The impact of regional integration on manufacturing sectors: a process-tracing analysis of the United Kingdom's steel industry from 1994 to 2004.

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Introduction

Since their emergence as a serious political force, right-wing populists across the world have wielded industrial decline as a rallying cry against the globalisation of their nations' economies. The shuttered factories of the American Rust Belt, the German Ruhrgebiet, the Hauts-de-France, or the British Black Country have been laid at the feet of globalist trade policy by political actors such as Donald Trump, Alice Weidel, Marine Le Pen, and Nigel Farage (Wallace-Wells, 2016; Vinocur, 2016; Die Zeit, 2017; Belfast Telegraph, 2016).

Regional integration, in particular, has been blamed for a great deal of industrial decay. Long after Ross Perot's spectre of "a giant sucking sound going south" (Thorbecke & Eigen-Zucchi, 2002), the North American Free Trade Agreement (NAFTA) still receives blame in the United States for past job losses and depressed wages (Public Citizen, 2013). Similar sentiments persist on the other side of the Atlantic: Nigel Farage, the architect of Britain's exit from the European Union, (EU) claimed that EU membership was a "massacre" for the British steel industry (Belfast Telegraph, 2016). Concerns about regional integration's impact on the British economy extend beyond trade and into other aspects of regional integration, such as EU-wide policy coordination: in 2019, Prime Minister Boris Johnson claimed that the EU's state aid rules had harmed British steel production and were responsible for the collapse of the industry (Partington, 2019). This thesis will begin evaluating the claims of these political actors by turning to 1993 and 1994, when notable steps were taken in the regional integration of both North America and Europe.

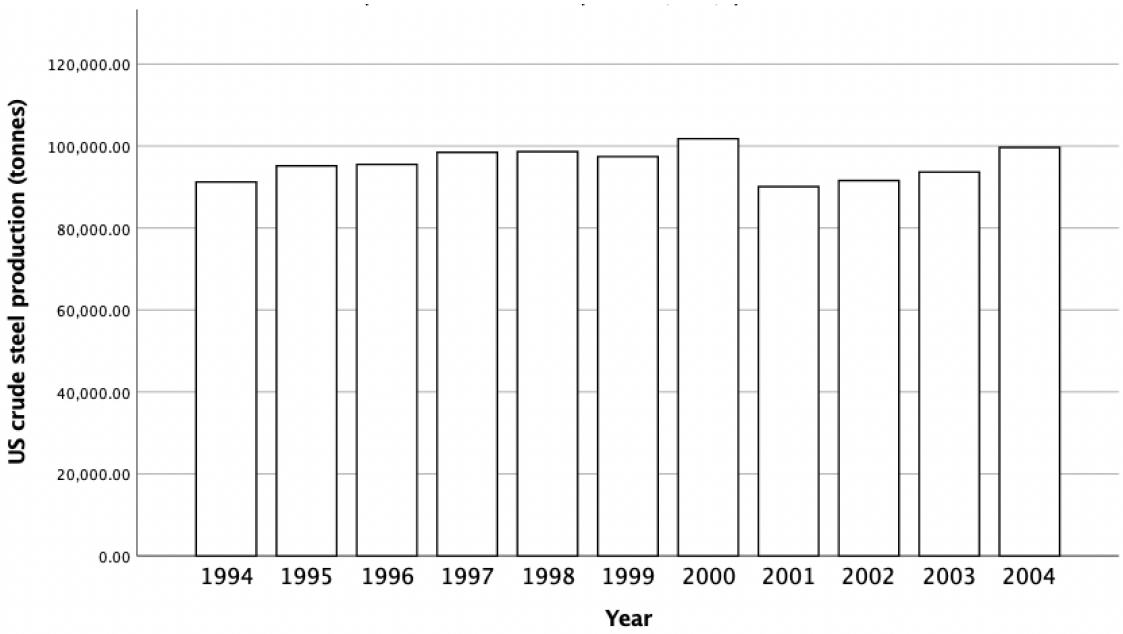
In the late 1980s and early 1990s, a new wave of trade liberalisation and regional integration rippled across the globe (Michaely, 2009). Two very different visions of regional integration were visible in the models of the European Union and the North American Free Trade Agreement. Europe was bold in its vision of regional integration: the treaties establishing its Single Market in 1993, the Single European Act and the Maastricht Treaty, carried provisions for the coordination of monetary policy and the complete elimination of tariff and non-tariff barriers between its states, (complementing the previous establishment of the European Communities and their common commercial policy) and created a European citizenship, which allowed all Europeans, not just workers, to move freely across the newly christened European Union. This step added the full free movement of people to the free movement of goods, services, and capital.

North America's regional integration agreement, on the other hand, was significantly less ambitious. While representing a big step in opening up historically protectionist markets, and notably including a sizable middle-income country in its integration process, NAFTA, which went into effect in 1994, lacked the depth of economic integration and policy coordination of Europe and remained an arrangement limited to lifting barriers to trade and investment across North America (McDowell, 1995).

A sharp contrast is not only visible in the strategy of regional integration, but also in the fate of steel production, a key manufacturing industry. The United States, the premier economy of NAFTA, saw steady growth in its steel production in the decade following the agreement. In the same timeframe, the United Kingdom, the third largest economy within the European Union's Single Market, saw the biggest slide in its steel production since the Winter of Discontent in

1979 (World Steel Association, 2003). The steel industry of the UK averaged a year-over-year decrease in crude steel production of 212 tons between 1994 and 2004, with a particularly sharp slide between 1997 and 2002. On the other hand, the US' steel industry remained steady, averaging a year-over-year increase in crude steel production of 2237 tons between 1994 and 2004.[1]

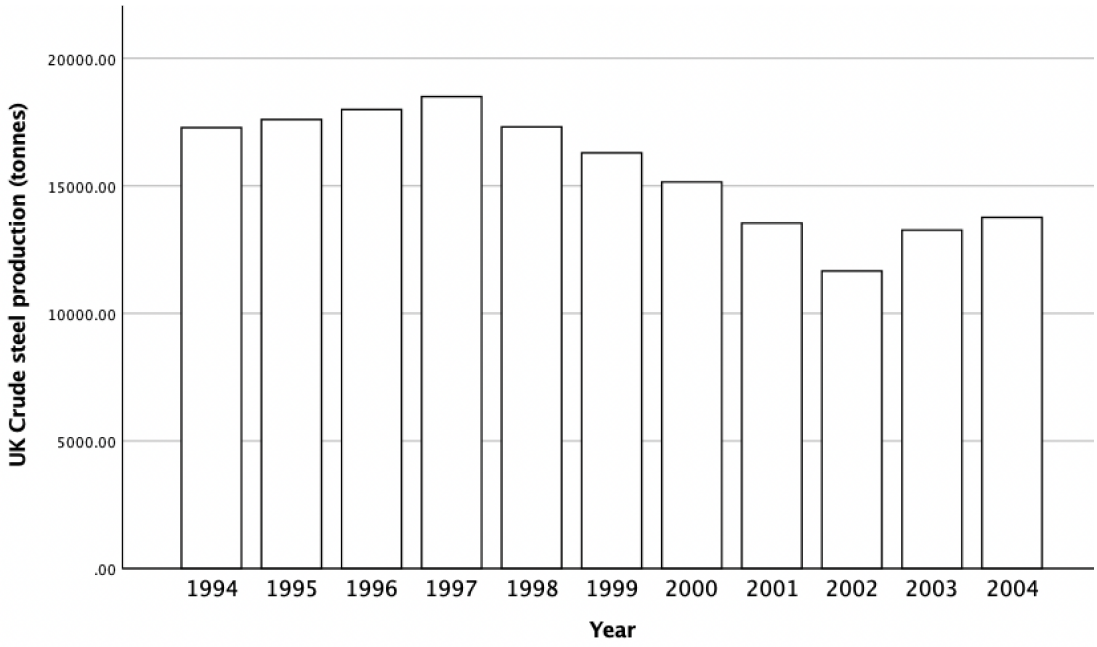
Fig. 1: US crude steel production (1994-2004)



(World Steel Association, 1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005)

[1] The change from 2000-2001 was a major outlier, removed here due to the heavy early 2000s recession.

Fig. 2: UK crude steel production (1994-2004)



(World Steel Association, 1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005)

Given the claims of populist politicians, the sharp decline of the UK's steel industry during the decade following the establishment of the Single Market, and the significant difference in the degree of regional integration between the UK and the US, it becomes pertinent to ask: *did the UK's regional integration process contribute to the sharp divergence of the two countries' steel production?*

This thesis will examine this question through a process-tracing analysis of the UK's steel industry from 1994-2004, with a particular focus on the sharp decline of 1997-2002. The potential findings of this research have a series of key societal implications. If a greater degree of

regional integration is responsible for the decline of Britain's steel industry, it will be important to reconsider how economies go about integrating with one another on the regional level, especially as it comes to trade and policy coordination. If other factors are responsible, such as how the British government managed its economy, that raises questions as to how governments should organise their economies, and what they should prioritise for subsidies and government aid.

Theoretical Framework

The economic impact of regional integration on manufacturing

Research on regional integration has largely focused on theories of the process itself rather than its economic effects. However, this thesis will deal with those works which discuss the impacts of regional integration on manufacturing, as well as those works studying the impacts of EU/EC agreements up until 1994, the effects of NAFTA, or those works comparing NAFTA and EU/EC agreements, so as to derive potential explanatory hypotheses for the divergence. Alternative explanations for the performance of the respective industries, such as domestic industrial policy, will also be considered.

When assessing regional integration's impact on manufacturing, comparably few works have cited the EU or NAFTA as examples, with many opting to study regional trade agreements (RTAs) on the African continent. Some scholars, such as Draper (2012), are sceptical of the benefits of regional integration in Africa. Much of Draper's critique deals with the poor quality of domestic institutions, but he also addresses the theory of the "new economic geography,"

opposing establishing RTAs on account of manufacturing resources being drawn into one country at the expense of others. Doing so, he makes reference to Kenya benefiting from the original incarnation of the East African Community at the expense of the manufacturing industries of Uganda and Tanzania (Draper, 2012, p. 76).

Mukwaya (2019), on the other hand, takes a relatively optimistic view of regional integration's impact on manufacturing in Africa. Mukwaya's paper is highly comprehensive in nature, examining four RTAs across 45 countries, and finds that signing an RTA improved the manufacturing sector's output and increased an African country's manufacturing exports by 72% on average within 12 years (Mukwaya, 2019, p. 82). Importantly, Mukwaya stresses the importance of domestic industrial policy and the end of structural adjustment policies in achieving these goals (Mukwaya, 2019, p. 86).

The economic impact of NAFTA and the Single Market

A variety of viewpoints and interpretations proliferate when it comes to the economic impacts of RTAs in a western context. The American left-wing think tank and advocacy-focused organisation Public Citizen released the paper "NAFTA's Broken Promises" in 2013, arguing that the regional integration of NAFTA has damaged the economy of the United States. Scholars at Public Citizen argued that NAFTA slowed the growth of manufacturing exports (Public Citizen, 2013, p. 2), damaged employment in the manufacturing sector (Public Citizen, 2013, p. 3) and has led to the closing of over 60,000 manufacturing facilities within the United States. (Public Citizen, 2013, p. 5).

Burfisher et al., (2010) analyse NAFTA's impacts on America's manufacturing sectors and reach a far more positive conclusion about the agreement, finding that NAFTA had an overall positive effect on the US economy and its various manufacturing sectors (Burfisher et al., 2010, pp. 141-142). Burfisher et al. find that regional integration led to increased levels in production in manufacturing industries, such as the auto and textile industries, (Burfisher et al., 2010, pp. 137-138) and affected very few manufacturing sectors in terms of employment either positively or negatively (Burfisher et al., 2010, p. 130).

A more nuanced view on the effects of regional integration is held by Logan (2008), who tightened the search of Burfisher and colleagues by examining NAFTA's impact on the US' so-called "manufacturing belt" in the country's northeast, which stretches from western Illinois and Wisconsin to the south of New England. Logan finds that US manufacturing employment increased significantly between the signing of NAFTA and the year 2000 (Logan, 2008, p. 677), and finds that increased trade with Canada increased employment within the manufacturing belt, but that increased levels of trade with Mexico in manufactured goods slightly harmed employment in the same region (Logan, 2008, p. 684).

Understanding the UK's divergence as it relates to regional integration requires understanding how the EU's regional integration was different in its impact from that of North America's. The Single Market of the European Union, as an ongoing process of unifying economies that have been independent for centuries, is a remarkable example of regional integration, and as discussed beforehand, it also represents a much deeper level of regional integration than the North American example. However, there is much less debate in the academic literature over the

economic impact, particularly vis-à-vis manufacturing, whereas such debate proliferates in the North American context.

A collection of critical views on the integration of the EU were described by Canadian scholar John B. Sutcliffe in Laursen and Shaw's *Comparative Regional Integration* (Laursen & Shaw, 2010). The criticisms related to regional integration which Sutcliffe documents focus on the loss of national sovereignty in the face of collective policy coordination, particularly in terms of control over regulation, monetary policy, and the economic priorities of a national government (Laursen & Shaw, 2010, pp. 43-45). Referring to the Single Market, Sutcliffe writes "the development of the Single Market also significantly impacts the participating states by limiting governments' ability to both control who or what enters their territory and to regulate their economies." As was described in the introduction, this charge was repeated by British Prime Minister Boris Johnson in 2019, who said that this lack of control prevented Britain from rescuing its steel industry (Partington, 2019).

The criticism describing how the EU takes control away from its member states relates more to the issue of regional integration vis-à-vis policy coordination in the Single Market rather than damage done by trade liberalisation: however, it is not certain that the Single Market's coordination of policy, including fiscal and regulatory policy, has been damaging to the economies of the European Union. Badinger (2007) attempts to evaluate the impact of the EU's Single Market on competitiveness within a variety of sectors by measuring the level of markups that industrial firms (among others) add to the price of their goods. Badinger finds that the Single

Market has meaningfully increased competition between firms but has increased the risk of firm concentration (Badinger, 2007, pp. 515-516).

Ultimately, there is a serious literature gap as to the effects of European regional integration on manufacturing. It is hoped that this investigation will contribute to filling in parts of this gap.

Comparing the North American Free Trade Area and the European Single Market

As this study takes place in the academic context of comparative regional integration literature, (and studies a divergence between Britain and the United States with respect to both regional integration and steel production) a comprehensive view requires a further examination of the respective RTAs' provisions and reception. Various works have analysed these agreements taking a comparative approach.

A point in common between the two sets of arrangements is that they were both welcomed by leaders in manufacturing and industry. Milner (Underhill & Coleman, 2002) and Rogers (2009) address the relation of national industry towards NAFTA. According to Rogers (2009), the American steel industry "greeted the institution of [NAFTA] with enthusiasm" on the basis that it would improve their sales (Rogers, 2009, pp. 183-184). This opinion was shared in Mexico; according to Milner, Mexico's small economy made NAFTA a necessity in the mind of industrial leaders there "to attain an efficient scale of production in many industries." (Coleman & Underhill 2002, p. 29).

However, the agreements also differed across several important points: McDowell (1995), in comparing NAFTA and the Single Market directly, points out that North America lacks any European-style alignment on regulatory, fiscal, and social policy (McDowell, 1995, pp. 34-35) which may help to alleviate cross-country disparities and improve regional integration outcomes. McDowell also points out that NAFTA lacks freedom of movement (McDowell, 1995, p. 33). From these differences, and from the theoretical frameworks involving regional integration and manufacturing above, it becomes possible to create a series of hypotheses as to how European integration may have impacted the UK's steel industry.

Conceptualization

This thesis will analyse the decline of the United Kingdom's steel industry and the role played by regional integration by asking:

Did regional integration contribute to the decline of the United Kingdom's steel production relative to that of the United States between 1994 and 2004?

This thesis' unit of analysis is the domestic steel industry of the UK. The relevant unit of observation associated with this unit of analysis is the amount of crude steel, in metric tonnes, produced within the country's borders over a given year. The output of the United States, which is serving as the baseline of this examination, has also been catalogued.

The most important concept to understand in relation to this question is regional integration. This concept is highly multifaceted, with different types and degrees of integration. Citing from Van

Ginkel, Court, and Van Langenhove (2003), regional integration can be conceptualised across a series of axes as an increased level of regional engagement and cooperation between several states in political, economic, social, environmental, or security-related matters. (Van Ginkel, Court, & Van Langenhove, 2003, p. 4) Security and environmental matters bear little relevance to the investigation in question, and thus this thesis will thus conceptualise only two axes of regional integration.

The first of these axes is trade liberalisation, (derived from economic integration) which will be conceptualised as a reduction or removal in both tariff and non-tariff barriers for goods, services, and factors of production between the economies of a given regional trade agreement, accounting for the flow of goods and services (Michaely, 2009, p. 6). The second of these is policy coordination, (derived from political and social integration) which will be conceptualised as the common coordination of a policy or a series of policies across several states in a given region, such as controls on spending.

Beyond regional integration, the other major concept requiring definition before a case-specific analysis is industrial policy. There are two commonly accepted definitions in the literature which can be used to characterise industrial policy, both found in Chang (2010). Chang lays out two different conceptions of industrial policy, acknowledging that the first is highly general and the second is more specific and better suitable for research. The first is “any policy which affects industry” (Chang, 2010, p. 84). The second, more specific conceptualization of industrial policy is described by Chang as “a policy that deliberately favours particular industries over others, against market signals, usually (but not necessarily) to enhance efficiency or growth.” (Chang,

2010, p. 84). This analysis will focus on the first conception with a view towards larger policy decisions related to industry.

Operationalisation

Of the three concepts earlier conceptualised, (trade liberalisation, policy coordination, and industrial policy,) policy coordination and industrial policy will require operationalisation. Trade liberalisation is sufficiently specific as a phenomenon that it can be evaluated on a case-by-case basis, but policy coordination and industrial policy are overwhelmingly broad and a full examination of these phenomena's impact on steel production would require separate analyses entirely, and thus require a specific operationalisation for the purposes of this analysis.

This analysis' operationalisation of policy coordination will remain in the context of the European Union, as NAFTA has no provisions for the coordination of public policy, and will be limited to the criticism described in the literature and the introduction: EU policy which overrides national control on economic issues (Laursen & Shaw, 2010), specifically those relating to the steel industry (Partington, 2019). This analysis will focus on European laws surrounding state aid, in line with the criticism expressed by political actors in Partington (2019). This article will use the definition coined by Craig and de Búrca (2015), based on an earlier Court of Justice ruling (Spain v Commission, 2003) to operationalise state aid.

1) There is an intervention by a member state or using a member state's resources.
2) The intervention can affect trade between member states.
3) It must be advantageous to the recipient.

4) It possibly distorts competition.
5) It favours specific projects or the production of specific goods. (Craig & De Búrca, 2015, p. 3).

The operationalised variable will be any EU laws relevant to this definition of state aid, as decided by European institutions.

Directly related to rules surrounding state aid are questions of industrial policy. As laid out in the conceptualization, Chang's (2010) preferred definition for the purposes of careful research is "a policy that deliberately favours particular industries over others, against market signals, usually (but not necessarily) to enhance efficiency or growth." (Chang, 2010, p. 84). Observant readers will note that this definition, with the exception of promoting efficiency or growth, is very similar to the official definition of state aid. However, this analysis, which is studying a divergence between the UK and the US, is directing its focus on large-scale alterations to industrial strategy which differentiate the two cases within or around the relevant time frame, more in line with Chang's first definition, "policy which affects industry" (Chang, 2010, p. 84). For that reason, it will operationalise "industrial policy" using the most critical change in British industrial policy towards its steel industry within the decade before the timeframe examined (British Steel, 2016), the 1988 privatisation of British Steel.

Finally, this analysis will conceptualise steel production as the amount of crude steel produced, in tonnes, as reported by the World Steel Association in the annually published *Steel Statistical*

Yearbook (World Steel Association, 1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2003; 2004; 2005).

Methodology

Methodological Approach

The different natures of industrial decline and regional integration worldwide make necessary an approach which sufficiently accounts for the individual context of the situation in the UK. Furthermore, the complicated causal chains surrounding individual cases of industrial decline necessitates an analysis which accounts for a variety of alternative hypotheses, to avoid conclusions based on incomplete information and an overly limited set of variables. For this reason, this analysis will employ outcome-explaining process tracing to elucidate the reasons behind the divergence of the US' and UK's steel industries.

The methodology of explaining-outcome process tracing suits the needs described above, and this analysis will focus on identifying relevant causal-process observations and testing a series of alternative hypotheses with the given data available. These tests, which will qualify as either *straw-in-the-wind* tests, *hoop* tests, *smoking gun* tests, or *doubly-decisive* tests, following Collier (2011) and Bennett (2010), will either disprove or lend support for the relevant hypotheses in question. This nuanced approach is essential, as rather than merely tracing the amount of steel-related trade and policy coordination between relevant countries, this analysis requires accounting for how internal factors, including industrial policy and domestic politics, affected the production of steel within the given timeframe.

Lastly, this methodology can function both deductively and inductively: explaining-outcome process tracing, as highlighted in Beach & Pedersen (2013) takes theories from the literature and applies them to the particulars of the case. If the case reveals flaws in the theories, elements from the case can be incorporated into a more complex causal mechanism, which can then in turn also be tested. (Beach & Pedersen, 2013, pp. 19-20) This analysis will search for theoretical explanations that might answer the question of why this divergence appeared and persisted, before examining the empirical facts of the case to see if the theoretical explanations sufficiently explain said divergence. Above, this analysis has outlined theories in the literature which explain the connection between regional integration and steel production, as well as other factors which may explain this connection independently of regional integration.

Case Selection

I have selected the United Kingdom as the primary case under examination and the United States as a point of reference for the following reasons. First, relevant regional integration agreements involving these states (the establishment of the Single Market and the Maastricht Treaty in the case of the UK and the signing of NAFTA in the case of the US) were achieved at the same time. However, these cases differed sharply in the independent variable, the degree of regional integration, (the former being a Single Market and the latter being the creation of a free trade area) providing a natural opportunity for examining the effects of different levels of regional integration. Second, both cases also differ significantly in the dependent variable. As described in the introduction, the United States' crude steel production increased in the 10-year period after 1994, with a total increase of 10888 tons of annual production, or a 9.24% percent increase,

between 1994 and 2004. The crude steel production of the United Kingdom decreased over the same time period, with a total decrease of 2849 tons of annual production, or a 20.4% percent decrease. This avoids the possibility of selection on the dependent variable.

Third, while both cases obviously differ sharply in the sheer quantity of production capacity, (World Steel Association, 2004) the two cases are otherwise quite similar: they share similar standards of living, (UNDP, 2020) are both liberal democracies, and have industrialised and deindustrialized generally at broadly similar rates. In addition, both countries shared a similar political trajectory leading up to (and largely during) the time frame presented, with strictly conservative pro-laissez-faire leaders replaced in the mid-to-late 1990s with centre-left leaders sympathetic to laissez-faire causes. This is crucial due to the multitude of external factors aside from regional integration with the potential to affect domestic manufacturing.

The United States was selected as a baseline as opposed to another EU member state so as to better analyse how a state not affected by the EU's regional integration process, and instead under the influence of a much lighter regional integration regime, fared vis-à-vis the production of steel, and to bring the aspects of the UK's decline that could be linked to regional integration into sharper relief.

Hypotheses

Based on the literature studying the effects that regional trade agreements have on manufacturing and manufacturing exports, as well as the comparative literature studying the relevant agreements, this thesis will construct a series of alternative hypotheses, as laid out in Collier

(2011). By examining the essential implications for each of these hypotheses in turn, this thesis will find evidence that supports or disproves these hypotheses, allowing the realisation of limited and nuanced conclusions as to the causal mechanisms behind the decline of the UK's steel industry.

H1: Britain's divergence from the US was caused by a greater re-allocation of resources within the regional bloc of the EU.

The central critique of trade liberalisation rests on the idea that the reallocation of resources damages local communities and local industry. This possibility is highlighted by Draper (2012) in the African context, as well as by Public Citizen (2013) in the American context.

H2: Britain's divergence from the US was caused by the EU's restrictions on state aid.

As described in the introduction, laws surrounding state aid have been criticised by some in British politics as particularly harmful to the British steel industry (Partington, 2019). This hypothesis will investigate that possibility.

H3: Britain's divergence from the US was caused by differences in national industrial policy.

Key to Mukwaya's 2019 findings, which found that regional integration had a positive impact on manufacturing across the African continent, was the role played by what Mukwaya referred to as industrial policy and the end of "structural adjustment policies" (Mukwaya, 2019, p. 86) such as privatisation, which this analysis will be examining.

Data and Sources

Explaining-outcome process tracing, unlike theory-testing and theory-building forms of process tracing, is case-centric rather than theory-centric. The object is neither to create a theory which will explain all rich countries' reaction to increased levels of regional integration, nor to apply a single existing theory to the British (and American) cases, but rather to explain the British divergence using a set of existing theories to generate a "minimally sufficient causal explanation" (Beach & Pedersen, p. 3). Thus, the variety of data and sources used will vary to a greater degree than in a standard comparative analysis.

For the dependent variable, the production of crude steel will be measured by the datasets of the World Steel Association (World Steel Association, 2005), which have catalogued the steel production of both the United States and the United Kingdom for multiple decades. As this analysis is interested in the decade following the establishment of the Single Market and the signing of NAFTA, data will be taken from 1994 to 2004.

For the independent variables in all three hypotheses, this analysis will use a variety of sources, including academic, governmental, and journalistic sources, depending on the context and the test being employed. A heavy reliance will be placed on a series of reports commissioned or written by the European Commission, the British House of Commons, and the British House of Lords, as well as debates in the latter two chambers. The topics of these reports include the effects of EU membership, the attitudes of previous governments towards investment in state aid, industrial policy, and the niches of EU state aid law.

Analysis

This analysis will consist of three sections. Each section will evaluate a potential alternative hypothesis derived from the literature and will compare the outlines of the hypothesis with the empirical facts of the British case under examination. Reference will also be made to the baseline case, the United States, although the factors driving the outcome of that case are not being evaluated. The purpose of this analysis within the methodology of explaining-outcome process tracing is to identify a minimally sufficient causal explanation for the divergence observed between steel production in the UK and the US (Beach & Pedersen, 2013). Three central and distinct possibilities, (resource reallocation, fiscal coordination, and industrial policy) have been highlighted in the literature, with the former two linked to the process of regional integration and the latter resting on internal economic and political dynamics.

Fig. 3: Table of tests. (Further explained in each section.)

Hypothesis	**Type**	**Test**	**Passing condition**	**Based on**
H1: *Resource reallocation*	Hoop	Did steel production expand in other EU countries during this period commensurate with the UK's decline?	Evidence of significant expansion of production elsewhere coinciding with the UK's decline.	Draper (2012), Public Citizen (2013)
H1: *Resource reallocation*	Straw-in-the-wind	Was there a movement of steel-related	Evidence of a movement of workers exiting	McDowell (1995)

		labour preceding or corresponding with the decline?	the UK for other EU states.	
H2: *Strict state aid rules*	Smoking gun	Did the UK request permission for state aid, and was this request rejected?	Records of aid request/rejection	Laursen & Shaw (2010)
H2: *Strict state aid rules*	Straw-in-the-wind	Did the British government cite EU state aid rules as a reason not to bail out steel production?	Public records of government officials' statements.	Laursen & Shaw (2010)
H3: *Harmful industrial policy*	Hoop	Did British Steel close furnaces or plants following privatisation?	Evidence that privatised plants were closed (as opposed to reducing output)	Mukwaya (2019)

Resource reallocation

A central critique of trade liberalisation across numerous cases has been the potential for resource reallocation to damage industries and communities (Draper, 2012). Within the literature previously examined, this critique has been levelled more in the American context than in the British one: Public Citizen's 2013 report on NAFTA is a clear example of this charge, blaming NAFTA for millions of job losses, slowed manufacturing growth, and depressed wages (Public Citizen 2013, p. 2). Similar charges in the case of the British steel industry are rare in

comparison; only in journalistic efforts (Knight, 2019; Zarrolli, 2016) are such opinions found, largely among laypeople, although political backing for the idea that European competition has damaged British steel is not unheard of (Hansard, 1998; Belfast Telegraph, 2016).

While the literature does highlight the relevance of resource reallocation's potential damage to manufacturing, the applicability of this set of theories to the British case appears dubious. The individual context of the new economic geography theories discussed in Draper (2012) exists specifically within the context of the global south, and despite the claims made by Public Citizen, the evidence of substantial resource reallocation at the expense of manufacturing in the NAFTA example is scant (Logan, 2008; Burfisher et. al, 2017). In fact, the American steel industry openly welcomed regional integration, having backed NAFTA due to the potential for increased sales in the region of North America (Rogers, 2009).

Where any evidence of a limited degree of resource reallocation exists, it relates almost solely to US trade with Mexico. (Logan, 2008, p. 684) Mexico's inclusion in NAFTA as a middle-income country is notable, (McDowell, 1995) and no comparable example exists within the European Union as it existed before 2004, making a consistent causal mechanism present in both cases unlikely. Furthermore, Britain's long history of trading both with and within the EU (formerly the European Coal and Steel Community and the European Economic Community) long predates the time period under examination, making it more unlikely that the sudden slide in production was due to competition and resource reallocation brought on by regional integration.

With these caveats, constructing simple tests for measuring any potential reallocation will allow this analysis to move onto other possibilities, and incorporate the findings of these tests into a final conclusion. Taking from Draper, (2012) a clear test demonstrating a reallocation of manufacturing resources, (similar to the case of Kenya attracting manufacturing-related investment at the expense of Uganda and Tanzania) (Draper, 2012, p. 76), would be examining whether resources utilised in British steel manufacturing were drawn to other areas of the EU.

Labour, while significantly "stickier" than other factors of production such as capital, (Banerjee & Duflo, 2019) is particularly relevant in this case, given that no provisions are made for the free movement of people in NAFTA while they are in the European treaties, (McDowell, 1995) offering a potential (if somewhat far-fetched) explanation for the divergence: the movement of labour outwards from Britain. This meets the criteria of a *straw-in-the-wind* test, according to Collier (2011) and Bennett (2010). A positive result would confirm the relevance of the hypothesis without proving it, but a negative result would indicate that the hypothesis is not relevant to the examination (Bennett, 2010, p. 4).

For the resource-reallocation hypothesis to be true, it would also be necessary that a commensurate rise in steel production in other EU states was clearly visible. As such an increase would not categorically demonstrate the truth of the hypothesis, (merely being an example of correlation,) this falls under the category of a *hoop test.* If the test is passed, the hypothesis is relevant. If it is not, it can be said to be eliminated. This examination will measure European steel production during the larger slide observed in UK steel production from 1997-2002.

Fig. 4: Development of crude steel production in the EU in tonnes (selection based on Warlouzet, 2017)

Country	**1997**	**2002**	**Development**
United Kingdom	*17,604*	*11,667*	*-33.7%*
Belgium	10,739	11,343	+5.62%
France	20,126	20,258	+0.66%
Germany	45,007	45,015	+0.02%
Italy	25,842	26,066	+0.86%
Non-UK states (Warlouzet selection)	101,714	102,682	+0.95%

(World Steel Association, 1998; 2003)

Fig. 5: Development of crude steel production in the EU in tonnes (other EU member states)

Country	**1997**	**2002**	**Development**
Austria	5,181	6,189	+19.5%
Denmark	786	392	-50.1%
Finland	3,734	4,003	+7.20%
Greece	1,016	1,835	+80.6%
Ireland	337	0	-100% (Ceased production in 2001)
Luxembourg	2,580	2,719	+5.38%

Netherlands	6,641	6,117	-7.89%
Portugal	905	920	+1.66%
Spain	13,683	16,408	+19.9%
Sweden	5,148	5,754	+11.7%
European Union (Total)	159,867	158,686	-0.74%

(World Steel Association, 1998; 2003)

The results of this test are mixed: over the same period where the UK's steel production declined sharply, several other member states did in fact increase their own production. However, many member states did not, and overall the EU decreased its total production over the given time period. No state under consideration within Warlouzet's selection of major steel-producing member states increased over this time period as sharply as the UK, either in percentage or in tonnage. The only state to significantly increase its production in terms of tonnage and not merely growth in terms of its previous production levels was Spain, which increased its production by 2725 tonnes, (45.9% of the UK's decrease). This makes the test's results slightly more ambiguous. However, as there is neither a clear set of beneficiaries from the UK's downfall, nor a clear across-the-board increase collectively comparable to the UK's decrease, the resource-reallocation hypothesis cannot be said to have passed this test.

Furthermore, during the period examined, no sign of a significant labour upheaval *from* Britain was identified; on the contrary, there was a significant deal of labour migration *to* Britain, including from other states of the European Union, both from the broader timeframe of

1994-2004, the narrower timeframe of 1997-2002, and indeed before and after both timeframes (Dorn & Zweimüller, 2021). For this reason, this particular hypothesis fails the straw-in-the-wind test, although the results of the aforementioned hoop test leave the results of this hypothesis slightly more murky than may have been suggested by the available American data.

Fiscal coordination and state aid

Another possibility highlighted by the literature is that the UK's decline might be the result of the EU's strict fiscal rules, which limit how much a state government can spend in general and how much a state government can subsidise a given company or industry specifically. Aside from Boris Johnson's direct claim that EU state aid rules prevented the British government from rescuing UK steelworks (Partington, 2019), claims of damage done by "Euro-austerity" exist in literature surrounding common European responses to crises (Stiglitz, 2020; Bolukbasi 2021).

It is worth noting that the state aid rules of the EU are quite distinct from the state aid rules of the World Trade Organisation (WTO), rules which most states abide by. A report commissioned by the British House of Commons (Jozepa, 2021) investigates the two regimes, and finds that the rules of the EU are significantly more stringent, enforceable to a much greater degree, and most importantly, apply prospectively, meaning that no complaint is required from a separate state for action to be taken (Jozepa, 2021, pp. 31-32).

Moving on to the formation of tests, the clearest and most decisive test would be to investigate whether a British application for state aid related to its steel industry was submitted during the given time frame and directly rejected by European authorities. Such a measure would fulfil the

criteria of a *smoking gun* test, meaning that confirming it would confirm the hypothesis (Collier, 2011, p. 825). If a British offer to bail out its steel industry was presented and rejected, it would confirm that European state aid laws, themselves a component of fiscal coordination and thus regional integration, would be directly, if perhaps only partially, responsible for the decline of the British steel industry.

A related, but weaker test would be investigating reports and statements commissioned or made by the British government as to see whether EU state aid law is mentioned in justifying a lack of action related to the steel industry. This would meet the criteria of a hoop test (Collier, 2011, p. 825). If the government mentions EU state aid laws at the time, or refers back to them in retrospect as a barrier to helping the ailing steel industry, it would confirm that EU state aid laws are a relevant factor in evaluating the UK-US divergence. However, it would not confirm that this is the causal mechanism that determined said divergence. If the government does not mention such laws at all, it would mean that they were not a relevant factor in the government's decision-making, and thus that the hypothesis was incorrect.

The results of these tests are poor for the state aid hypothesis. The smoking gun test is a clear failure: no notification for Notified Aid related to steel production in the UK in line with the European Commission's requirements (European Commission, 2021; Druenen et al., 2022) was received from the British government between 1994 and 2004, including during the steep decline of 1997-2002. On the contrary, in the 2004 State Aid Scoreboard published by the European Commission, the UK government stated bluntly that it has provided "whatever support is

necessary to provide to industry away from routes which constitute state aid" (European Commission, 2004, p. 30). For this reason, the hypothesis can be said to be weakened.

As for the results of the hoop test, the situation is complex. It is true that officials of the British government later cited EU state aid rules to justify having not supported the steel industry with government subsidies (Hansard, 2016), and claimed that its 'hands were tied' as to assistance to the steel industry, (De Cecco, 2016) meaning the test was passed. However, other reports studying the government's conduct over the time period examined and beyond complicate this story. Expert testimony presented before a committee of the House of Lords in 2013 by the British law firm Berwin Leighton Paisner, which later advised clients on the legal complexities of Brexit, stated that UK government authorities consistently and intentionally shielded their unwillingness to act on preserving British steel-producing firms with the spectre of EU state aid rules (The House of Peers, 2013).

This information would match the findings of the earlier-cited House of Commons report into the divergences of EU and WTO state aid laws, which stated that the UK has historically both pushed for a strict state aid regime from within EU institutions and spent much less on state aid than economies of a comparable size (Jozepa, 2021, p. 20). To summarise the results of this portion of the analysis, the British government would appear not so much to have been restricted by EU state aid rules as it was a creator and willing enforcer of those rules.

Industrial policy

This hypothesis is unique among the previous alternatives in that it considers factors which have little to do with regional integration; namely, the industrial policy of the UK. This hypothesis emerges from Mukwaya (2019). Mukwaya is positive about the potential of regional integration, but in his conclusion he attributes much of the success of regional integration to the combined effects of regional integration boosting interstate trade, and the positive effects of industrial policy. Particularly, this involves moving away from structural adjustment policies (Mukwaya, 2019, p. 86) such as reductions in public spending and privatisation (Bracking, 2018).

This analysis focuses on a crucial example of structural adjustment policy as it relates to steel taking place shortly before the time period under examination: the privatisation of British Steel in 1988. Evaluating whether privatisation led to a decline in the production of steel is challenging. In searching for tests which can confirm, deny, or otherwise clarify the role of privatisation and structural adjustment policies, the clearest answer would be to observe whether privatisation was followed by the wholesale closures of plants or furnaces on profitability or efficiency grounds as opposed to mere reductions in production. This test meets the criteria of a *hoop test* within the methodology of Collier (2011) and Bennett (2011). Such changes would be necessary to prove that the privatisation of British Steel can be implicated in the decline of UK steel production, but they would not be sufficient to completely prove so. Failing this test would be sufficient to disprove the hypothesis.

The findings on the general effects of privatisation on British Steel are largely negative. Parker and Wu (1998) found that privatisation had a negative impact on British Steel's performance in

the years following the process, particularly compared against the quite successful period immediately preceding privatisation (Parker & Wu, 1998). Further indicators of privatisation's negative early effects in terms of the industry's vulnerability to shocks are visible in the account of Beauman (1996). The profitability of British Steel, hard-fought for by the British government in the years preceding privatisation (Parker & Wu, 1998) collapsed following privatisation, damaging investor confidence and lowering share prices. (Beauman, 1996, p. 26). The sharper decline discussed in this analysis would begin one year after the publishing of Beauman's paper.

As for the results of the test, the most direct quote from the government on closures within the decade following privatisation emerged in a debate in the House of Peers in 1998. Lord Sainsbury of Turville, the Parliamentary Undersecretary of State for Trade and Industry, stated that "uneconomic" plants would be closing in Wales, resulting in approximately 2700 job losses (Hansard, 1 December 1998, col 358). Sainsbury remarked that the British steel industry was "undergoing a period of extensive restructuring" (Col 358) for the purpose of remaining competitive amid difficult trading conditions. This quote emerged in a debate centred largely on trade with Europe and accusations of steel dumping on the continent (Col 359). As discussed earlier, the evidence that European production bears responsibility for the decline of British production over the time period in question is dubious.

It is clear that lower than anticipated performance, plant closures, and jittery investor confidence followed the privatisation of British Steel in 1988. It is also demonstrable that the private sector was less equipped to manage these turbulent periods than the public sector, and thus less able to ensure steady production (Parker & Wu, 1998). The resulting plant closures on "uneconomic"

grounds would suggest that the effects of privatisation allow the hypothesis to pass the aforementioned hoop test, but that the results are not clear enough to reach an indisputable conclusion vis-a-vis privatisation's direct effects on production.

Conclusions

Summary of Findings

This analysis set out to understand why the growth of British steel production diverged so sharply from that of the United States from 1994 to 2004, with a focus on the role of regional integration. The analysis proposed several hypotheses from the comparative literature on regional integration and its effects on manufacturing, and tested those hypotheses in line with the methodology of explaining-outcome process tracing. As with most explaining-outcome process tracing analyses, the conclusions drawn from this analysis must be nuanced, and must make room for several possible explanatory factors.

The findings of this research would indicate that the divergence between US and UK steel production was largely a self-inflicted wound on the part of the British government. Successive governments pushed within EU institutions for stricter state aid laws, restricting their ability to subsidise the steel industry, and also spent little on state aid projects. (Jozepa, 2021) Furthermore, the 1988 decision to privatise much of Britain's steel industry appears to have somewhat accelerated the decline of its decline by increasing the vulnerability of the industry to shocks, reversing the progress that had been made before the sale under government control (Beauman, 1996). There is room in this interlocking set of causal mechanisms for additional

elements which went unexplored in this thesis, including the role of a strong currency (Hansard, 1998) and changes in labour relations (Beauman, 1996; Parker & Wu, 1992).

Fig. 6: Results of tests

Hypothesis	**Test**	**Type**	**Result**
H1: *Resource reallocation*	Did steel production expand commensurately in other EU countries during this period?	Hoop	Failed
H1: *Resource reallocation*	Was there a movement of steel-related labour or capital preceding or corresponding with the decline?	Straw-in-the-wind	Failed
H2: *Strict state aid rules*	Did the UK request permission for state aid, and was this request rejected?	Smoking gun	Failed
H2: *Strict state aid rules*	Did the British government cite EU state aid requests as a reason for inaction?	Hoop	Passed
H3: *Harmful industrial policy*	Once privatised, did British Steel close furnaces or plants?	Hoop	Passed

As a result, this analysis will tentatively conclude that regional integration appears to have had little measurable negative impact on steel production and manufacturing in terms of resource reallocation, a result made clear both in the European and the North American contexts. Regional laws surrounding matters of state aid, while they could have a measurable effect in other cases, were not an important factor in the British context. Indeed, the false belief that regional integration was at fault for a decline in British steel production appears to have led the British government to push for even stricter state aid laws (Hansard, 1998).

Decisions on industrial policy independent of regional integration would appear to have been a crucial factor in this case, with the UK steel industry's output and productivity having increased before the timeframe in question under a focused government programme on making British Steel profitable, only to go through periods of extended struggle (1990-1992, 1997-2002) following privatisation (Beauman, 1996; Parker & Wu, 1998). These findings are part of a broader trend in academic literature (Cohen & DeLong, 2013; Banerjee & Duflo, 2019), including the literature examined within this analysis (Mukwaya, 2019), which emphasises the role that industrial policy still has to play in the arsenal of government strategies to generate growth, combat poverty and slow industrial decline. This is not an un-nuanced view, and these findings do not indicate that there is no room for market-based policies.

Discussion

This research contributes to the literature comparing industrial practices, the literature of comparative regional integration practices, and the literature evaluating industrial decline.

This research also has clear weaknesses and limitations. While explaining-outcome process tracing is a useful methodology, allowing researchers to pursue causal mechanisms without a great degree of external obfuscation, selecting the correct variables to pursue from the literature requires a great deal of foreknowledge, which this researcher cannot profess to have on the subject of steel production or industrial decline more generally. This stands in contrast to works such as Christopher Beauman's analysis, cited earlier in this paper. Beauman worked as an advisor to various chairmen of the British Steel Corporation for years (Beauman, 1996, p. 16), and thus had a great deal of knowledge as to how privatisation affected British Steel. Furthermore, this research was limited in scope, and could not address every relevant hypothesis. Focus on continental demand, a strong currency, labour relations, or non-European production (as referenced in Hansard, 1998) could have been considered.

Suggestions for Further Research

Several points raised in this analysis make suitable starting points for further research. The economic impact of state aid rules, in particular, warrant further examination. The UK does not appear to have been a victim of these rules, but it is very possible that industrial decline in other EU member states can be traced, in part, to overly strict policies regarding government spending on subsidies and industrial bailouts. Privatisation, too, warrants additional focus, especially as powerful European member states seem inclined to turn towards an "industrial champions" model rather than strict EU antitrust (Van Dorpe, 2020). Research on the impact of public and private ownership in the modern European context would do a great deal to further the points raised in this investigation, and would contribute to answers within the same social framework this research sought to contribute to: questions about how we organise our own economies and

structure our economic and political relations with our neighbours. Brexit may have split Britain off from the European project, but the urgency of these matters, as they relate to regional integration, remain sharp as ever for the states of the European Union.

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