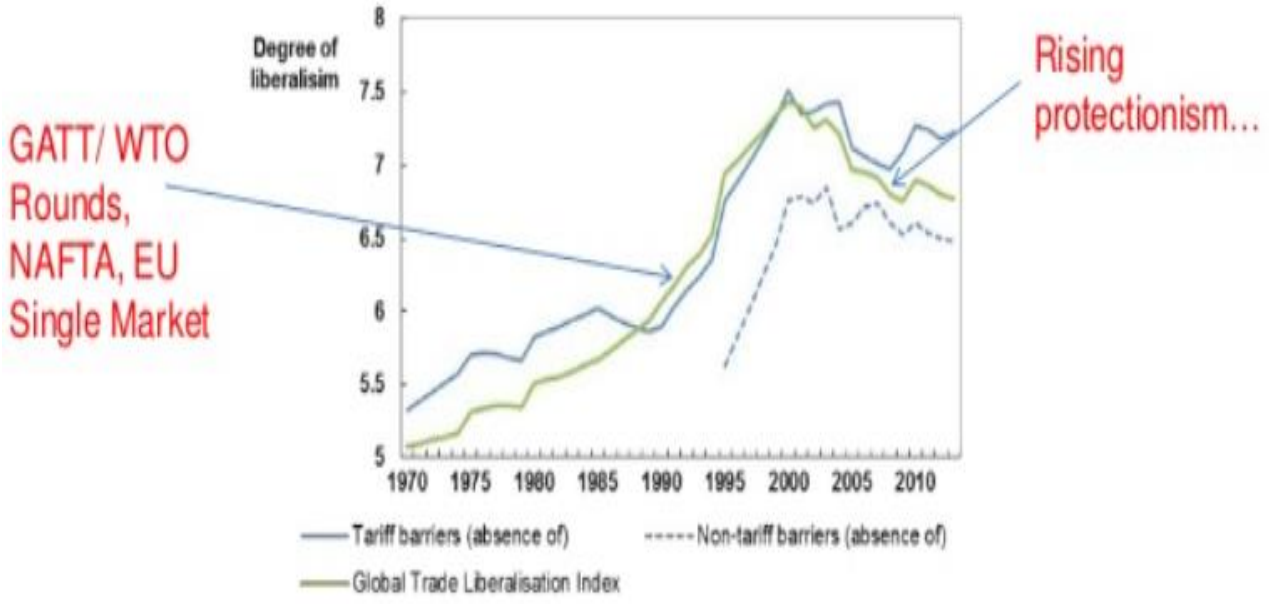
2.2 Free trade vs. Trade Restrictions

Every country engages in trade, and no country in the world is completely self-reliant. In practice, not a single country practices 100% free trade, and each county has in place some level of trade restrictions. The only way to boost trade is to reduce restrictions. Governments often use reducing tariffs as a bargaining chip in trade negotiations with other nations. Trade agreements can either improve market access or create additional barriers. Many treaties are mislabelled as 'Free Trade Agreements' (FTAs) when in fact they are really 'managed trade agreements' in which more regulations and restrictions are created.

Although tariffs have declined significantly, the inclusion of non-trade measures (NTMs) in agreements has hindered access to markets. For the last 15 years or so, trade barriers have

increased and the trend towards trade liberalization has been reversed (Figure 37).[424] Two manifestations of the recent trend in rising Protectionism are US President Trump's economic policy, 'Trumponomics', and the UK's decision to leave the EU, the 'Brexit'.

Figure 37 Trade Liberalization Trends



Source: (OECD, Economics Department 2016)

Some reasons used to justify trade restrictions by politicians, activist and other interest groups include: [425]

- **Domestic jobs.** Without tariffs, imports from countries with a lower living standard cost less, and domestic producers move their factories overseas.

- **Unfair advantages in other countries.**

[424] (World Trade Organization 2012) According to the report, non-tariff measures can have a significant impact on trade, possibly even more than tariffs. Director-General Pascal Lamy said "a clear trend has emerged in which NTMs are less about shielding producers from import competition and more about the attainment of a broad range of public policy objectives". NTMs include technical barriers to trade (TBT) or sanitary and phytosanitary (SPS) measures (i.e. food safety and animal and plant health measures).
[425] By the author based on (K. Amadeo 2017)

- ✓ Labour standards concern: emerging market countries without adequate labour laws (grueling factory jobs in sub-standard conditions).

- ✓ Industry subsidies by other states create unfair competition**.**

- ✓ Environmental concerns**:** emerging market countries often don't have measures in place to protect the environment. Free trade therefore leads to the depletion of timber, minerals and other natural resources. Deforestation and strip-mining reduce their jungles and fields to wastelands.

- **Government tax revenue.** Without import tariffs and fees, many smaller countries must find ways to replace that revenue.

- **National defense.** Some industries should be protected for national defence and security reasons such as aircraft, shipbuilding, and food suppliers.

- **National interest.** As development moves into formerly pristine areas, indigenous cultures can be affected as local people are displaced and often killed.

- **Infant industry.** New domestic industries should be protected until they are mature enough to compete on their own.

- **Export promotion. S**ubsidies to domestic producers to increase their market share in another country.

These reasons are often used by anti free trade parties to protect the economic interests of its domestic producers. These justifications ignore the comparative advantage of each country in production, and distort the efficiency of resource allocations. The welfare of many individuals suffers as a consequence.

2.3 The Political Dimension of Trade Agreements

There are three major types of international trade agreements: unilateral (one country decides unilaterally to change its own trade restrictions), bilateral (between 2 countries) and multilateral (among several countries). The latter offers the potential for more benefits but is harder to negotiate. Among multilateral agreements, NAFTA and TPP (in its original configuration), are

the world's largest multi-lateral trade agreements.[426] TPP originally involved 12 nations, but President Trump pulled the US out TPP shortly after taking office in January 2017.

There are many types of trade agreements based on different levels of economic integration among countries (Figure 38). The objective of economic integration is to increase the size of the market and take advantage of economies of scale; barriers against trade with countries outside the agreement are created at the same time.[427]

- Preferential trade agreement (PTA): A trading block that gives preferential access to certain products from participating countries.

- Free trade agreement (FTA): A free-trade area is a trade bloc whose member countries have signed a free-trade agreement which eliminates tariffs, import quotas, and preferences on most (if not all) goods and services traded between them.

- Comprehensive Economic Cooperation Agreement (CECA): a FTA plus free movement of capital and human resources.[428]

- Custom Union: An agreement among countries to have free trade among themselves and to adopt common external barriers against any other country interested in exporting to these countries.

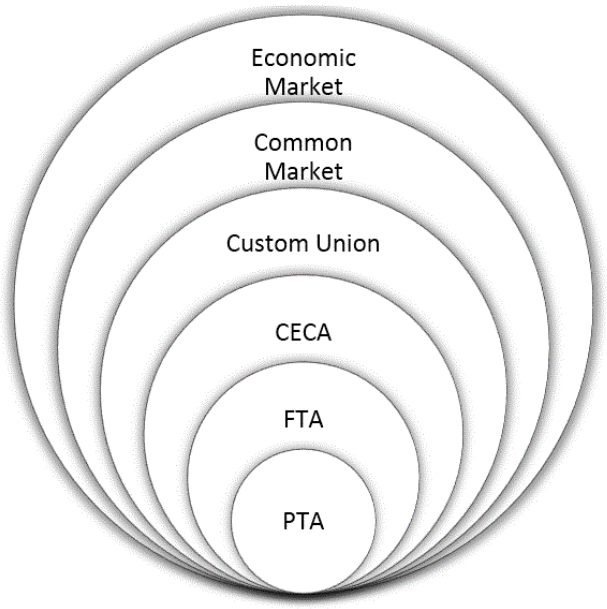
- Common Market: A type of custom union where there are common policies on product regulation, and free movement of goods and services, capital and labor.

- Economic and Monetary Union: An economic union with a common currency (e.g. the Euro).

[426] Transatlantic Trade and Investment Partnership (TIPP) is the largest bilateral trade agreement between the EU and the US. The negotiations have been moving slowly due to President Trump's trade policy. (Source: http://ec.europa.eu/trade/policy/in-focus/ttip/)
[427] (Civils daily 2016)
[428] (Civils daily 2016) Comprehensive Economic Partnership Agreement (CEPA) comes later including trade in services and investments. CEPA has a wider scope than CECA.

Countries enter into trade agreements for reasons other than trade. According to a professor at Université Libre de Bruxelles, Andre Sapir, "Trade policy has always been the principal instrument of foreign policy for the EU".[429] The US also uses preferential agreements for reasons that are similarly broad.[430] The EU and the US both have been seeking trade agreements that go beyond simple tariff removal, and include rules governing services, investment and capital, protection of intellectual property, and adherence to health, labour, and environmental standards.

Figure 38 Degree of Economic Integration and Trade Agreements



Source: (Civils daily 2016)

2.4 International Trade Organization: GATT and WTO

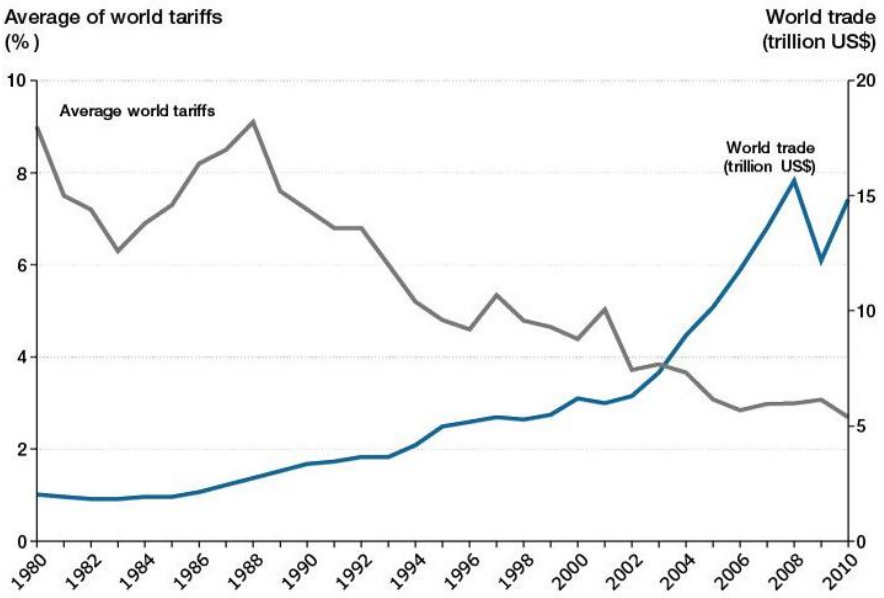
The General Agreement on Tariffs and Trade (GATT) was established in 1947 to liberalize trade and improve the world trading system through a code of rules and a forum in which negotiations and other trade discussions taken place.[431] After the devastation of World War II, it was hoped

[429] (Sapir 1998)
[430] (K. Amadeo 2017)
[431] (World Trade Organization (WTO) 2017b) For a more detailed history of GATT please refer to https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact4_e.htm

that increased international trade would promote economic interdependence between countries, making wars between trading partners unthinkable.

GATT was successful at reducing international tariff barriers and played a major role as a dispute settlement system among member countries. The average international tariff rate decreased from 40% in 1947 to about 5% in 2010, and these reductions contributed to a considerable expansion of international trade (Figure 39).[432]

Figure 39 Average of World Tariffs and World Trade 1980-2010



Source: (World Economic Forum 2013) p. 7.

GATT was provisional, with a limited field of action. During its 47 years history, not everything went smoothly.[433] By the early 1980s it was becoming clear that GATT was no longer as relevant to the realities of world trade as it had been in the 1940s. For example, trade in services, intellectual property rights, and international investment issues were not covered by GATT rules. Also, GATT's inability to successfully remedy less obvious forms of protection (such as non-tariff barriers, and the US-European Community disagreement over agricultural subsidies created

[432] (World Economic Forum 2013)
[433] (World Trade Organization (WTO) 2017b)

doubt as to the organization's future. Many countries began to form trading blocs. Even GATT's institutional structure and its dispute settlement system were causing concern. After the conclusion of the Uruguay Round, WTO took over as its successor organization in 1994.

2.5 WTO

The World Trade Organization (WTO) is the only international organization dealing with the rules of trade.[434] In 2016, WTO had 164 members, of which about two thirds are 'developing' countries.[435] It came into effect in 1995 as an attempt to consolidate rules based on non-discrimination by trading partners. Its overriding purpose is to help trade flow as freely as possible and help producers of goods and services, exporters, and importers conduct their business. It is based on a series of agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. These documents provide the legal ground rules for international commerce.

Once these agreements have been signed, WTO enforces them and responds to complaints. Countries frequently have conflicting interests, and agreements even those negotiated in WTO framework often need interpreting. WTO has a dispute settlement process which helps to settle disagreements through a neutral procedure based on an agreed legal foundation. The majority of these arrangements emerged from the 1986-94 negotiations called the Uruguay Round and the earlier GATT negotiations.

2.6 The Failure of the Doha Round

The most recent trade negotiations involving all members of WTO was the 'Doha Round', launched in Doha, Qatar in November 2001.[436] Early optimism regarding a successful outcome gradually eroded, and the Doha Round ended in failure in 2008.[437] Efforts to resuscitate

[434] (World Trade Orgnizations (WTO) 2017d)
[435] (World Trade Orgnization (WTO), Members and Observsers, https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm
[436] For more details about WTO and its predecessor, the General Agreement on Tariffs and Trade (GATT: 1948-1994), please see WTO's web site: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact1_e.htm. (World Trade Orgnization (WTO) b)
[437] (World Trade Organization (WTO) 2015) Annual report 2015. p.15.

negotiations at the Ninth Ministerial Conference held in Bali in December 2013 were also unsuccessful.[438] The Doha Round failed because developed and developing countries could not agree to provide a greater access to each other's markets. The US and the European Union both wanted access to the services sector in emerging markets including China and India. Developing countries sought fewer restrictions for their agricultural products in the European and the US markets.[439] Generally speaking, trade agreements provide less liberalization when it comes to agriculture. This originates from a time when agriculture was considered a national security issue from a military point of view.

The impasse demonstrated by the Doha Round created uncertainty over the role of WTO as a global forum for negotiating further trade liberalization. The challenge of reaching agreement on complex trade issues via WTO appears to be insurmountable. The Doha Round may mark the end of the quest for multilateral trade agreements on a global scale.

3. Regional Trade Agreements

A 2005 WTO annual report concluded that "Sluggish progress in multilateral trade negotiations under the Doha Development Round appeared to have accelerated further the rush to forge RTA".[440] Regional Trade Agreements (RTAs) are used to address region-specific political issues that are difficult to broach at the global level. Although many of these issues can be handled without trade agreements, trade discussions provide a framework through which to make progress on contentious issues.[441] RTAs have become increasingly prevalent since the early 1990s: the number of cumulative notifications to GATT/WTO of RTA's in force reached 445 in 2017 (Figure 40).[442] In an increasingly competitive global environment, national policy makers

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The Fifth Ministerial Conference which took place in Cancun, Mexico, in September 2003 was overshadowed by discord over agricultural trade and ended in deadlock over foreign investment issues.[437] Farm import rules were the main stumbling block when negotiations held in Geneva in July 2008 collapsed.
https://www.wto.org/english/res_e/booksp_e/anrep_e/anrep15_e.pdf.

[438] (World Trade Organization (WTO) 2015) Annual report 2015. p.15.

[439] (BBC News 2008)

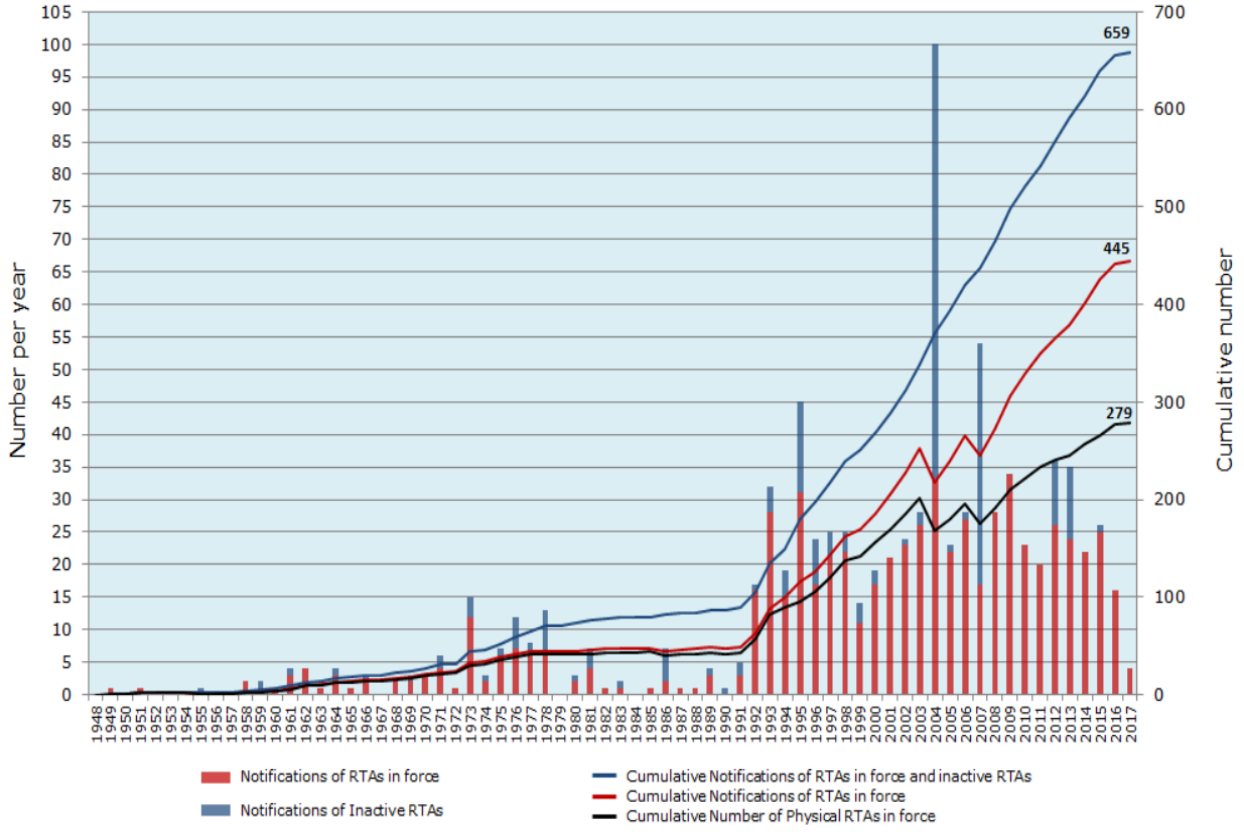
[440] (Crawford and Fiorentino 2005).

[441] (Baier, S. L. et al. 2008) p. 492.

[442] (World Trade Organization (WTO) 2017c) In 2017, some 625 notifications of RTAs had been received by GATT/WTO. The number 659 arises from counting goods, services and accessions separately. If counting goods, services and accessions together, these figures correspond to 445 physical RTAs of which 279 are currently in force.

around the world face growing pressure to maximize their economic interests, business sector profits and consumer welfare. The wide variation in RTAs reflects the very different motivations countries have for entering into such arrangements.

Figure 40 Evolution of Regional Trade Agreements between 1948 and 2017



Source: (World Trade Organization (WTO) 2017j)

3.1 The Main Trends and Challenges of RTAs

As RTAs increase in number, some trends are becoming apparent. First, RTAs have been increasingly more complex, in many cases establishing regulatory trade regimes which go beyond multilaterally agreed trade regulations, and often include provisions for some countries to enforce their own laws and regulations in other jurisdictions (for example, TPP has more than 5,000 pages of documents and covers many non-trade related issues. More details on TPP are found on page 179 below).[443] Second, reciprocal preferential agreements between developed and

[443] (Crawford and Fiorentino 2005)

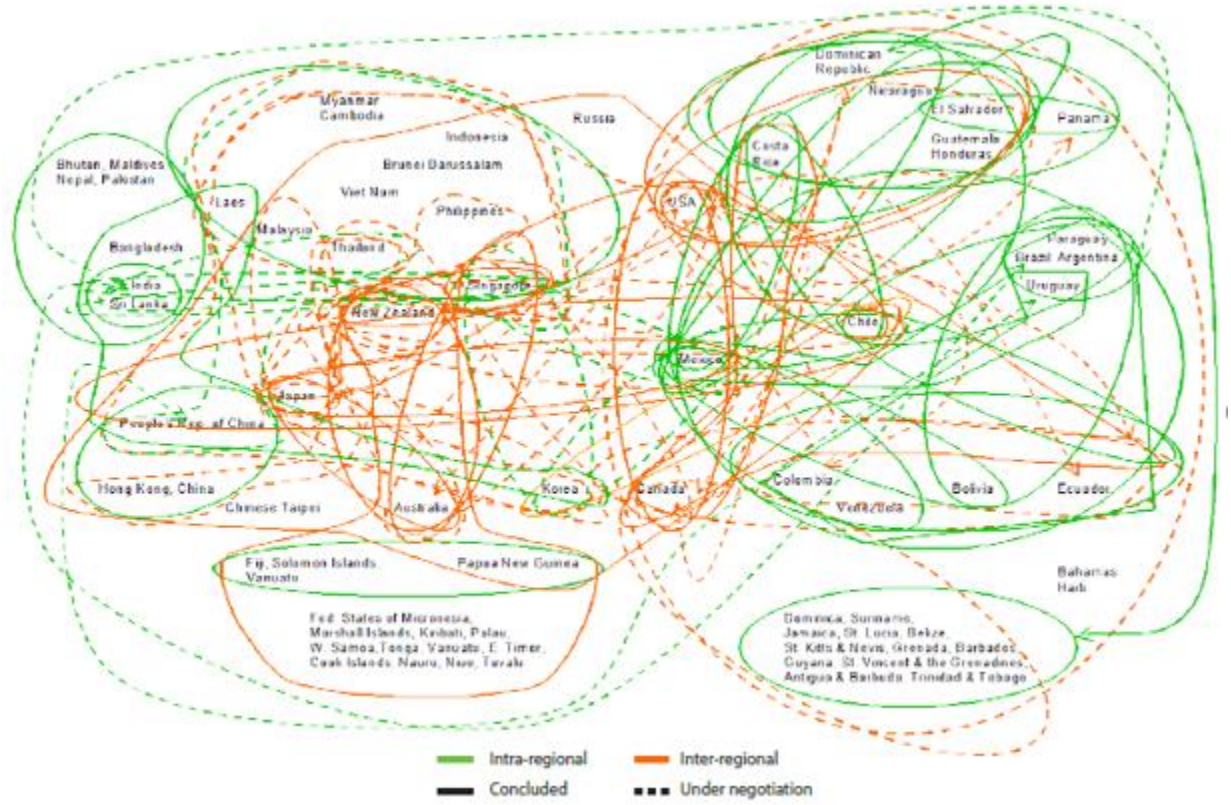
developing countries are on the increase, indicating that developing countries recognize the benefits of participating in these agreements. Third, the emergence of preferential agreements among key developing countries indicates a strengthening of so called South-South trading patterns. Fourth, there is a general pattern of expansion and consolidation, and a proliferation of cross-regional RTAs. As a result, the size of regional trading blocs can now be continent-wide.[444]

Overlapping RTAs and networks of RTAs now span continents at the regional and sub-regional levels.[445] The problem is that the growing number of regional trade agreements has created a 'spaghetti' or 'noodle' bowl effect (Figure 41). The term 'spaghetti bowl' was coined by Jagdish N. Bhagwati, one of the world's leading experts on trade at Columbia University. In 2004, Richard Baldwin, Director of the Center for Economic Policy Research based in London,[446] used the term 'noodle bowl' for the same phenomenon - a maze of overlapping trade agreements with differing geographic and commodity scopes.[447]

According to the Asian Development Bank's data base, the number of trade agreements involving countries in the Asia-Pacific region has increased drastically, creating an "alphabet soup" situation in the Asian region (Figure 42). For example, as of June 2016, Singapore has concluded or is negotiating 32 free trade agreements, China 23, India 28, Japan and South Korea 24, Thailand 22, Vietnam 16, and Myanmar 10.[448] [449]

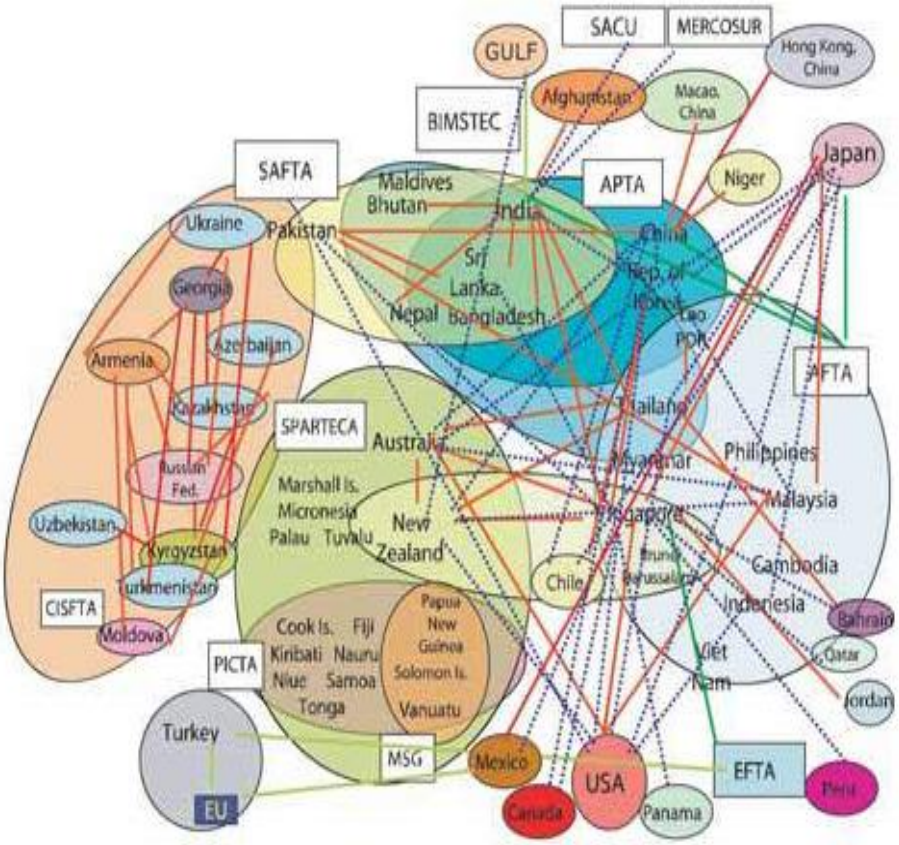
[444] (Crawford and Fiorentino 2005)
[445] (Crawford and Fiorentino 2005) p.4.
[446] (Menon 2014)
(Baier, Bergstrand and Egger 2007) p.54
About Jadish Bhagwati: http://www.columbia.edu/~jb38/papers/papers.html
Richard Baldwin: http://cepr.org/content/richard-baldwin-appointed-director-cepr
[447] (Murphy 2015)
[448] (Asia Regional Integration Center, Asian Development Bank)
[449] (World Trade Organization (WTO) 2015) p. 75. Overlapping agreements are so common that according to WTO report, all members except Mongolia are members of one or more, some belonging to as many as 30.

Figure 41 The 'Spaghetti Bowl' of Free Trade Agreements in the Americas and Asia-Pacific



*Asia Pacific region on the left side and the Americas region on the right.
Source: (Baier et.al 2007)

Figure 42 The 'Noodle Bowl' or 'Alphabet Soup' Situation in the Asian Region



Source: (Murphy 2015) *Asia's Heyday of FTAs May Be Over*.

These overlapping trade agreements fragment markets because each stipulates specific rules. As a consequence, transaction costs increase and it becomes more difficult for both international and local businesses to operate efficiently.[450] They raise compliance costs and increase the risk that enterprises may be penalized for failing to adhere to the different sets of rules established under each agreement.[451] Most important, these trade agreements cause 'trade diversion' and have negative impacts within and outside of agreements. According to international trade specialists, Ian Fergusson and Bruce Vaughn, "trade diversion occurs when the existence of lower tariffs under a trade agreement causes trade to be diverted away from a more efficient producer outside

[450] (Murphy 2015)
[451] (Murphy 2015)

the trading bloc to a producer inside the bloc".[452] In other words, smaller free trade agreements, with narrow coverage, encourage the use of costly products from RTA partners rather than competitive products from non-partners. As a result, markets are distorted and allocation of resources is less efficient.

Some critics argue that "the world trading system is evolving in a disorderly, ineffective, and potentially harmful manner" (in terms of consumer welfare).[453] Their *ex post* empirical evidence on the impact of RTAs shows that they may either decrease trade volumes or have only a minor positive effect.[454] Other trade analysts view the proliferation of bilateral and regional trade agreements as undermining WTO, as RTAs undermine the core principle of non-discrimination which is fundamental to the architecture of international free trade.[455] Although RTAs are by nature discriminatory, discrimination against non-partners can be reduced if these agreements are open, and agreement members allow non-signatories to join as new members.[456] Another criticism is that RTAs provide powerful countries including the US and the EU with an opportunity to extract controversial concessions from weaker trading partners on issues such as labor standards, intellectual property protection, environmental stewardship, and health and safety standards.[457]

3.2 Mega RTAs: NAFTA and TPP

Bilateral or small regional trade agreements are "second-best" strategies compared to multilateral agreements for enhancing trade and promoting market integration. Recognition of these shortcomings of RTAs has prompted a major rethink of strategies to liberalize trade, obtain efficient market access, and promote regulatory convergence among the fastest growing economies in the world.[458]

[452] (Fergusson and Vaughn 2011) P.248.
[453] (Baier, Bergstrand and Egger (2007)
[454] (Baier, Bergstrand and Egger 2007) p.54.
[455] (Fergusson and Vaughn 2011) P.248.
[456] (World Trade Organization (WTO) 2016) p.85.
[457] (Murphy 2015)
[458] (Murphy 2015)

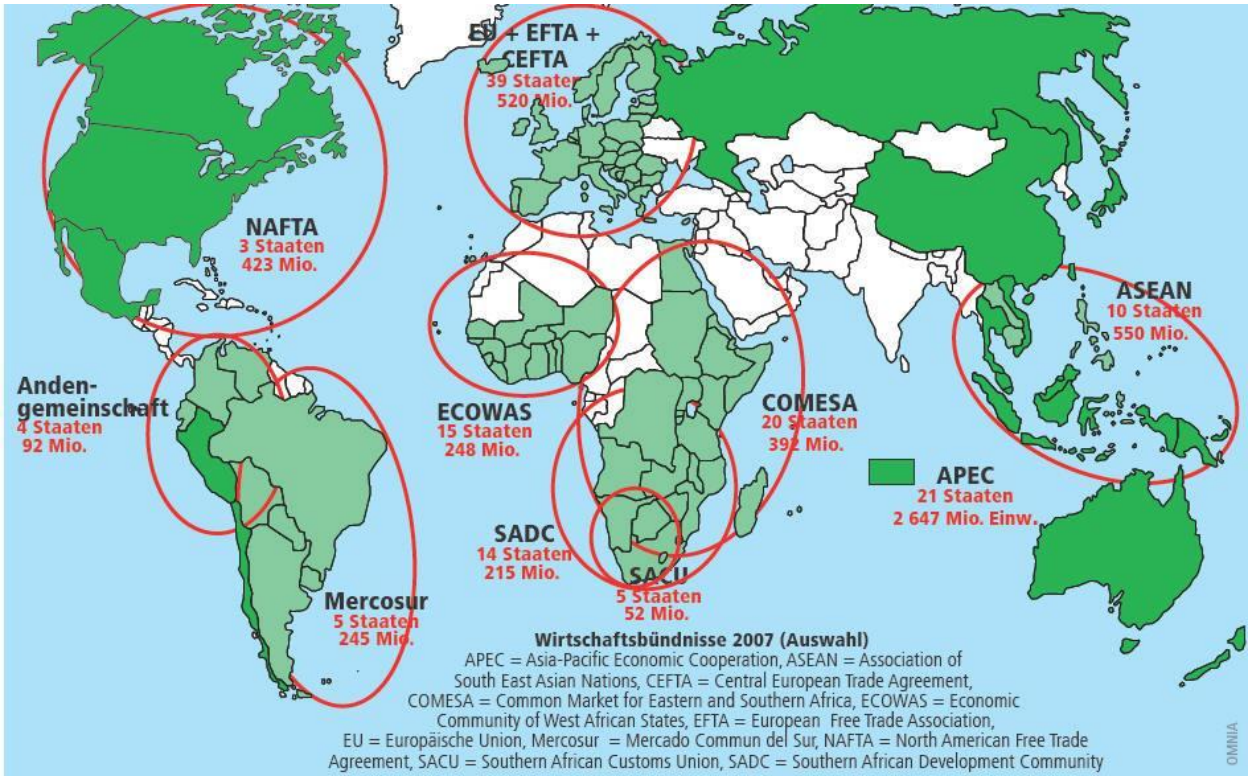
'Mega regional' trade agreements have emerged as alternatives to the 'spaghetti bowl' that arises from a multiplicity of agreements involving only a small number of countries.[459] A mega regional agreement with a large number of participants has the potential to harmonize rules, reduce business costs, and has a positive impact on the global pattern of trade.

Negotiations to create large multilateral agreements are increasing: TPP among 12 (now 11, after America's withdrawal) nations;[460] the Transatlantic Trade and Investment Partnership (TTIP) between the EU and the US,[461] the Regional Comprehensive Partnership Agreement (RCEP) in Asia;[462] the North American Free Trade Agreement (NAFTA) among the US, Canada and Mexico; the Pacific Alliance in Latin America, the Tripartite Agreement in Africa, and the Gulf Cooperation Council (GCC) in the Middle East are prominent examples.[463] [464] An image of some regional economic blocks in the world is shown in Figure 43.

Multilateral agreements will only succeed as effective alternatives to the negative effects of 'spaghetti bowl' arrangements if they impose a single (and simple) set of rules which supersede existing RTA's involving few participants.[465]

[459] (Baier, S. L. et al. 2008) P.465. They used the term 'economic integration' instead of 'regional economic integration' – to be inclusive in geographic scope of coverage of countries on different continents.
[460] (World Trade Organization (WTO) 2016) p.85.
[461] (European Commission) *Transatlantic Trade and Investment Partnership (TTIP*).
http://ec.europa.eu/trade/policy/in-focus/ttip/
[462] The Regional Comprehensive Economic Partnership (RCEP) is a FTA negotiation among 16 countries: the 10 members of ASEAN (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam) and the six countries with which ASEAN has existing free trade agreements (Australia, China, India, Japan, South Korea, and New Zealand). Negotiations began in late 2012. Like TPP, negotiating parties predict that the RCEP will be "a modern, comprehensive, high-quality and mutually beneficial economic partnership agreement establishing an open trade and investment environment in the region to facilitate the expansion of regional trade and investment and contribute to global economic growth and development" (New Zealand, Ministry of Foreign Affairs), (Dawson and Bartucci 2013) p.13.
[463] (World Trade Organization (WTO)) *Facts and figures.*
[464] More details on COMESA and SADC, please see (World Trade Orgnization (WTO)) *How regional economic communities can facilitate participation in WTO: the experience of Mauritius and Zambia..*
https://www.wto.org/english/res_e/booksp_e/casestudies_e/case27_e.htm
COMESA: http://www.comesa.int/, SADC: http://www.sadc.int/, EAC: http://www.eac.int/, GCC: http://www.gcc-sg.org/en-us/Pages/default.aspx.
[465] (World Trade Organization (WTO) 2016) p.86.

Figure 43 Mega-Regional Trade Agreements



Source: (B2B 2016)

3.2.1 NAFTA and its Structure

The North American Free Trade Agreement (NAFTA) is a three-country accord negotiated by the US, Canada and Mexico that came into effect in 1994.[466] NAFTA was the first comprehensive free trade agreement to join developed and developing nations, and it achieved broader and deeper market access than any previous trade agreement.[467]

Officially, its primary goal was to liberalize trade in textiles, automobile manufacturing and agriculture. It aimed to eliminate trade barriers in 10 years except for special sectors such as agriculture, where the time frame was extended to 15 years. There were no external common tariffs included in the agreement. It did include restrictive rules of origin such as 62.5% of cars had to be locally made and textiles were required to be made with NAFTA

[466] (McBride and Sergie 2017)
[467] (Hills 2014)

yarn. From the manufacturers' perspective, NAFTA rules were more comprehensive, complex and protectionist than a regular free trade agreement.[468]

NAFTA also sought to establish dispute resolution mechanisms, protect intellectual property, and implement labor and environmental safeguards. At the time, the agreement enjoyed bipartisan support in the US.[469] It was conceived by Republican President Ronald Reagan, negotiated by Republican President George H.W. Bush and passed through Congress and implemented under Democratic President Bill Clinton. Beyond improvement in trade, the US hoped that it would bring peace, stability and prosperity to Mexico, and reduce illegal immigration.

It was sold to the public as a way of bringing new prosperity and a surge in well-paying jobs.[470] Proponents such as President Bill Clinton, made big promises of job gains, while opponents such as presidential contender Ross Perot warned of a "giant sucking sound" that would devour nearly six million jobs.[471] Experts lined up on both sides of the argument. For example, prominent US economist, Paul Krugman, argued in 1993 that as far as the US was concerned, NAFTA was essentially a foreign policy initiative rather than an economic one. He concluded that NAFTA would have no impact on the number of American jobs but would lead to a slight fall in real wages of unskilled workers in the US, that NAFTA would not hurt and might help the environment and that it would produce only a small gain in overall US real income.[472]

At the same time, many empirical studies were done on the potential economic benefits of NAFTA. In 1993, the Peterson Institute for International Economics (PIIE) released its influential study, "NAFTA: An Assessment".[473] Among other things it predicted that "with NAFTA, US exports to Mexico would continue to outstrip Mexican exports to the United States…[with a] US merchandise trade surplus with Mexico of $7 billion to $9 billion annually

[468] (Globerman and Sands 2017)
[469] (McBride and Sergie 2017)
[470] (Jasper 2015)
[471] (King 2015)
[472] (Krugman 1993)
[473] (Hufbauer and Schott 1993)

throughout the 1990s and perhaps $9 billion to $12 billion annually in the following decade".[474] However, the actual results were totally different. In 1993, the year before NAFTA went into effect, the US had a $1.66 billion trade surplus with Mexico; by 1995, the first year after NAFTA entered into force that had changed completely to a $15.8 billion deficit. By 2000, the deficit had soared to $24.5 billion, and by 2014, the deficit had almost doubled to $53.8 billion.[475] Such discrepancies, especially on a flashpoint item like trade deficits, provide fodder for those opposed to NAFTA.

William F. Jasper, an investigative journalist of the New American,[476] gave a scathing criticism of the PIIE study:

> The PIIE authors and other pseudo-free trade propagandists had cherry-picked data and simply invented statistics to fraudulently sell their product: NAFTA. If they were car salesmen, they would have gone to jail for fraud and misrepresentation. Instead, they are back doing the same thing, concocting rosy statistics to sell TPP and TTIP". [477]

However, other public policy academics pointed out that one of the problems with predicting benefits and drawbacks of trade agreements is that these policies are designed without precise foreknowledge of how a policy will perform. What actually happens after its implementation will be shaped by a multitude of interacting forces (economic, political, social, media, technological, demographic and climatic).[478]

Economics Editor of the Wall Street Journal, King wrote that "there's no clear way to disentangle the myriad forces at play during the decades since NAFTA's debut–the peso's plunge a year later, the consumer spending boom and debt build up in the US, the greater internationalization of manufacturing, and China's rise – to isolate the agreement's impact".[479]

[474] (Hufbauer and Schott 1993) P.14-15.
[475] (Jasper 2015)
[476] (Jasper 2015)
[477] (Jasper 2015)
[478] (Hill and Hupe 2009)
[479] (King 2015)

3.2.2 The Trump administration's stance on new negotiation

Since NAFTA came in effect over two decades ago, regional trade value increased from $290 billion in 1993 to $1.1 trillion in 2016.[480] Canada and Mexico have become the two largest destinations for US exports, accounting for more than a third of total U.S exports. However, NAFTA has been a continuous target in the broader debate over free trade. One morning in August 2017, President Trump tweeted that because NAFTA was "the worst trade deal ever made", he might terminate it. He blamed NAFTA for causing US manufacturing job losses to Mexico. His administration reopened negotiations on NAFTA in the same month.[481]

There are merits, however, to review the 20 year-old provisions of NAFTA including the e-commerce, dispute settlement functions, and further reducing barriers to trade.[482] At the same time, President Trump's opposition has raised concerns among many.

President Trump bases his opposition to the agreement on three main points:

1. The US has lost manufacturing jobs as a result of NAFTA.
2. The US has a huge trade deficit with Canada and Mexico.
3. American manufacturers need more protection from the unfair competitive advantages of foreign countries [483]

The Trump administration has said that in the new negotiations, the focus will be on reducing the US-Mexico trade deficit, tightening rules of origin (ROO) requirements, reforming the investor state dispute resolution mechanism, and updating the pact to include digital services and intellectual property.[484] Also, Trump has reiterated that, at any time, he could withdraw the US altogether from the negotiation, and replace NAFTA with two independent, bilateral deals with Mexico and Canada.

[480] (McBride and Sergie 2017)
[481] (McBride and Sergie 2017)
[482] (Lester and Manak 2017)
[483] Sources of 'unfair competitive advantages' include lower labor and environmental standards, currency manipulation and government subsidies.
[484] (McBride and Sergie 2017)

3.2.3 Better NAFTA in the future?

President Trump totally ignores the fact that NAFTA brought a lot of benefits, and his rhetoric does not stand up to scrutiny. This section discusses how President Trump distorted the facts about NAFTA for the sake of his argument.

1. Job losses due to the agreement.

In 2014, the US Chamber of Commerce estimated that about 14 million US jobs depended on trade with NAFTA partner countries, and about 200,000 export related jobs were created by the agreement annually. These jobs pay 15 to 20% more on average than jobs that were lost.[485] It is true that the US has probably lost jobs to low cost Mexican labor. However, these jobs were mostly concentrated in the manufacturing industry, and as discussed in Chapters 1 and 2, the business environment is in constant flux with old firms disappearing as new more competitive firms take their places. Thus 're-shoring' production and bringing 'old' jobs back is unlikely to happen. Also, even with a new trade agreement, President Trump may be able to stop some jobs from moving to Mexico, but those jobs are still likely to move factories to Vietnam, Cambodia or other developing nations.[486] The trend in manufacturing is toward automation of production. Thus, the more important factor for trade policy is not how many jobs have been created but creating highly skilled and well-paid jobs in the country.

2. The American trade deficit and capital investment.

The US merchandise trade deficit with Mexico has increased. However, as mentioned in Chapter 2, the amount of the deficit is always balanced by the foreign capital invested in the US. The existence of a trade deficit with another country is not necessarily indicative of a weak US economy. As the Apple Inc. case demonstrates, traditional accounting for trade deficits is misleading when global supply chains are involved, because the amount of the deficit is significantly overstated.

[485] (Hills 2014) (McBride and Sergie 2017)
[486] (Tankersley 2016)

After NAFTA was signed, cross-border investment soared. Canadian and Mexican companies invested more than $200 billion in the US, and American businesses invested $452 billion in Mexico and Canada.[487] As a result, a highly efficient and integrated supply chain has developed. North Americans not only sell more things to one another; they also make more things together. About a half of US trade with Canada and Mexico takes place between related companies, and the resulting specialization has boosted productivity in all three economies. [488]

Figure 44 Shares of US Trade in Goods

Shares of U.S. Trade in Goods				
	U.S. Imports from		U.S. Exports to	
	Mexico	All Countries	Mexico	All Countries
Intermediate input trade	40%	45%	75%	62%
Related-party trade	67%	51%	40%	29%
Majority-owned affiliate trade	21%	16%	22%	21%

Source: (Amiti, Freund and Bodine-Smith 2017)

According to a report by Amiti, Freund and Bodine-Smith at the Washington International Trade Association, 40% of imports from Mexico and 75% of exports to Mexico are intermediate inputs like auto parts or computer components. These are used in the production of 'final goods' available to consumers, and help US producers compete efficiently in the global market (Figure 44).[489] Companies like General Motors and Ford send auto parts back and forth across the border as cars are produced. If these intermediary goods become more expensive, the price of the final product will be affected. Availability of these low value-added components allows US firms to focus on the higher value added functions, and keeps them competitive and innovative. [490] Thus,

[487] (Hills 2014)
[488] (Hills 2014)
[489] (Amiti, Freund and Bodine-Smith 2017)
[490] (Hills 2014)

the US derives a unique benefit from its investments in Canada and Mexico, because a large percentage of that output returns home as imports of intermediate goods.

3. Incorporating more legal and regulatory steps into a new NAFTA

Furthermore, the Trump administration is trying to move forward with other proposals such as changing government procurement rules to allow the expanded use of "Buy America" provisions, and strengthening rules of origin (ROO) which require that a sufficient proportion of the value added takes place within NAFTA countries.[491]

"Buy America" policies may strike an emotional chord with some voters, but they are nothing but a traditional protectionist market distortion. As it explains in Chapter 2, a "Buy American" policy limits competition, raises cost, and leads to other trading partners adopting similar retaliatory policies.[492] In order to be eligible for duty free imports under NAFTA, member countries must abide by rules of origin, which detail the conditions under which a product qualifies for NAFTA preferences. These are complex and applied on a product by product basis. Tightening rules of origin will disrupt supply chains and make US manufacturers less competitive, as NAFTA rules of origin are already considered to be the most stringent of any trade agreement in the world.[493]

As already mentioned, low-cost inputs from Mexico help US producers compete efficiently in global markets. For example, NAFTA modernized the US auto industry by consolidating manufacturing and driving down costs. There are still more than 800,000 autoworker jobs in the US and there is a good case to be made that NAFTA is responsible for keeping them. Most cars made in North America now include parts sourced from all three countries.[494]

In reality, many manufactured components cross borders many times as sub-assemblies and the final product take shape. Stricter ROO requirements will increase the cost of these parts and products directly and raise administrative and compliance costs. Any trade restriction that raises

[491] (Amiti, Freund and Bodine-Smith 2017)
[492] (Lester and Manak 2017)
[493] (Lester and Manak 2017)
[494] (Wharton University 2014)

costs will hurt not only US imports but also their exports. Stricter ROOs ignore the reality of international trade where nothing is just "made in" one place, from T-shirts, to shoes, to canned tuna to cell phones.[495] ROOs are becoming increasingly less relevant from the perspective of the businesses involved, while compliance with ROO regulations is becoming more problematic and complex. ROOs are becoming a significant barrier to trade, and the response from business is likely to be the diversion of supply to jurisdictions where the rules of origin are less strict.

If new NAFTA rules interrupt current global supply chains, businesses will be faced with several choices. For example, they may have to find alternative sources for intermediate components from other international locations such as China or Brazil. Alternatively, factories may increase automation to gain productivity and a competitive edge. It is difficult to see how these developments will solve the US trade deficit and job loss problems in the manufacturing sector.

Politicians are very good at cherry-picking the numbers which support their arguments, and paying attention only to concentrated losses. This thesis contends that attempting to renegotiate a more protectionist trade agreement with Canada and Mexico is a step backwards for liberalization and will have a detrimental effect on the US economy because it will disrupt established supply chains. This becomes apparent when looking at trade among the three countries in detail.

3.2.4 TPP and its Structure

NAFTA was the first comprehensive free-trade agreement to include both developed and developing nations, and it surpassed other prior trade agreements in terms of the range of products affected.[496] The Trans-Pacific Partnership (TPP) is being touted as the mega regional trade agreement in the 21st century.

TPP was signed on 4 February 2016 in Auckland, New Zealand, after seven years of negotiations.[497] At that time, it was a multilateral trade deal involving 12 Pacific countries:

[495] (Lester and Manak 2017)
[496] (Hills 2014)
[497] (World Trade Organization (WTO) 2016) p.85.

Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States and Vietnam. TPP is currently in a two-year period during which each signatory has to go through a ratification process. At the time of signing, it was the largest trade agreement in history. However, President Trump announced the withdrawal of the US from this agreement shortly after he took office in January 2017.

In its original 2015 configuration, the aggregate population of TPP countries exceeded 819 million, 11.1% of the world population. TPP therefore would have created one of the world's largest economic regions in terms of population.[498] The combined GDP of the twelve participants constitutes 37.4 % of the world GDP – about the size of China's GDP (US$11 trillion) and the EU's (US$16 trillion) combined.[499] The US accounted for the largest GDP share (US$18 trillion, 65.5%) followed by Japan (US$4 trillion, 15.1%), and Canada, Australia and Mexico (with 5.7%, 4.5%, 4.2% respectively).

TPP demonstrates the direction in which trade agreements have been moving. According to Petri and Plummer at the Peterson Institue for Intenational Economics (PIIE), TPP meets two key objectives: the lowering of barriers to trade and investment among TPP signatories, and establishing and updating market-oriented rules in a rapidly changing global business environment.[500] The general decline in worldwide tariffs and the proliferation of free trade agreements among TPP countries including NAFTA and ASEAN have cut intra-TPP tariffs from 5.6% in 1996 to 2.7% in 2014.[501] This means that the era of 'low hanging fruit' gains through tariff cuts is over. Further increases in trade benefits are only possible through reductions of non-tariff barriers (NTBs). Thus, TPP is aiming at establishing trade-related measures that strengthen and harmonize regulations, increase certainty, and reduce trade costs for businesses.

Compared to NAFTA, the TTP's terms are more comprehensive. Because NAFTA came into effect in 1994, it does not address new technological developments such as e-commerce, and barely touched on the market for services. NAFTA also did not get rid of all tariffs or subsidies:

[498] United Nations, *World Population Prospects the 2015 Revision.* https://esa.un.org/unpd/wpp/Download/Standard/Population/
[499] IMF, *World Economic Outlook (WEO),* April 2016. http://www.imf.org/external/pubs/ft/weo/2016/01/
[500] (Petri and Plummmer 2016) p.2.
[501] (Lakatos, et al. 2016)

Canada's supply management system for dairy, poultry and eggs was excluded from the original negotiations due to a pressure from domestic industry. Critics such as Public Citizen's Lori Wallach have portrayed TPP as "NAFTA on steroids".[502]

It has been observed that establishing comprehensive rules was the most distinctive aspect of TPP. If TPP succeeds it will "serve as an instructive negotiating laboratory that could yield useful precedents for other trade liberalization initiatives". Other non-TTP members might adopt the same comprehensive rules in order to obtain similar benefits. However, success hinges on whether the new rules liberalize or restrict trade. Rules that are too restrictive can have a negative impact on trade, and prove to be counterproductive.

[502] (Wallach 2012)

Table 6 The key differences between NAFTA and TPP

Trade Remedies	Parties confirm their WTO commitments regarding dumping and countervailing measures. NAFTA only: Allows exclusions from global safeguards if certain conditions are met. TPP only: Does not contemplate the possibility of replacing domestic judicial review of antidumping and countervailing determinations with a bi-national review panel.
Technical Barriers to Trade	TPP goes beyond NAFTA in reducing the potential for technical standards to impede trade.
Dispute Settlement	Both NAFTA and TPP contemplate a general dispute settlement mechanism between the Parties. TPP includes provisions designed to remedy weaknesses identified in NAFTA, such as the difficulties encountered establishing panels.
Labour Standards	NAFTA included labor matters in a side agreement: In TPP it is part of the main agreement. Both agreements include provisions pertaining to enforcement, procedural guarantees, cooperation, transparency and public awareness relating to labor laws. NAFTA relies on individual country's labor laws. Under TPP, members shall adopt and maintain labor rights under the ILO (International Labor Organization) convention, including freedom of association, elimination of forced and child labor, and protection against discrimination in employment.
Environmental Standards	NAFTA included environmental cooperation in a side agreement: In TPP it is part of the main agreement. Both NAFTA and TPP recognize the sovereign right of each Party to establish its own domestic levels of protection. Both also include minimum standards regarding procedural matters (e.g., that there are proceedings with due process of law). However, under TPP obligations are more numerous and deeper, and involve reference to various international treaties. Mechanisms for public participation in standard setting are specified in TPP.
Intellectual Property	NAFTA and TPP Intellectual Property protection provisions are broadly consistent. TPP has some new features which strengthens the protection of intellectual property (e.g. internet domain names, patent delays, longer patent protection, trade secret protection).
Trade Facilitation	TPP includes a specific chapter to address trade facilitation, including simplified or expedited customs formalities and automation.
Electronic Commerce	This is new for TPP. It prohibits duties on electronic transmissions, protects the personal information of e-commerce users, maintains a legal framework governing electronic transactions and adopts laws to proscribe fraudulent and deceptive online commercial activities.
State-Owned Enterprises	TPP takes a much stronger stance on state owned enterprises.

Source: by author based on (Dadush and Beatriz 2016)

Table 7 TPP Chapters and Annexes

TPP Chapter	Chapter in the report where primarily covered
1. Initial Provisions and General Definitions	Chapter 6
2. National Treatment and Market Access for Goods	Chapters 2, 3, and 4
3. Rules of Origin and Origin Procedures	Chapter 4
4. Textiles and Apparel Goods	Chapter 4
5. Customs Administration and Trade Facilitation	Chapter 6
6. Trade Remedies	Chapter 6
7. Sanitary and Phytosanitary Measures	Chapter 6
8. Technical Barriers to Trade	Chapter 6
9. Investment	Chapters 2 and 6
10. Cross-Border Trade in Services	Chapters 2 and 5
11. Financial Services	Chapter 5
12. Temporary Entry for Business Persons[a]	Chapter 6
13. Telecommunications	Chapter 5
14. Electronic Commerce	Chapter 5
15. Government Procurement	Chapter 6
16. Competition Policy	Chapter 6
17. State-Owned Enterprises and Designated Monopolies[a]	Chapter 6
18. Intellectual Property	Chapter 6
19. Labour	Chapter 6
20. Environment	Chapter 6
21. Cooperation and Capacity Building[a]	Chapter 6
22. Competitiveness and Business Facilitation[a]	Chapter 6
23. Development[a]	Chapter 6
24. Small and Medium-Sized Enterprises[a]	Chapter 6
25. Regulatory Coherence[a]	Chapter 6
26. Transparency and Anti-Corruption	Chapter 6
27. Administrative and Institutional Provisions	Chapter 6
28. Dispute Settlement	Chapter 6
29. Exceptions and General Provisions	Chapter 6
30. Final Provisions	Chapter 6
Annex I: Cross-Border Trade in Services and Investment Non-Conforming Measures	Chapters 2, 5, and 6
Annex II: Cross-Border Trade in Services and Investment Non-Conforming Measures	Chapters 2, 5, and 6
Annex III: Financial Services Non-Conforming Measures	Chapters 2 and 5
Annex IV: State-Owned Enterprises and Designated Monopolies Non-Conforming Measures	Chapter 6

Source: USTR, TPP full text. https://ustr.gov/tpp/#text, United States International Trade Commission 2016, p.48.

3.2.5 Terms of the Agreement

TPP consists of 30 chapters, only six of which deal with traditional trade-related issues (Table 7 above).[503] As explained in the previous section, TPP addresses issues beyond the scope of NAFTA and is more stringent than WTO rules. It includes sensitive sectors (agriculture and textiles), strict copyright and patent protections, internet governance, and labor and environmental standards.[504] Also, the agreement includes several chapters that have not been in previous US bilateral FTAs, such as state-owned enterprises, temporary entry of businesspersons, cooperation and capacity building, competitiveness and business facilitation, development, small and medium-sized enterprises, and regulatory coherence (in Table 7, see chapters marked with 'a').

TPP agreement has ambitious goals and distinctive features. Among these:[505]

- Offers comprehensive market access: All products or services are included in the agreement, unless explicitly restricted in GATT treaty implemented by WTO.[506][507] This "WTO plus issue coverage"[508] adopts an "everything is on the table" principle on the basis of a negative list.[509]

- Covers agriculture: [510] Market access for sensitive agricultural products (dairy, beef, sugar and rice) has been a contentious issue in free trade negotiations.[511] Japan's protective policies for its domestic rice sector are well known. If Japanese protection of its rice production remains, this will open the door for other members to shield their sensitive industries.[512]

[503] (Public Citizen n.d.)
[504] (United States International Trade Commission 2016) p.48. (Public Citizen n.d.)
[505] (Office of the United States Trade Representative (USTR) 2015)
[506] (Lim, Elms and Low 2012) p.9., (O'connor 2012)
[507] (Office of the United States Trade Representative (USTR) 2015)
[508] (Lim, Elms and Low 2012)p.9.
[509] (Schott, Kotschwar and Muir 2013) P.11-12.
[510] Trade remedies are trade policy tools that allow governments to take remedial action against imports which cause injury to a domestic industry. These remedies are anti-dumping actions, countervailing duty measures, and 'safeguard' actions.
See more details at WTO, https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm8_e.htm; and the Australian Government, http://dfat.gov.au/trade/topics/pages/anti-dumping-and-safeguards.aspx.
[511] (Schott, Kotschwar and Muir 2013) More details on the debate on pp.18-24.
[512] (Dawson and Bartucci 2013) p.iv.

- Encourages Foreign Investment and Investment in Infrastructure: New disciplines in new areas on foreign investment protection and non-discriminatory treatment would apply including service infrastructure (finance, insurance, telecommunications, air express delivery and other transportation services).[513]

- Addresses new trade challenges in commerce and trade agreements: TPP addresses both the role of state-owned enterprises and small businesses[514] as well as non-tangible or knowledge-based concepts such as intellectual property rights (IPR), telecommunications and the development of the digital economy. In some countries, state-owned enterprises have an entrenched position, and in such cases TPP provisions would help establish a level playing field between foreign private firms and state-owned enterprises. This objective is achieved by stipulating broad-ranging obligations on investment policy along with enforcement provisions.[515]

- Provides a platform with an open-ended agreement for wider regional integration: One of the unique characteristics of TPP is that it is designed in such a way that additional countries may eventually join. It was the very first FTA deal in which the number of countries participating increased during the course of the negotiations. While the expansion of the participants increases the economic footprint of the prospective deal, it complicates negotiations since each country needs to ensure domestic political support and has different incentives to join the agreement.

From the beginning, TPP has been envisaged as a 'living agreement', one that is both open to new members willing to sign up to its commitments/obligations and open to addressing new issues as they evolve.[516] Future agreed commitments would become legally binding through a sectoral annex. This architectural style is taken originally from the development of the European Union (EU), whose history began as the 'European Coal and Steel Community' and evolved into the 'Common Market of the European Community', and eventually became the 'European

[513] (Schott, Kotschwar and Muir 2013) p.13.
[514] (Office of the United States Trade Representative (USTR) 2015)
[515] (Schott, Kotschwar and Muir 2013) p.13.
[516] (Jasper 2015) The author included both TPP and TIPP. New issues can be added to the agreements without the need to re-open the initial international treaty nor modify participant's institutional frameworks.

Union'. This evolution has been referred to as 'broadening and deepening'.[517] The 'broadening' refers to successive expansion through the addition of new member-states; 'deepening' refers to the constant creation of new supranational institutional structures and continuous expansion and usurpation by a supra-national authority of powers and jurisdiction that were previously exercised by national, state, and local governments.[518]

Although the intention of TPP and details of the pact are clearly stated, TPP negotiation process has faced considerable opposition. The following section examines these concerns.

3.3 Critiques of TPP and Challenges of Trade Agreements

3.3.1 Political Gains and Economic Gains: Canada, Japan and US

In trade agreement negotiations, each nation has its own reasons for being at the table. Smaller countries, like Vietnam, are motivated by access to markets. Larger countries like Canada and Japan are also motivated by market access but tend to place a higher emphasis on political considerations. Until the conditions of the agreement are decided among participants, each nation needs to ensure domestic political support for 'gives and gets', by weighing 'economic gain and political pain' both at home and abroad.[519] In other words, like TPP, the more countries that participate, the more competitive economic trade becomes in the region and the greater the pressure exerted on less competitive sectors such as manufacturing and agriculture. Domestic influence may harden the negotiating stance of some nations and may even result in them withdrawing from the negotiation. This is exactly what happened when the US withdrew from TPP in 2017.

Canada

For Canada, the motivation to join TPP negotiations in 2012 was to expand its economic partnerships and deepen integration not only in North America but also with other important economies in East Asia.[520] It was also seeking a significant role in shaping the rules, including

[517] (Jasper 2015)
[518] (Jasper 2015)
[519] (Schott, Kotschwar and Muir 2013) p.3, and p.46.
[520] (Dawson and Bartucci 2013) p.42.

standardizing disciplines on trade and investment by state-owned enterprises that are consistent with the Investment Canada Act (which dictates the legal responsibilities of non-Canadians investing in Canada)[521] and introducing new mechanisms to minimize "buy local" provisions in government procurement arrangements.[522] In addition, Canada wanted to take a seat at the negotiation table to ensure the terms of the final agreement were at least consistent with NAFTA so that it did not have to undertake costly reforms in order to adapt to TPP rules. [523]

One major obstacle for Canada is agricultural policy, specifically Canada's supply management of dairy, eggs and poultry. The federally run quota system imposes prohibitive triple-digit tariffs on over quota imports. [524] Strong supply-managed commodity groups pressure the government to retain the system to protect domestic producers.

Japan

Japan joined TPP negotiations in 2013. It was interested in promoting more economic integration in the Asia-Pacific region, consistent with the goals of the Association of Southeast Asian Nations (ASEAN) and Asia-Pacific Economic Cooperation (APEC).[525] After the 2011 Tohoku earthquake and nuclear disaster, the Japanese government was under pressure to undertake reforms and stimulate the economy.[526] Prime Minister Shinzo Abe made it clear that Japan needed trade liberalization. Joining TPP is seen as a way to improve Japan's security and contain China's increasing influence in the region.[527] In addition, South Korea's successful free trade negotiation with the US and the EU created fears that Korean companies would gain advantages

[521] (Government of Canada)
[522] (Dawson and Bartucci 2013) p.iv.
[523] (Dawson and Bartucci 2013) p.9.
[524] (Schott, Kotschwar and Muir 2013) p.43.
[525] Asia-Pacific Economic Cooperation (APEC) is a regional economic forum established in 1989. APEC's 21 member are TPP's 12 members plus 9: People's Republic of China, Hong Kong, China, Indonesia, Republic of Korea, Papua New Guinea, The Philippines; The Russian Federation, Chinese Taipei, Thailand. (Asia-Pacific Economic Cooperation (APEC)). According to CogitASIA (A New Paradigm for APEC? 2010), the problem with APEC is that it does not have any legal mandate to compel economies to adhere to consensus agreements. On trade, APEC has been effective in tabling issues that help prepare members for increasing and expanding trade and investment, such as customs facilitation concepts and sector pathfinder initiatives in key areas such as energy and food security, but it has ceded effective trade liberalization efforts to ad hoc initiatives such as the Trans Pacific Partnership (TPP). More details on APEC and FTAAP at http://www.apec.org/.
[526] (Schott, Kotschwar and Muir 2013) p. 46-47.
[527] (Soble 2015) (Carpenter 2015)

in areas where Japanese exports have traditionally been strong, namely autos and electrical/electronic products.[528]

Despite strong support from the Japanese business sector, powerful opposition from agricultural lobbyists has been an obstacle to wholehearted Japanese participation in TPP negotiations. Rice and dairy have been the most contentious sectors, not only in TPP negotiations but also in other trade negotiations.[529] TPP's "everything is on the table" principle, in other words a "negative list" approach, was seen as destroying Japanese agriculture. In 2011, a keen proponent of the TTP, then foreign Minister Seiji Maehara, stated strongly that only 1.5% of Japan's gross domestic product came from agriculture and the nation should pay heed to the other 98.5%.[530]

The United States

In 2011, Hillary Rodham Clinton, then the US secretary of state, wrote in an article that "[o]ne of the most important tasks of American statecraft over the next decade will [….] be to lock in a substantially increased investment - diplomatic, economic, strategic, and otherwise - in the Asia-Pacific region". [531] The US's original motivation for joining TPP was to strengthen its geopolitical, security and economic ties across the Pacific, gaining an advantage vis-a-vis China. The Asia-Pacific has become a key driver of global politics and economics. Its remarkable economic growth over the past decade and its potential for continued growth in the future depend heavily on political security and stability.[532]

China, the world's second largest economy and the single most important economy in East Asia, is not participating in TPP negotiations. Exclusion of China from TPP, but inclusion of Vietnam, which is also a command economy, convinced some critics that TPP was more about politics than economics.[533] Some observers even believed that a central objective of TPP was to exclude

[528] (Brooks 2015) p.10. Korea-U.S. free trade agreement entered into force in March, 2012 (USTR, https://ustr.gov/trade-agreements/free-trade-agreements/korus-fta), and the EU-South Korea free trade agreement in July 2011 (European Commission, http://ec.europa.eu/trade/policy/countries-and-regions/countries/south-korea/).
[529] (Brooks 2015) p.9.
[530] (Landers 2011)
[531] (Clinton 2011)
[532] (Fergusson and Vaughn 2011) p.248.
[533] (Pilling 2013) (Carpenter 2015)

China.[534] If this was the case, TPP was originally more of a political and geopolitical security deal to strengthen US power in the region.

For some critics, the claim that TPP is being used as a policy instrument for the containment of China is unrealistic and counter-productive.[535] According to Schott, Kotschwar and Muir at the Peterson Institute for International Economics, China can't be ignored and contained. First, many TPP members and other countries already have extensive trade and investment ties with China, and there is a multilateral agreement between China and ASEAN (Figure 45).[536] Second, China is already a member of the US-created APEC zone which includes 21 Pacific Rim member economies. Brookings Institute trade analysts anticipate many benefits from TPP, but warn that the overall economic gains from TPP will be modest. Long-term effects of TPP will depend on how other countries in the Asia-Pacific region, such as China, react to it, as well as the impact of other free trade agreements. [537]

Despite the US remaining a leading trade partner for nearly all Asian states, the relative importance of the US has been declining. Thus, the lead taken by the US in joining TPP should have been a useful initiative to improve not only Trans-Pacific trade relations, but also to demonstrate US commitment to Asia by strengthening traditional strategic alliances and building new partnerships in the region.[538]

By withdrawing from TPP, President Trump's decision appears to discount the political value of entering into a closer relationship with Pacific Rim countries, particularly in face of rising Chinese influence. This withdrawal seems to be predicated entirely upon a perception that TPP might inflict economic losses and a belief that a 'better' deal can be negotiated. However,

[534] (Pilling 2013) (Carpenter 2015)
[535] (Carpenter 2015) (Solis 2013)
[536] (Schott, Kotschwar and Muir 2013) p.55.
Those include bilateral agreements with Chile, New Zealand, Singapore, Peru, Australia, and South Korea. (Ministry of Commerce of the People's Republic China, China FTA Network, http://fta.mofcom.gov.cn/list/enasean/chianaseannews/1/encateinfo.html)
[537] (Bader and Dollar 2015)
[538] (Fergusson and Vaughn 2011) p.252.

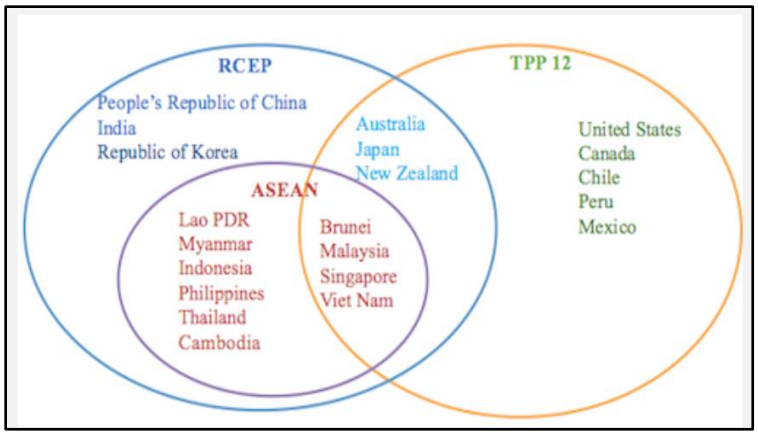
isolating the US economy by introducing protectionist measures might instead encourage retaliation by trading partners, which with significant negative consequences.[539]

The China Factor

While the US is embracing more protectionism, other nations are not standing still. At the World Economic Forum in Davos in 2017, President Xi Jinping delivered a strong defence of globalization and declared China would move towards an open-door policy.[540]

China is extending its influence in the Pacific Rim region. It is claiming the resource-rich South China Sea (Senkaku/Diaoyu island and the Spratly Islands);[541] has launched the Chinese-led Asian Infrastructure Investment Bank (AIIB)[542] which is intended to displace the American backed the World Bank,[543] and initiated a rival mega trade deal - the Regional Comprehensive Economic Partnership (RCEP) which excludes the US (Figure 45).

Figure 45 TPP, ASEAN and RCEP Member States



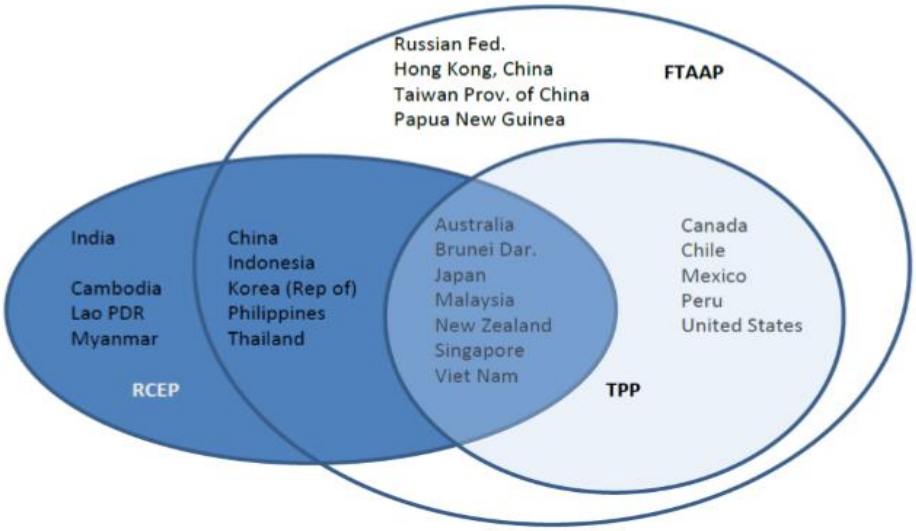
Source: (Chen 2015) As of 2015.

[539] China is very successful and creative in terms of the way it retaliates. For example, when the US levied tariffs on Chinese-made solar panels between 2012 and 2015, China responded by imposing tariffs on American polysilicon, raising the cost of solar equipment and reducing employment opportunities in both nations.
More details at https://www.washingtonpost.com/business/economy/chinese-tariffs-may-hurt-us-makers-of-solar-cells-raw-material/2013/07/23/01ac60a4-f3d9-11e2-aa2e-4088616498b4_story.html?utm_term=.1419af93717a
[540] (Guardian 2017)
[541] (Hookway and Brereton-Fukui 2013) (Carpenter 2015) (Sanger and Gladstone 2015)
[542] The Asian Infrastructure Investment Bank was established in 2014, and is a multilateral development bank (MDB) which focuses on infrastructure and other productive sectors (e.g. energy, transportation, and telecommunication etc.) in Asia. As of April 2015, 57 states have signed the Articles (the US and Japan's did not participate). More information on AIIB at http://www.aiib.org/.
[543] (Carpenter 2015)

It is difficult to predict what will happen now that the US has pulled out of TPP. Sometime in the future TPP and/or RCEP may become a more integrated "mega-regional" trade agreement, a Free Trade Area of the Asia Pacific (FTAAP) (Figure 46).[544] This future economic integration could deliver major benefits to the business sectors through a simplification of regulations and reduced trade diversion.

This possibility was discussed by APEC leaders when they met in Bogor, Indonesia in 1994, and reaffirmed at the Yokohama conference in 2010 which issued the "Pathways to FTAAP" proposal.[545] [546] TPP and RCEP have many overlapping memberships. Progress under these agreements will determine possible pathways towards the realization of the FTAAP with all 21 APEC members.

Figure 46 Three Trans-Pacific Pacts: TPP, RCEP, and FTAAP



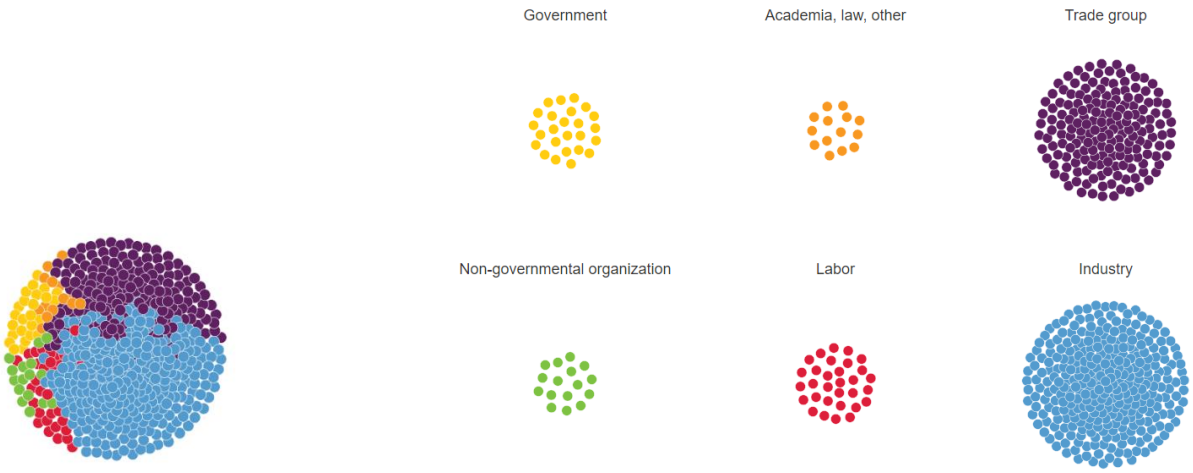
Source: (Tran and Heal 2014)

[544] (Murphy 2015) (Tran and Heal 2014)
[545] (Schott, Kotschwar and Muir 2013) p.3.
[546] In 2010, the White House website had a press release on APEC's announcement on future plans for FTAAP. Since 2006, APEC has been conducting a multi-year study on the long-term prospects of an FTAAP, "…We believe that an FTAAP should be pursued as a comprehensive free trade agreement by developing and building on ongoing regional undertakings, such as ASEAN+3, ASEAN+6, and the Trans-Pacific Partnership, among others.
White House Office of the Press Secretary. 2010. *APEC/Yokohama: Pathways to a Free Trade Area of the Asia-Pacific.* November 13. The White House.

3.3.2 Business influence

There are two main criticisms of TPP: that it was negotiated behind closed doors and that it served the interests of big business. For example, the composition of the groups involved in US trade negotiations suggests that the public may have good reason to worry about the influence of special interest groups (Figure 47). Of the 566 individuals working with the Obama administration to establish trade policy, 480 or 85% of the total committee members were from private industry and trade groups.[547]

Figure 47 Participants in the US trade Advisory Committee



Source: (Ingraham and Schneider 2014)

One critic of TPP wrote:

> TPP was a massive, controversial, pro-corporate "free trade"…It was stopped by thousands of diverse organizations representing working people united across borders – fighting against corporate power and for the environment, health, human right and democracy….TPP text was the result of 500 official US trade advisors representing corporate interests involved in years of closed—door negotiations while the public, press and Congress were locked out. At the heart of TPP were new rights for thousands of corporations to sue the US government before a panel of three corporate lawyers that could award

[547] (Ingraham and Schneider 2014)

> unlimited sums, including for loss of future expected profits, to be paid by American taxpayers when the corporations claim US policies violated the new entitlements TPP would provide them.[548]

Many private industry groups believe liberalization of trade will lead to further losses of manufacturing jobs to low wage nations. The manufacturing, financial services, pharmaceutical and agricultural industries are particularly well known for their successful lobbying efforts.

3.3.3 More regulation and restriction burdens

The signatories of TPP represent a diverse array of countries in terms of geography, population, economic development and sectoral specialisation. The overriding challenge addressed by TPP is the implementation of high standard rules that provide a level playing field for all participants. TPP includes provisions on cooperation to help build the capacity of human capital, physical infrastructure, investment capital, and other areas. The intent is to ensure that all parties are able to meet their commitments under the Agreement and take full advantage of its benefits.[549][550]

TPP explicitly rules out any 'two-speed' or 'special' and differential (S&D) treatment for developing country members.[551] Its success therefore depends on "striking the right balance" between enforcing a high standard of accord compliance and accommodating developing countries with a transitional implementation process.[552] Due to TPP's comprehensive terms, some countries (particularly developing countries) will require many political reforms and economic investments in order to join TPP.[553] Indonesia and the Philippines are examples of jurisdictions in which protection of agriculture and industry are extremely strong.[554] China is not ready at this point to implement and enforce the types of obligation required by TPP. However, it might be inferred that China has begun to take steps in this direction. These include removing preferential treatment for State Owned Enterprises (SOEs) and improving corporate

[548] (Public Citizen n.d.)
[549] (Office of the United States Trade Representative (USTR) 2015)
[550] (Schott, Kotschwar and Muir 2013) p.8.
[551] (Lim, Elms and Low 2012) p.12.
[552] (Schott, Kotschwar , Muir 2013) p.8.
[553] (Hookway and Brereton-Fukui 2013)
[554] (Hookway and Brereton-Fukui 2013)

governance,[555] establishing Free Trade Zones and reducing restrictions on foreign direct investment.[556]

Moreover, the most problematic aspect of TPP is its overly restrictive rules and harmonization of regulations. Iain Murray at the Competitive Enterprise Institute, pointed out that these regulatory burdens might outweigh the benefits of TPP.[557] As he explains:

> Rather than a simple agreement to lower tariffs for mutual benefit, it morphed into a massive international regulatory regime over 5,000 pages long. It was weighed down by numerous non-trade provisions aimed at appeasing non-trade special interests…but these should be considered in separate treaties and have no business being part of trade negotiations. Instead, TPP went down the road of regulatory harmonization, a good-faith effort to tackle non-tariff barriers to trade that became hostage to special interests. Moreover, the complexity of the regulations meant that there needed to be an investor-state dispute resolution process, whereby companies that had invested in a country on the basis of the agreement could sue the country for redress of grievances if the regulations weren't properly applied. The presence of these processes led to accusations that TPP was "corporatist" and that it was anti-democratic, putting corporate interest above national legislation.

These comments apply not only to TPP, but also to the Transatlantic Trade and Investment Partnership (TTIP).[558] The purpose of trade agreements should be to promote free trade, not to achieve other objectives.

Disadvantages caused by regulatory harmonization

Non-tariff measures (NTMs) that inhibit trade include product-specific requirements, registration and certification requirements, licenses, and quotas and prohibitions. NTMs are used by

[555] (Freshfields Bruchhous Deringer)
[556] (Freshfields Bruchhous Deringer)
[557] (Murray 2017)
[558] (Dowd 2017)

governments for various reasons. In some cases, they help facilitate trade by promoting inter-operability, product safety and quality, and environmental stewardship.[559][560]

Lack of compatibility among regulations in various sectors such as transportation and food safety, telecommunications, pharmaceuticals, environmental protection, labour markets, and professional services add to compliance and enforcement costs for both government and industry.[561] For businesses, these higher costs hinder competitiveness and productivity, as nontrade barriers and incoherent rules distort the market and complicate the most efficient deployment of scarce resources.[562] Small and medium enterprises suffer disproportionately.[563] For governments, regulatory divergence also leads to less than optimum outcomes in achieving regulatory goals.[564]

According to a former federal trade official in Canada, and professor at Carlton University, Joseph Hart, divergent standards and technical regulations between trading partners in different national markets, coupled with the costs of testing and certifying compliance with those requirements, can constitute between 2 and 10% of overall production costs.[565]

For the reasons above, TPP attempts to harmonize regulations has resulted in a document more than 5,000 pages long. However, if TPP rules are not consistent with the rules governing other trading blocs, the international trading system will be further fragmented. Also, the regulatory

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[559](International Trade Centre (ITC)) *Understanding Non-Tariff Measures.* "Non-tariff measures" (NTMs) are mandatory government regulations on imports and exports, excluding tariffs, those influence the price and/or quantity of goods being traded. The most detailed informaion on NTMs and their classification can be found at ITC. *Lecture 4: Classification of NTMs and POs: Online courses on Non-Tariff Measures.* http://ntmsurvey.intracen.org/media/Lecture%204%20Classification%20of%20NTMs%20and%20POs%20-%20Storyline%20output/story.html

[560]According to WTO, non-tariff barriers include import licensing, rules for valuation of goods at customs, pre-shipment inspections, rules of origin ('made in'), and trade related investment measures. (WTO). *Non-tariff barriers: red tape, etc.* https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm9_e.htm

[562] OECD defines non-tariff barriers as "all barriers to trade that are not tariffs. Examples of these include countervailing and anti-dumping duties, "voluntary" export restraints, subsidies which sustain in operation loss making enterprises, technical barriers to trade, and obstacles to the establishment and provision of services". https://stats.oecd.org/glossary/detail.asp?ID=1837

[561] (Hart 2007) p.7.

[562] (Hart 2007) p.16.

[563] (Lim, Elms and Low 2012)p.9.

[564] (Hart 2007) p.16.

[565] (Hart 2007) p.16.

harmonization will increase costs, and harmonized standards will soon become obsolete and inefficient.[566] As Fran Smith at the Competitive Enterprise Institute, has pointed out:

> Often policymakers on both sides of the Atlantic, in reviewing the regulatory state's complexity and lack of uniformity, call for "harmonization" of regulations. However, such harmonization can lead to conformity and stagnation – resulting in superior alternatives not being explored. Rather, policymakers should look to competition among regulatory regimes. This "discovery process" is a better way to reduce transaction costs and thus increase voluntary wealth creation.[567]

In other words, since governments only have limited information and are pressured by special interest groups, it is preferable for governments to refrain from deciding which standard is applied, but instead to let businesses work on better standards and compete with each other. In the end, the most efficient and practical regulations will be adopted and modified without cumbersome legal processes.

Murray further suggests that regulatory competition works best by mutual recognition where each standard is recognized and allowed to be used within the trade agreement block as long as those standards produce the same outcomes. Mutual recognition would simplify the regulation process, and reduce costs for businesses and government. This point will be elaborated in the following section.

In short, TPP has advantages and disadvantages. However, over restriction and regulations in many areas result in higher costs, more controversies, less flexibility and less liberalization of trade. After the US withdrawal, the impact of TPP is highly uncertain.

[566] (Murray 2017)
[567] (F. Smith 2013)

4. Trade Policy and Agreement Options for Britain after Brexit

4.1 Introduction

In June 2016, U.K. citizens voted to leave the EU effective March 2019. There is no precedent as to how withdrawal from the EU should be executed, nor what kind of relationship the EU will have with the U.K. thereafter.[568] More importantly, what will happen after Brexit is highly uncertain.

The Brexit decision was made based on weighing two options: 1) the economic benefits from staying as a member of the EU and 2) regaining political sovereignty and freedom from the burden of EU regulations.[569] Julian Jessop, Chief Economist at the Institute for Economic Affairs in the UK, pointed out that the EU's growing integration has often exacerbated economic and social problems rather than alleviating them in many countries.[570] He stated that the Brexit debate exposed some of the EU's counterproductive rules, regulations, and other policies.[571]

Brexit voters sent a clear message that the primary concern of UK policymakers should be to promote the interests of UK consumers, not to protect producers in other EU countries.[572] New trade agreements for Britain are a very important part of Brexit negotiations, both with the EU and with other countries. It is quite clear that the existing range of tariffs set by the EU is not necessarily aligned with the UK's national interest. For example, there are high tariffs on food, clothes, footwear, and umbrellas (very important for U.K. citizens) which amount to regressive taxes and disproportionately affect the poor.[573] Such tariffs are also an extremely expensive way

[568] (Dhingra and Sampson 2016) The formal procedures for leaving the EU were laid out in Article 50 of 2009 the Lisbon Treaty. Britain is the first country to leave the EU. (Hunt and Wheeler 2017) The EU is an economic and political partnership involving 28 European countries with a combined population of more than 500 million. It functions as a "single market" as if the member states were one country, allowing goods and people to move freely. The EU has a parliament and sets rules and regulations in a wide range of areas including the environment, transportation, consumer rights, and even mobile phone charges. In 2015, the EU's budget was 145 billion euros, contributed by member countries. More detailed history and how the EU works, please refer to "What is the EU and how does it work" at http://www.bbc.co.uk/guides/zgjwtyc.
[569] (BBC News 2017)
[570] (Jessop 2017)
[571] (Jessop 2017)
[572] (Dowd 2017)
[573] (Dowd 2017) p.17.

to protect jobs, and destroy jobs in non-protected domestic industries, as well as jobs in developing countries.[574]

4.2 Trade Agreement Options

One particular concern for the UK is retaining access to the EU market. According to international treaty law, when a country secedes or disengages from a broader union, there is a presumption that their relationship will remain the same unless explicitly changed.[575] Thus, when Brexit happens, there is a presumption that its trade and treaty relationships with all other entities, including the EU, will continue to be the same. In other words, in the short term, the UK does not have to agree to any post-Brexit trade treaty with the EU.[576]

At this point, there are a number of possible options for trade agreements for Britain (Table 8):

Table 8 Brexit Trade Agreement Options with the EU

	Zero tariff goods	Zero non-trade barriers	Zero barriers to trade in services	Free Movement of People	EU Regulations and Policies	CAP*	Contribute to EU budget
1. EEA Norway	Y	Y	Y	Y	Y	N	Y - about 83% current
1.Bilateral Switzerland	Y	N	N	Y	case by case	N	Y - about 40% current
WTO	N	N	N	N	N	N	N
WTO with unilateral zero tariffs	Y	N	N	N	N	N	N
New FTA	?	?	?	N	?	?	N

Source: by Author * = Common Agricultural Policy

[574] (Dowd 2017) pp.16-17. According to this article, in 2016 there was more than 12,000 import tariffs in the EU which created an "external tariff wall", preventing consumers from buying goods at world prices.
[575] (Dowd 2017) P.24.
[576] (Dowd 2017) pp.24-25.

The first option is to adopt the trade policies of non-EU countries such as Norway and Switzerland. 'Doing a Norway' model and joining the European Economic Area (EEA), or 'doing a Switzerland' model and negotiating bilateral deals with the EU would link the UK to the EU, but membership comes with a cost. This cost is not much less than being a member of the EU, but Britain would no longer have political representation in the EU policy making process.[577] The UK would also have to comply with many EU regulations and directives, an idea that was rejected by many UK voters who supported Brexit. These options are unlikely to be chosen by either the UK or the EU.

Another alternative is "going it alone as a member of the World Trade Organization".[578] This would give the UK more sovereignty without a long and complicated negotiation process. WTO governs trade with the EU and with almost all other counties in the world. WTO members have access to each other's markets with very low 'most favored nation' (MFN) tariffs.[579] According to the World Bank, the average tariff charged on imports by the EU is only 1.6%.[580] Of course, Britain is better off by striking a mutual UK-EU free trade with zero tariffs and free trade in services. However, if Britain fails to reach an FTA with the EU, a number of economists have argued that the best strategy is to walk away: 'No deal' is better than a 'bad deal', since WTO fall back option can be executed unilaterally and involves fairly low tariffs.[581]

4.3 Advantages and Disadvantages Under WTO Default Option

Advantages:

- The UK would achieve more sovereignty and would no longer have to pay membership fees to support a bloated EU bureaucracy.

[577] (Dhingra and Sampson 2016) pp.4-6.
[578] (Dhingra and Sampson 2016) pp.7-8.
[579] (Dhingra and Sampson 2016) p.7. Under WTO rules, each member must grant the same 'most favoured nation' (MFN) market access, including charging the same tariffs, to all other WTO members. The only exceptions to this principle are that countries can choose to enter into free trade agreements such as the EU or EFTA and those who choose to give preferential market access to developing countries. According to WTO website, the number of members nations as of July 2016 was 164. (https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm)
[580] (World Bank 2017a)
[581] (Dhingra and Sampson 2016) In this paper, they point out that there are other drawbacks to this option. For example, WTO does not cover some important areas including financial services and labor mobility, and its coverage is far less progressive than EU/UK's standards for trade in services. Essentially, this means that UK service producers would have a limited access to the EU market. (pp. 9-10).

- This option can be achieved unilaterally. There is no need for protracted trade agreement negotiations. Uncertainty about changes in rules makes it difficult for businesses to operate. A quick reset is better than a long period of uncertainty.

- WTO has already negotiated low tariff rates and, under WTO rules, the EU is not allowed to change the structure of tariff rates for the UK without doing the same thing for other countries, something it is unlikely to do.

- The UK would no longer have to comply with the EU's Common Agricultural Policy.

- The UK would no longer be subject to onerous EU regulations, which add a significant cost to businesses with respect to compliance.

- The UK would be an independent player in trade negotiations[582] and could opt to seek closer integration with countries outside Europe including the US, India, China and the Middle East. Inward investment and ripple effects on the UK economy could be phenomenal.[583] The UK could seek trade agreements tailored specifically to the interests of its own businesses and consumers.

- Close proximity to the EU and a long history of trade with the that entity works in Britain's favour. Despite reductions in transportation costs, international trade and investment still fall substantially with distance,[584] while historical relationships play an important role in shaping the direction of international trade.[585]

Disadvantages:

- Change is always disruptive. There will be winners and losers when the rules change.

[582] (Dhingra and Sampson 2016)
[583] (Dowd 2017) p.21.
[584] (Dhingra and Sampson 2016)
[585] (Eichengreen and Irwin 1998) p. 55.

- Although able to negotiate its own trade deals independent of the EU, the UK would be a smaller entity and therefore have less bargaining power.[586] However, if Britain proposes unilateral free trade in these negotiations, that deficiency disappears.

- A low tariff versus no tariff would still have a negative effect on British export volume to the EU. Although the average tariff in the EU is 1.6%, it varies by sector. For example, the tariff on manufactured goods is between 3 and 5%. Any reduction in overall exports to the EU should be relatively small, but it would have a different effect on different sectors. If relationships between UK and EU firms are well-established and profitable, the cost of switching to new suppliers may not be worthwhile. However, the imposition of a tariff will put pressure on UK suppliers to lower their prices to absorb the increased cost.

- WTO option does not provide free trade in services. Economists differ on the potential impact of this. Patrick Minford of Cardiff University, and Edgar Miller at Cass Business School (City of London College),[587] argue that insurance and asset management are reasonably immune from this change, with only about 9% of the City of London's total revenue at risk. However, others, such as Ingo Borchert at University of Sussex, are less optimistic and suggest it is important to negotiate a new services agreement to maintain the UK's position as a net exporter of services to the EU.[588]

- If the UK is no longer subject to Harmonization of Rules, it may eventually diverge from EU rules, which will potentially increase transaction costs for businesses.

- Once it is no longer part of a common market, the UK will be subject to the EU Rules of Origin (ROO) requirement. Given the increasing complexity of supply chains, this will add huge costs for UK businesses dealing with EU partners.

Net Benefits and Tit for Tat

Economic predictions are always problematic given the number of unforseen events that can affect future outcomes. However, it is interesting to look at a recent study of the net benefits of

[586] (Dhingra and Sampson 2016) p.12.
[587] (Minford and Miller 2017)
[588] (Borchert 2016)

WTO option provided by Minford and Miller, based on the macro-models of the Cardiff University Macroeconomics Research Group.[589] It suggests that British consumer prices would fall about 8% and food prices would fall about 20%. Consumer price declines would be derived from eliminating EU tariffs and non-tariff trade barriers on imports from non-EU countries. GDP would increase by about 4% compared to the level it would achieve if Britain remained in the Single Market. In addition, there would be more gains from avoiding contributions to the EU budget (about €10 billion per year) and savings on compliance and administration costs of some €3 billion per year to enforce over 12,000 EU import tariffs.[590] They conclude that the EU, the largest merchandise and commercial services market, would remain Britain's biggest trade partner.

Minford and Miller specifically counsel against engaging in 'tit for tat' (raising tariffs in response to actions by the EU) in any future negotiations with the EU. Going back to the arguments first enunciated by Cobden and Bright leading up to the Repeal of the Corn Laws in 1846, they argue that tariffs cause self-harm because they reduce gains from free trade to the consumer and disrupt global supply chains.

4.4 Mutual Recognition Agreements

If Britain's primary goal for new trade agreements is to benefit the consumer and maximize trade for its businesses, it should pursue trade agreements that guarantee free movement of goods, and services as much as possible.[591] Such a strategy would be simple, involve few regulations, and could be implemented unilaterally (i.e. without any negotiations).

One option that has already been tested, is the use of 'mutual recognition agreements' that acknowledge differences between different countries' regulatory systems and bridge the gaps in regulatory standards, rather than attempting to harmonize them. [592] Mutual recognition arrangements work well among developed countries where regulations and standards are high and legal systems function well. However, they do not work as well with developing countries

[589] (Minford and Miller 2017)
[590] (Dowd 2017) p.16. (Minford and Miller 2017) p. 2.
[591] (Dowd 2017) p. 31.
[592] (Dowd 2017) p. 31. (Freund and Oliver 2015)

where prevailing standards and legal systems fall below those of developed countries. Given that Britain has already harmonized its standards with the rest of the EU, it could move to this model immediately, while but at the same time, given itself some freedom to implement slightly different rules in the future. The key here would be to maintain enough similarity to enhance the flow of trade.

One example of a successful mutual recognition agreement is the Australia-New Zealand single economic market, based on the Trans-Tasman Mutual Recognition Agreement which took effect in 1998.[593] This agreement applies to the sale of goods and the registration of occupations between Australia and New Zealand. It states:

- A good that may legally be sold in Australia may be sold in New Zealand, and a good that may be legally sold in New Zealand may be sold in Australia. This is regardless of differences in standards or other sale-related regulatory requirements in Australia or New Zealand.

- A person registered to practice an occupation in Australia is entitled to practice an equivalent occupation in New Zealand, and vice versa, without the need for further testing or examination.[594]

This agreement creates a seamless market without complicated negotiations. Benefits include:[595]

- Lower business costs.
- Enhanced efficiency resulting from manufacturing to one standard.
- Greater consumer choice.
- Greater cooperation between regulatory authorities.
- Greater discipline among regulators: discourages the introduction of new standards, regulations and occupational registration requirements. This makes a huge difference

[593] (Dowd 2017) p. 31. (Australia Government, Department of Education and Training 2017)
[594] (Australia Government, Department of Education and Training 2017)
[595] (New Zealand Ministry of Business, Innovation and& Employment 2017)

compared to regulatory harmonisation (as in TPP and TTIP which involve thousands of pages of broad area coverage). [596]

Another example of the benefits of mutual recognition comes from a 2015 study by Freund and Oliver at the Peterson Institute. It looks at the expected effects of mutual recognition of auto safety regulations between the US and the EU in TTIP.[597] Currently, without mutual recognition, companies must produce two versions of the same model for the two different markets. For example, Audi produces one version of the A7 for the US market to meet US regulations and a different model for Europe to meet European regulations. This raises production costs, reduces the available varieties, and encourages price discrimination by producers.[598]

Since there is no significant difference between the safety outcome in European countries versus those of the US, mutual recognition of safety standards for automobiles is a realistic policy proposal. Benefits include minimal adjustment to current systems and no requirement for one standard to change (harmonize) due to the safetly certification legislation in the other jurisdiction. Freund and Oliver estimate that implementing mutual recognition in TTIP would mutually boost automobile exports by at least 20%.

Mutual recognition seems to offer a better alternative to regulatory harmonization. It reduces the complicated negotiation process, reduces transaction costs, improves efficiency, encourages innovation, and benefits consumers in the form of lower prices and greater choice. As long as each country's regulations and standards are high and have similar outcomes, mutual recognition should be sought in trade agreements. Britan could definitely use this option with both the EU and the US to expedite trade negotiations, to the benefit of all.

4.5 Other Implications

A 'consumer first', free trade policy would send the message that the UK is 'open for business'. Britain could take the opportunity presented by Brexit to once again become a world leader in global free trade: open to the free movement of goods, services, capital and investment, and

[596] (Murray 2017)
[597] (Freund and Oliver 2015)
[598] (Freund and Oliver 2015)

providing strong property rights and a transparent legal framework to make it work. Brexit voters gave their government a mandate to put national consumer interests ahead of EU regulations and narrow sectoral interests. Brexit offers Britain the freedom to have an alliance with many, instead of remaining within the EU fortress. It could bring the UK many new opportunities and sustainable economic growth over the long term. Moreover, this decision could benefit not only UK consumers but also people in other nations, particularly those in developing countries.

4.6 Conclusion

The high point in US protectionist trade policies and the low point in US trade was reached after the implementation of the Smoot Hawley Act in 1930. The results were disastrous. This sharp increase in tariffs was rescinded four years later after much damage had been done to the global economy. Since that time, there has been an increase in trade liberalization by GATT and WTO, significantly reducing the average international tariff from 40% in 1947 to about 2.7% among member countries by 2014.

In the last fifteen years, trade agreements have become more restrictive as a result of incorporating an increasing number of 'non-trade measures' (NTMs) into their terms. 'Managed trade' represents a growing and alarming trend in efforts that are supposed to be seeking trade liberalization. It usually prevents realization of this objective and hence is very costly for consumers. NTMs can be used by powerful countries to protect their industries from 'unfair' competition. Rather than promoting innovation, managed trade becomes a means of protecting inefficient industries. President Trump has specifically talked about renegotiating 'bad' trade agreements in order to level the playing field to protect American jobs. Developing countries are particular vulnerable to such tactics.

Obstacles to trade other than tariffs[599] have received a great deal of attention in recent trade negotiations. If such barriers are reduced, they facilitate trade, but often they accomplish the opposite.

Trade agreements, in general, have a number of weaknesses:

[599] e.g. customs procedures and phytosanitary requirements.

1. They take a great deal of time to negotiate (providing employment for negotiators and associated government officials) because of the difficulty of reaching a consensus among parties. They get mired in difficult issues like trade in agricultural products (e.g. the Doha Round) and non-tariff barriers. As the negotiation process drags on, the world economy continues to evolve so any agreement is obsolete by the time it is signed.
2. Trade agreements are sensitive to the incumbent government's policy, as is starkly demonstrated by President Trump's abrupt withdrawal from TPP. Trade negotiations are used as tools to further domestic policy agendas.
3. Politicians have much shorter time horizons and different criteria for success than consumers or businesses. Therefore, trade policy may maximize neither consumer welfare nor business efficiency. Government officials often promote their own interests by securing favors for special-interest groups at the expense of the general public. Special interest groups include not just business but also labor organizations, 'under-employed intellectuals' and well meaning, but often ill-informed consumers.
4. Changes in trade policies create winners and losers: they tend to be biased in favor of producers over consumers and often benefit one business sector over another.
5. Trade agreements are designed without precise foreknowledge of how a policy will perform when subject to the future interaction of complex market forces which are unknowable at the time negotiations are underway.
6. By including non-trade items like environmental and labor conditions, they create barriers to trade, particularly for developing countries.

Politicians are heavily influenced by special interest groups. Businesses, such as international pharmaceutical companies, have exerted influence to make patent regulations a requirement in recent trade agreements. Major aerospace companies have all received government subsidies, contrary to WTO rules, but are nonetheless quick to claim that their competitors are violating the rules when they do the same. Any increase in prices is ultimately passed on to the consumer, who is likely unaware of the role such actions play in the price her or she pays.

Protectionist measures ignore the importance of international supply chains to all the participating countries. They reduce the competitiveness of businesses, ensure higher prices for consumers, and encourage firms to either establish new supply chains in countries like China or to invest in more automation to reduce the cost of their domestic wage bill. Protectionism also underestimates the likely retaliation from trading partners, and raise "the specter of a global trade war, crimping the free-flow of goods and services, and dragging on productivity, corporate profitability and consumer demand", according to a report reflecting the perspectives and global expertise of macroeconomists, market strategists and key sector analysts at Morgan Stanley.[600] China has already shown that it will implement 'tit for tat' responses to American restrictions.

President Trump is the first protectionist president in the US since Herbert Hoover and is at odds with the traditional pro-trade stance favoured by the Republican Party. His threat to tear up existing trade deals and to implement more mercantilist measures is unlikely to achieve any of his stated objectives.

Britain is in the process of reviewing its trade policies as it prepares to leave the EU. The EU appears to be digging in its heels in preliminary negotiations. Given the fallback option of WTO tariff regime, Britain should not resort to a 'tit for tat' response if the EU refuses to remove tariff barriers. It would be better off pursuing a unilateral tariff free policy. As the 19th century French economist Frédéric Bastiat stated: "It makes no more sense to be protectionist because other countries have tariffs than it would to block up our harbours because other countries have rocky coasts".

[600] (Morgan Stanley 2017)

CHAPTER 5 CONCLUSION

1. Thesis Findings

Humanity has always lived in groups in order to survive. Over time, people have traded with each other in order to take advantage of each other's expertise. One rarely thinks about the benefits of specialization and trade: from getting a haircut or being able to buy an inexpensive T-shirt, to having a special cancer treatment in the US because there are excellent specialists who devote their time to the study and practice of medicine (rather than growing their own food to survive).

Donald J. Boudreaux, an American economist at George Mason University, defines globalization as "the advance of human cooperation across national boundaries".[601] Technical change in general, and advances in transportation and telecommunication technology in particular, create the potential for specialization and trade on a global scale. This potential is unlocked when companies develop global supply chains over increasingly long distances in order to provide superior products to consumers at a reasonable price.

In the case of food, technological progress in such things as shipping, refrigeration and food processing has allowed the majority of the world's population access to a broader variety of food. Those in the northern hemisphere are now able to get a regular supply of Vitamin C in winter from Spanish oranges or potassium from bananas imported from Central America. Society is now more immune to drought and famine because food can be traded among many partners worldwide.

The case of Apple Inc. in Chapter 2, is a prime example of how global supply chains have contributed considerably to mass produce sophisticated electronic devices. We get pleasure and utility from the world's technological expertise embodied in the iPhone, and more people are able to afford this technical marvel because the rise of these supply chains has driven down costs. Components of iPhones and many other products now cross various international borders before

[601] (Boudreaux, 2008) p. 1

being assembled into final products and shipped to consumers in markets around the world. The success of Apple is evident by its share price and high profit margins.

This study suggests that consumers do not capture the full benefits of international trade because of an 'unholy alliance' between businesses and national governments limits competition. Consumers unwittingly facilitate this conspiracy against their own best interests because they are prone to what Caplan labels an 'anti-market bias': they support government intervention which they (mistakenly) believe will protect them from the negative social consequences of 'unbridled laissez-faire capitalism'. This mandate for intervention enables governments to use trade negotiations to manage trade rather than pursuing the free trade which would maximize benefits for their citizenry. NAFTA and TPP are prime examples of 'managed trade" agreements, and have been heavily influenced by political considerations.

The process of managing trade at a global scale began with GATT. Dani Rodrik of Harvard pointed out that, "GATT's purpose was never to maximise free trade. It was to achieve the maximum amount of trade compatible with different nations doing their own thing. In that respect, the institution proved spectacularly successful".[602] The collapse of the Doha round of WTO negotiations led to attempts to manage trade at the regional scale. As shown in Chapter 4, the amount of time devoted to non-trade measures in the protracted negotiation of TPP serves to emphasize that 'free trade' is not the prime objective.

When the objective of trade negotiations is managed trade rather than free trade, governments extract concessions from weaker partners in order to achieve geo-political objectives. Businesses also exert influence in order to avoid exposure to the competition they would face under free trade. Many companies benefit from the protection given to brands when intellectual property rights are among the conditions imposed by the more powerful parties to trade negotiations. For example, Boeing clearly benefits from free trade in the components it uses to assemble its aircraft, and from the subsidies it extracts from the US government. These subsidies have been challenged by its major competitor Airbus of France, under WTO rules. Apple Inc. also

[602] (Rodrik, 2011) p.75

benefitted from import restrictions imposed by the US government on Chinese brand name smart phones due to cybersecurity concerns.

Ever since trade extended beyond our immediate surroundings, it has been under assault. Manufacturers have jealously protected their markets from outsiders through organizations such as guilds which first made their appearance during the Roman Empire. Governments have seen trade as a key source of revenue and a tool used in pursuit of foreign policy objectives.

People have always feared changes as well as who are different from themselves (Caplan's 'anti-foreigner bias'). The food miles lobby takes this bias to extreme levels, implying that any foodstuff that has passed through the hands of foreigners may be sub-standard. Failure or discontent are frequently blamed on outside forces, to avoid facing up to the real underlying causes and the associated responsibility. Despite all the evidence showing the benefits of trade, politicians like Trump play on these fears and invoke global trade as a bogeyman to further their own political ambitions.[603]

Over the last 250 years, the world has under gone a rapid period of transformation. We have both embraced technical change and railed against it. In the early 1800s, the Luddites smashed machines because they feared that their jobs would disappear as the result of new inventions. This was an early example of Caplan's 'make work bias' in action. Today, workers demand legislation to protect their jobs. These jobs are disappearing because of a combination of technological progress and lower labor cost in other jurisdictions. Many economists believe that the former is of much significance. To cite an example mentioned earlier, no protectionist policy could have saved the horse drawn buggy from being replaced by the automobile. The fact that trade often destroys low-skilled jobs while at the same time creating high-skilled, high-paying jobs in new industries, it's too often overlooked.

Schumpeter's insights into how the process of creative destruction leads to higher living standards and how government intervention in the economy impedes the process of technical change are an essential framework for this analysis. Businesses are constantly disappearing at the

[603] (Irwin 2016)

same time new ones are being created. The very really pain felt by displaced workers has led to rising discontent and fueled political movements in America, Europe and elsewhere. Politicians like US President Trump are quick to capitalize on this discontent. They misdiagnose (often deliberately) complex issues and offer simple solutions to placate their supporters. Because the period between elections is so short, politicians favour short term fixes, often with a 'make work' bias, that benefit certain segments of society at the expense of the community as a whole. As Bastiat pointed out, the public sees only the short term 'benefits' of these initiatives and not the huge but widely dispersed burden on the taxpayer.

Schumpeter emphasized that development, which maximizes the 'wealth of individuals', would occur when technological change was driven by markets. Under such circumstances, 'normal' recessions would continuously reallocate resources from obsolete industries (such as horse drawn buggies), to the production and delivery of goods and services that are in demand, like automobiles. The resultant productivity improvements enhance the well-being of the public by the higher wages (and hence purchasing power) and lower prices. In the 21st century, international trade promotes more innovation and technical changes.

This discussion of trade policy in the era of Trumponomics and Brexit provides a good illustration of Schumpeter's contention that recessions which are not 'normal' result when government interferes with the economic process. The sudden appearance of China in the global market as a potential exporter is a good illustration. The liberalization of trade under the auspices of GATT and WTO occurred mostly without the participation of China which joined WTO in 2001. Trade with China was not free before it joined WTO, nor was it free afterward. What did change was a sharp reduction in uncertainty over the businesses environment in China. By joining WTO, China signalled that its companies would adhere to WTO rules and conventions. American companies flocked to do business in China as a result. The subsequent influx of Chinese products to the American market raised consumer welfare significantly, but it also accelerated the 'creative destruction' process. Low skilled US jobs disappeared rapidly in some manufacturing sectors such as textiles.

This precipitated a classic Schumpeterian crisis in some US states which suffered the concentrated impact of sudden job-losses. These job losses exacerbated the underlying 'anti-foreign-bias', and President Trump pandered to those biases with his 'Make America Great Again' rhetoric. Similar shocks have accompanied previous changes in the rules governing trade. The imposition of the Smoot-Hawley tariffs by the United States in response to the Depression of the 1930s had worldwide repercussions. When Britain entered the European Community, many of its traditional suppliers of agricultural commodities were disadvantaged by protective EU policies.

This study anticipates that President Trump will take steps to implement more protectionist policies, which will only harm the people he claims he is trying to help. In the medium to long term, protected businesses insulated from the world market competition become progressively weaker and are not sustainable. Some jobs are saved by taxpayers at considerable cost, but these costs are usually well hidden. It is not uncommon for these jobs to disappear eventually because the businesses involved are uncompetitive or obsolete. Faced with higher employment costs than offshore competitors, protected businesses will use every opportunity to reduce their wage bill through increased automation, again leading to a reduction in jobs. In addition, using the spectre of lost jobs these protected businesses use the fear of transferring jobs to China or Mexico to extract wage concessions from their workers.

Tariffs increase not only the price of final goods but also the price of intermediate goods. Even if it were morally and economically advantageous for the US to embrace protectionism, it is almost certainly impossible for it do so. Prominent US manufacturers have become integral links in a highly complex global value chain that involves producers on multiple continents. Over 50% of all imports to the US are inputs and capital goods consumed by American businesses to make globally competitive products. Multiple businesses all over the world cooperate to produce a single product and that connectivity cannot be disrupted without impairing the competitiveness of those involved and the global economy as a whole.

Goods such as the smartphones discussed in Chapter 2, are the product of co-operation (parts, labor, ideas) with many countries. Raising these firms' costs via tariffs would make them less

competitive and would lead to fewer jobs. They might even go out of business. It would also affect downstream industries (e.g., steel users), which typically employ far more workers than their upstream counterparts (e.g., steelmakers).

According to industry sources and trade experts, US President Donald Trump is expected to impose steel import tariffs on national security grounds. The administration has been all talk and no action so far. The price of steel in the US is already well above that of other countries. If tariffs are imposed on prevailing (and lower) world priced steel, many American steel consuming businesses will suffer and become even less competitive. Since half of America's imports are used as inputs by manufacturers, it isn't surprising that many companies consider these duties unfair.

It is not only manufacturers who benefit from international co-operation. Various businesses from retailers like Walmart and the Gap to transportation and logistics companies such as FedEx benefit too. While multinational firms like Apple assemble iPhones in China, it is important to note that they also generate most of their profits in the US through marketing, design, and researching. American exporters, like Boeing and Caterpillar, also gain from trade, and trade agreements which create a larger market to help such firms take advantage of economies of scale.

When a government interferes to change trade rules, it creates winners and losers. This is why lobbying is a multi-billion-dollar industry. Contrary to popular opinion, some businesses do want more regulations, and are willing to spend a great deal of time and money to ensure that the rules work in their favour while disadvantaging potential competitors.

When the government tries to protect business interests, no attempt is made to balance the interests of taxpayers and consumers: these are left to fend for themselves. This may not be a significant burden for well to do people in developed countries. They might pay a bit more at the supermarket or adjust their shopping preferences. But, many daily necessities, including apparel and shoes, are subject to higher tariffs than are luxury goods. These tariffs lead to higher prices for consumers and place a disproportionate financial burden on the poor.

Concern for the environment is laudable but often solutions are misguided and influenced by special interest groups and businesses with ulterior motives. They use naïve consumers and 'under-employed intellectuals' to support their objectives. For example, they use arguments about protecting the environment to discourage the purchase of imported products like palm oil. Well-meaning consumers will ignore the plight of small farmers in Malaysia, while at the same time singing the praises of family farms in their own country.

There is overwhelming empirical evidence (the Kuznets Curve) that shows that beyond a certain point in economic development (about $5,000 per capita GDP per year), environmental damage is no longer tolerated and environmental indicators begin to improve. In other words, for less developed countries, the path to environmental protection depends on economic growth. Insisting on higher environmental standards in trade agreements in less developed countries may actually prevent the improvement in environmental standards they claim to encourage. If, as described in Chapter 3, palm oil farmers turn to illegal logging because they are prevented from earning a living from farming, abuse of the physical environment may be exacerbated. Given the choice, individuals will always choose a sustainable practice over an unsustainable one if they have to live with the consequences. Free trade promotes economic growth and thus creates the wealth necessary to support land conservation and a cleaner environment.

Non-tariff barriers are hard to quantify and assess, but they are becoming more common in trade agreements as traditional tariff protection declines. Newer agreements such as TPP are 'more comprehensive' in terms of non-trade related issues. This is often portrayed as a positive development. However, items like increased protection for intellectual property may be used to tilt regulations to protect special interest groups and businesses in developed countries. TPP, with its thousands of pages of regulations, may have gone too far. In addition, it has still not sorted out some contentious agricultural issues.

This thesis contends that protectionism doesn't achieve its intended objectives. The major beneficiaries of trade restrictions are incompetent firms and special interest groups that lobby for protection against foreign competition. Protectionism makes countries economically weaker. A study comparing income growth across over 70 countries during a 30-year period, found strong

evidence that countries that have abandoned protectionism in favour of freer trade experienced higher income levels and income growth.[604]

US trade policy forms a key part of 'Trumponomics'. On his campaign web site, Trump promised to "negotiate fair trade deals that create American jobs, increase American wages, and reduce America's trade deficit". An American economics writer Jeffery Tucker criticized these policies as explicitly protectionist and nationalistic fascism that are "railing against free trade, fostering paranoid immigration fears, and blaming other nations of unfair dealings with the US and promise better, harder, tougher management of the nation from the centre under a Great Man".[605]

Trump's threat to erect more trade barriers is likely to lead to retaliation. If the United States closes its borders, other countries will do the same. The US tried this tactic in the 1930s with the Smoot-Hawley Tariff Act and it plunged the country even further into recession. In this new round of protectionism, China is likely to be its main target. The latter has already shown that it will retaliate.

Although free trade creates both winners and losers, the benefits of freer international trade continue to be greater than the drawbacks. While the open market may be imperfect, it provides better outcomes for ordinary people than a restricted alternative. As the world's largest importer and the second largest exporter, the United States will be badly affected by protectionism. Trump's proposed course of action will not "Make America Great Again".

When faced with trade barriers, in the medium to long run, countries would be best served by dismantling them not retaliating by raising barriers of their own. Trade agreements can be a way to liberalize trade by eliminating tariffs and other non-tariff barriers. However, as shown in Chapter 4, there is a tendency towards managing trade by increasingly imposing non-tariff measures.

[604] (A. Estevadeordal 2008)
[605] (Tucker 2017)

The mutual recognition trade agreement between New Zealand and Australia is an interesting case which shows that freer trade can be realised without long and complicated negotiations. Both Australia and New Zealand have traditionally depended heavily on trade. In 1998, Australia and New Zealand agreed to liberalize bi-lateral trade in goods and services. There was also a provision, whereby qualified professionals in either jurisdiction were permitted to practise in the other country without their qualifications been evaluated against that country's requirements. This principle of mutual recognition accepts the standards adopted in a particular country (e.g. for environment protection, labour laws, and professional qualifications) as appropriate, and does not attempt to harmonize standards among the countries entering into a trade agreement. Mutual recognition agreements are thus a step toward freer trade, whereas attempts to impose harmonization in negotiations such as TPP discriminate against nations where lower standards prevail.

Following the Brexit vote, Britain now faces decisions about its trade relations following its exit from the EU. Those negotiating on behalf of Britain are getting advice from all sides about which strategy should be adopted. One of the main recommendations is that Britain should not negotiate a punitive post-divorce agreement with the EU, but invoke the right to trade with EU members under the most-favoured nation provisions of WTO. This can be done unilaterally, and WTO rules prevent the EU from raising tariffs on UK products above the minimums specified. Britain could then go one step further by unilaterally adopting free trade once again, just as it did in the middle of the 19th century. Canada, too, may consider this option if the re-negotiation of NAFTA requires unacceptable concessions.

Support for Brexit came from those keen to eliminate the costly EU bureaucracy and the (over) regulation it generates and implements, as well as from those who have been adversely affected by the single market. This poses the usual dilemma for the negotiators: liberalize trade or protect ailing industries.

The material presented in this thesis supports opting for further liberalisation of trade between Britain and both EU and non-EU countries. Brexit will change international trade rules and offer more opportunities for businesses. Ultimately, consumers will be the main beneficiaries.

2. Policy Recommendations

Firstly, provide education to help consumers, voters and politicians understand the considerable benefits that flow from free trade. How do tariffs increase everyday consumer costs? How do global supply chains contribute to the success of domestic industries? Many people have no idea how these issues affect their own lives. Likewise, many politicians fail to understand these matters. Their policy making suffers from misguided and biased ideas. In order to make informed decisions, we need to understand the 'unseen' as well as the 'seen'.[606]

Secondly, strengthen WTO's dispute mechanism. As discussed in Chapter 4, there is a tendency towards managing trade by imposing non-tariff measures. The US and the EU in particular use these measures to discriminate against other nations' products. WTO, in its role as a mediator, is a significant counterbalance to unreasonable protectionism.

Thirdly, simplify trade agreements. Focus on measures that increase free movement of goods, services and capital. Remove as many non-trade measures as possible. Use consumer welfare as the most important yardstick of success.

Finally, give serious consideration to unilateral free trade policies. If negotiations break down due to unreasonable demands, no deal is better than a bad deal. Unilateral policies require no negotiations and avoid the "spaghetti bowl" situation**.** They unify the global market, reduce compliance and other regulation-related costs, and encourage business everywhere to operate efficiently.

3. Opportunities for Further Research

This study suggests several opportunities for further research. Firstly, investigate the impact that technological innovation has had on trade. For example, shipping containers and the invention of diesel power and jet engines were among the most important developments of the 20th century. The Internet and information technology may be the game changers during the 21st century.

[606] (Bastiat 1845/1996)

Determine the economic effects of technological changes on trade, and investigate to what extent technological evolution is upending old business practices.

Secondly, track the development of trade policy in the UK in the wake of Brexit. Will the UK pursue free trade or not? Trumponomics should be similarly assessed. Will it strengthen the US economy and raise living standards? A comparative study of the US and UK trade policies and their effects may reveal interesting results. Examining how these economies change as a result of upcoming choices will no doubt be a fruitful source of future case studies.

Thirdly, explore the relationship between globalization and inequality. Globalization and trade have been blamed for creating income inequality within and between nations. Dani Rodrik of Harvard, Branco Milanovic of the World Bank, Paul Krugman (the 2008 Nobel Memorial Prize winner in Economics), and David Autor of MIT all focus on the negative effects of globalization. On other hand, Jadish Bhagwati of Columbia and Fred Bergsten of the Peterson Institute for International Economics argue that globalization brings considerable benefits.

Global trade is a complex matter with multiple dimensions. When academics and specialists analyze it from their own narrow perspective, they frequently miss the big picture.

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