The European Union's Response to "Made in China 2025"

Master Thesis

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Abstract

This thesis investigates and explains EUs legislative response to the "Made in China 2025" industrial policy. Doing so, this thesis presents insights of the characteristics of the "Made in China 2025" strategy and how it has materialised in relation to the EU. The analysis illustrates sector specific FDI flows and thus analyses the legislative response relating to these sectors. Using historical institutionalism, the thesis argues that a very limited legislative response from the EU has taken place as a result of its institutional past. The thesis argues that this path dependence shapes EU's ability to respond extensively to the "Made in China 2025" industrial policy.

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Introduction

In 2015 China announced the first part of its major industrial policy for lifting its economy from a manufacturer of quantity to a manufacturer of quality. The first part of this strategy goes by the name “Made in China 2025”. Governments unveiling ambitious industrial policies, designed to put them at the forefront of modern technology and productivity, is by no means a new occurrence. When one of the world’s fastest growing economies, and the most populous country on earth, unveils such an ambitious plan, the rest of the world takes note. The move by China, is not only interesting due to its economic power and scale of the country announcing it. The “Made in China 2025” industrial policy also differs from the plans unveiled by similar countries.

Not only does China have the capital and economic power to further its ambitions, the plan is also special, as it has a distinct outward focus. The plan is also outwards focused because one of the tools, set out by the strategy, is to make use of Foreign Direct Investments (FDI). These are used in order to acquire the technology and know-how, needed in the sectors, which the Chinese Communist Party has outlined as desirable high-tech sectors where it seeks to be on the absolute frontier by 2049. This practice of using FDI as a tool in an industrial policy, has not been seen on this scale in developing countries before. Furthermore, if any developing country has the resources to make it a reality, it would be China. The “Made in China 2025” industrial Policy is at the hearth of this thesis.

We seek to understand the effect, which this unprecedented move by China, has had on the outside world. Specifically, the effect it has had on the EU. For the countries in the European Union, the Chinese industrial policy is already a debated topic, as the amount of Chinese money flowing into the EU, buying large companies, has dramatically increased. Therefore, we will specifically seek to understand the EU´s response to the “Made in China 2025” industrial policy. All this leads us to the following research question:

How can the legislative response by the European Union to the “Made in China” industrial policy be explained?

In order to answer this wide research question, we will need to limit the sectors we will be looking at. This calls for an analysis of the actual inflows of Chinese money into the EU. Furthermore, we will examine the flow of FDI into the sectors designated as desirable by the CCP individually. We will determine this, by analysing both primary and secondary data on the Chinese FDI flows into EU countries. This will cover data both in aggregated form and distributed over sectors and recipient country. Moreover, we will need a usable typology of industrial policies, as to understand both the EU´s response and the Made in China 2025 industrial policy.

Structure of the thesis

This will be structured in the following way. We will start of by conducting literature reviews on the subjects of literature covering EU integration and industrial policy, respectively. Following these, we will present and discuss the research design of this thesis, as well as the chosen philosophy of science this paper is utilising. When these introductory sections are completed, we move on with laying out the Made in China 2025 industrial policy in greater detail. Next, the thesis briefly presents the structure and key treaties of the EU, as well presenting the argument for why the European Union was chosen as our unit of analysis.

Following that section, we move into the analysis itself. We start with an in-depth analysis of the flows of Chinese FDI into the European Union in the interval of 2005-2019. The outcome of this analysis should lead to designating three sector of Chinese investments, which we will move on with. We will then analyse the EU response in the sectors identified by the FDI analysis. This will be with regard to both new legislation from the EU, as well as earlier treaties and the case law defining the possible uses of certain treaty freedoms. When we have shown our findings, we move on to an outline of the limitations inherent in the use of these conclusions. Then we conduct a discussion of the findings themselves. Finally, we make our conclusions and answer our research question

Literature Review

This literature review is divided into two parts. The first part focuses of reviewing the literature of the European Union and how it behaves, while the second part focuses on reviewing the literature of industrial policies. Being the unit of analysis for this thesis, the following literature review presents and contextualises the academic debate surrounding the European Union. In order to explain why EU is acting as it does, in regard to its response of the "Made in China 2025", it is necessary to look at different theories describing the behaviour of the EU. The first part of the EU literature review focuses on the European integration of neo-functionalism, liberal intergovernmentalism and the 'new' types of institutionalism. Though there are many other theories explain the integration process of the EU, these theories have been selected due to their historical development of the academic debate leading the theory of historical institutionalism, which will be applied as the theoretical framework explaining EUs response to the "Made in China 2025" strategy. The second part of the EU literature review illustrates how there has been a shift in the academic perception of the EU as an institution. This shift is described as the governance turn, where scholars increasingly focus on the EU as a polity thus fostering governance approaches to the explanation of EU behaviour. Though this thesis does not apply these governance approaches to a large in the analysis of EUs response to the "Made in China 2025" strategy, it does utilise some of the academic findings described in this part of the EU literature review.

EU Integration

The academic debate surrounding the EU was initiated by Ernst Haas' seminal work *The Uniting of Europe* from 1958 with the establishment of The European Economic Community (EEC) and European Atomic Energy Community (Euratom) (Wallace, Pollack and Young, 2015). At the beginning of this academic field, during the 1960s and 1970s, the primary focus of EU research was on the topic of European Integration and was a result of the creation of the creation of the European Community (EC) in 1957.

Neo-functionalism

Here Haas sets out the founding ideas of what is characterised as the *neo-functional* theory of regional integration (Wallace, Pollack and Young, 2015). One of the primary contributions to the

literature on European Integration was attempting at answering how cross-border cooperation between the members of the EC on single-policy areas can lead to an increased and further developed economic and political integration. To answer that question, Haas presented the concept of *spill-over effect* of international decisions, which he defines as *"policies made pursuant to an initial task and grant of power can be made real only if the task itself is expanded, as reflected in compromises among the states interested in the task"* (Haas, 1961). This initial concept of *spill-over effect* attempted at explaining further economic and political integration as a result of state cooperation between European countries within specific industries or policy areas, which was the case with the creation of the European Coal and Steel Community (ECSC) in 1952. Here the *spill-over effect* would explain why further integration has developed as a result of the creation of the ECSC, since it created pressures to integrate further in related areas such as currency rates. This type of *spill-over* has later been characterised as *functional spill-over effect*, as later developments of this concept has emerged.

Developing this concept of *spill-over* Stephen George suggested a second type of *spill-over* – namely *political spill-over effect*. This concept emphasises the critical role of supranational actors in the EU, as for instance the European Commission, as well as sub-national actors, as for instance businesses or interest operating within member states (Wallace, Pollack and Young, 2015). The general idea is that the *political spill-over* pressure from the sub-national actors arises when businesses, interest groups etc., mobilise their interest to influence centres beyond national governments, which predominantly was the target prior to regional integration in the EU. Here these sub-national actors now target their interests towards supranational actors as the European Commission, if they perceive any benefits from further integration with their area of business. At the supranational level, these entities now push for further integration, which completes neo-functionalists' concept of *political spill-over effect*.

Being one of the grand and most scrutinized theories on European Integration, neo-functionalisms academic roots is highly influenced by the pluralist and functionalist tradition (Hooghe and Marks, 2019). Pluralist in its way of perceiving the political process as an arena of different societal actors as businesses and interest groups all pursuing own interest. And functionalist in its approach to

scale economics of public goods by allocating specific policy areas to specialized international entities rather than national entities (Hooghe and Marks, 2019). The two *spill-over effects* attributed to the neo-functionalist idea entails the understanding that European integration is a trend towards more and more regional integration, which arguably will result in a somewhat regional polity. This way, neo-functionalists emphasises the importance of path dependence as previous *spill-overs*, or integration, is critical for the outcomes of today within a given policy area (Hooghe and Marks, 2019). In the underlying assumption for this to hold, neo-functionalists accepts the characteristics of bounded rationality in the decision-making process of political actors, as they are not always able to foresee the future consequences of today's integration, since the *spill-over effect* acts similar to snowball that keeps getting bigger and bigger.

Being one of the first theories on European integration, neo-functionalism is very normative in its way of explaining and predicting European integration from a non-state point of view, which has contributed greatly to the understanding of the European integration process.

Liberal Intergovernmentalism

The emergence of the neo-functionalist theory of European Integration caused great academic debate within the sphere of International Relations (IR). One of the main critiques towards the neo-functionalist approach was the role of the nation state – or more precisely - the absent role of the state. Critics argued that the role of the states was downplayed to the extend where the state would become redundant as a unit of analysis in regard to the integration process of Europe. Consequently, a new approach to regional integration emerged with roots from intergovernmentalism. This new approach was initiated by Hoffmann (1966) who emphasised an intergovernmentalist approach which shifted the focus 'back' to traditional IR approaches of having the state as the main actor and unit of analysis. Other scholars supported this notion that the state should be the primary focus for regional integration research (Haas, 1975) (Milward, 1992).

Building on the re-emergence of the importance of the states in the regional integration debate, another grand theory emerged – namely *liberal intergovernmentalism*. This approach is pioneered

by Moravcsik's (1998) three-step model which combines liberal theory, intergovernmentalism and rational-choice theory. At the first stage of this theory is the formation of national preferences, which take place with each country that is part-taking in the regional integration process. Here Moravcsik (1998) does not neglect the pluralist process of competing interests among different actors, but instead argues that the nation state aggregates these competing interests to form one national interest within a certain policy area. The outcomes of this process are issue-specific and are then put forward to higher political entities as the EU by the state. This stage constitutes the liberal part of the model, as states elevate issue-specific national agendas, beyond traditional realist notion of zero-sum competition and national security, to higher political entities.

The second stage of Moravcsik's (1998) model constitutes the intergovernmentalist approach by emphasising the continuing bargaining, or cooperation, among states at a supranational level – the EU arena. Here the nation states compete utilising their relative power to further enhance their national interests, which was formed in the first stage of the model. The key emphasis at this stage of the model, is the intergovernmental focus of having sovereign states competing as opposed to having sub-national actors such as businesses and interest groups, which was argued by neo-functionalists.

The third stage of Moravcsik's (1998) model constitutes the rational-choice leg of the model, as it describes how and why nation states voluntarily delegate sovereignty to supranational actors such as the EU by creating international institutions (Moravcsik and Schimmelfennig, 2019). According to the model, states delegate some of their sovereignty to form international institutions with the purpose of creating stronger commitment and cooperation between the member states. The argument is that setting up standardised mutual agreements creates a level playing-field, where the member states can operate more efficiently and thus reduce transaction cost (Moravcsik and Schimmelfennig, 2019). Consequently, the integration process according to scholars of intergovernmentalism is pushed by the state to empowering the state, which is contradicting to the neo-functionalist continuous *spill-over effect*.

As an oppose to the normative neo-functionalist approach to European integration, Moravcsik's (1998) theory is has greater empirical roots, as it, apart from being published over 30 years later, aims at explaining the evolution of the EU from 1955 to 1992 (Moravcsik and Schimmelfennig, 2019). Additionally, this theory is built on two basic assumptions that 1; states are self-centred actors seeking to promote own interests and 2; that the state actions can be described as at least bounded rational (Moravcsik and Schimmelfennig, 2019).

'New' Institutionalism

As liberal intergovernmentalists argue that neo-functionalists are neglecting the role of the state, a 'new' approach to institutionalism in regard to regional integration emerged, with the argument that the role of institutions, and primarily EU institutions, was left out of the academic debate. The three dominant 'new' institutionalist approaches in regards to EU integration is the rational-choices institutionalism, historical institutionalism, and sociological institutionalism (Wallace, Pollack and Young, 2015). Rational-choice institutionalism emphasises how EU actors pursue their individual goals as a result of the institutional setup. One example is Scharpf's (1988) study illustrating the inefficiency of EU policies as a result of the institutional rules in place. Sociological institutionalists underline the importance of the shaping of identities in various institutional actors.

Between these two approaches is the historical institutionalist approach where the emphasis is upon the importance of institutions over time. Here historical institutionalist as Hall (1986) emphasises how established institutions influence or constrains the behaviour of the actors who established them (Wallace, Pollack and Young, 2015). This implies that intuitions established in the past might have great impact on the behaviour of actors today, hence the concept of *path-dependence* is critical to this theory. Also, historical institutionalists underline the importance timing of specific events or alterations of institutions. One example is Pierson's (1996) study of path-dependence in the European integration process. Pierson (1996) argues that despite being in the establishment of EU institutions and policies, 'gaps' are likely to occur in national governments ability to control the development of these institutions. This is arguably a result of four reasons. One, national governments might trade long-term control of EU policies on national control in

return for short-term re-election. This scenario is also described as applying a high discount rate for the future. Two, if too low discount rates for the future are applied, 'gaps' that are too large may not be able to be closed in the future. Three, preferences of governments might change over time due change of event, political environment, election of new government etc. Four, pressure from institutions and actors above and below a certain EU institution may result in policies becoming locked-in.

Historical institutionalism will be further elaborated on in the theory section of this thesis.

EU Governance

As European integration continued through the 1980s and 1990s – and especially with the 'Single European Act' of 1986, the academic debate of European integration also developed. As argued by Kohler-Koch and Rittberger (2006), there was a shift of academic focus towards EU governance and policy analysis as the EC developed closer and closer to becoming the European Union (EU).

One of the grand governance approaches to the EU is the Multi-level Governance approach, which was conceptualised by Hooghe and Marks (2001). Hooghe and Marks's (2001) model emphasises the multi-level structure of the EU while highlighting how the decision-making authority is "*not monopolized by the governments of the Member States but is diffused to different levels of decision-making – the sub-national, national and supranational levels*" (Kohler-Koch and Rittberger, 2006). In terms of EU governance, the Multi-level Governance approach argues that national governments share rather than monopolise the decision-making process with sub-national actors as businesses and interest groups. Consequently, one of the underlying assumptions of this approach is the acceptance of the EU as a polity. And on a theoretical level, the EU is now 'given' and thus constitutes the independent variable, which is contradicting to previous academic debate of having the European integration as a dependent variable. MORE???

While Multi-level Governance emphasises the structure of the EU and how this is utilised by various actors in the policy-making process, the Network Governance approach by Kohler-Koch and Eising (1999) argues that the state is vertically and horizontally integrated into a network in

the policy-making process. According to this framework, the role of the state has changed from allocating policies 'from above' to being an 'activator' of policies by building coalitions with relevant states and societal actors on a case-specific basis (Kohler-Koch and Eising, 1999). Additional insights of the network governance approach are the argument that regulatory policies dominate the policy-making process over for instance areas as redistributive policies due to the underlying orientation towards problem-solving over utility-maximisation.

The 'governance turn' in the academic debate of European integration also led to increasing focus on the problem-solving capabilities of the EU as an institution. One empirical insight in regards to the effectiveness of EU's problem-solving capabilities is presented by Scharpf (1999). He illustrates that the likelihood of creating new EU rules and legislation within a certain policy area is highly depends on what type of legislation it is by utilising the concepts of 'negative' and 'positive' regulatory integration. Here, Scharpf's (1999) definition of 'negative' integration refers to the removal of trade barriers and other challenges that distorts the competition whereas 'positive' integration refers to the reconstructing of a system of regulations at the higher EU level (Scharpf, 1999). Scharpf's (1999) argues that 'negative' regulatory integration has been much more succesfull due to institutional set-up of the EU. On the other hand, Scharpf (1999) uses the same argument to emphasisive the lower success of the EU to agree on 'positive' regulatory integration.

Summing up, this section of the literature review has illustrated shift of focus among scholars from primarily focusing on the integration process to instead perceive the EU as a polity and thus how this polity is governed.

Industrial Policy Review

We will now need a usable typology of industrial policies, as to operationalize both the EU response and the Made in China 2025 industrial policy. Furthermore, the idea is to use the typology in order to outline the key differences in the industrial policy of the EU´s response and the Industrial policy, which is the Made in China 2025 plan. The typology will also be used in order to confirm that especially the Chinese industrial policy is very wide-ranging and represents a new path for a developmental country.

Defining industrial policy

There are several definitions of what constitutes an industrial policy. For instance, the World Bank consider industrial policies as a tool exclusively referring to the manufacturing part of an economy. More specifically, the World Bank defines industrial policies as "*government efforts to alter the industrial structure to promote productivity-based growth*" (Maio, 2014, p. 551). A broader definition of industrial policy, and the one adopted in this paper, is one from Organisation for Economic Co-operation and Development (OECD) which defines industrial policies as following:

> *"Industrial Policy is any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention"* (Warwick, 2013, p. 16).

The choice of authors for this review, is made on the basis that they have written quite general papers on the body of literature. Furthermore, they are either leading in the field, or in Warwick´s case, representative of big international organizations such as the OECD. We would argue, that an author´s article is coming from a respected international institution lends it more credence, when dealing with industrial policies, as it is also here these are discussed by the involved parties.

Scholars have argued for and against this definition of industrial policy, and are laid out by Maio (2014). The theoretical arguments for cases where industrial policy is preferred are based on three conditions. The first condition is the existence of some market failure i.e. when the private market show tendencies of not optimizing and allocation its resources efficiently. The second condition is that the specific industry or sector subject to the industrial policy is potentially competitive in international market competition at some point in the future. The third condition is that of the discounted future benefits of the adjustment must exceed the potential costs of the distortion. The argument against this relies on the assumption that even in imperfect markets, the national governments could not have enough information to correctly fix the market failures. Furthermore, there is no reason to believe that a national government can predict which sectors could have

potential for internationally competitiveness. A national government is neither able to correctly estimate the costs and benefits of a given industrial policy. In short, the belief that the open market is always the best allocator of resources. Since governments are naturally limited in the information they have, optimal selectivity and estimation is impossible. Another argument against, is that governments, by instituting industrial policy, will create and environment wherein rents exist. Therefore, the rational firm will act with a rent-seeking behaviour in order to exploit these, even if it requires illegal means. This argument relies on the implication that such an environment is more prone to corruption and the unfair competition and inefficient allocation of resources that this brings.

Various economic theories argue that government intervention via industrial policies can, however, be optimal in cases where an *informational externality* is present. These *informational externalities* arises due to differences between private and social benefits derived from investments in a new economic activity. In order to make the private and social benefits converge, the government is needed to take on some of the investment risk related to the new economic activity. For instance, *informational externality* arises when companies with large carbon foot-prints do not "price in" their production of CO2 resulting in lower societal returns compared to the private returns. Another example where economic theory argues in favour of using industrial policie, is when the market exhibits coordination failures, which emerges when investments in related activities within a sector are missing. Consequently, this is leading to private sector investments being sub-optimal. The last example of situations where government interventions are optimal, is when there is a positive externality i.e. introduction of new external technology (Maio, 2014).

The History of Industrial Policy

During the nineteenth and twentieth century, governments of the developed countries as the United States, United Kingdom, and Japan played an active role in supporting the industrialisation of their economy. After the Second World War, multiple governments of newly independent nations also actively supported the industrialisation of their national economy as well. Some had economy-wide industrial policies and state-owned enterprises, others only utilised trade focused

policies and production subsidies in order further develop industrialisation. Simultaneously, developed countries tried to counteract the developing countries' extensive industrial policies (Maio, 2014).

The Developmental State

One of the greatest success stories of the utilising industrial policies to enhance economic growth and upgrading comes mainly from examples of the East Asian economies - South Korea, Japan, Taiwan and Singapore. The strategies utilised by these countries are, in academia, described as the "Developmental State" strategy. Though Japan was industrialised long before the development of the Asian Tigers, constituting South Korea, Singapore, Taiwan and Hong Kong, they utilised some of the same industrial policy instruments. Their sprint to industrialisation is even more prominent as these countries in the post war area of the 1950´s had very limited natural resources and high poverty rates. All the Asian Tigers – arguably not Hong Kong - also had just faced a tumultuous time of becoming sovereign nations in their own right. Some scholars attributed this rapid increase in living standards and industrialization to an adherence to the neoliberal ideals of a liberalization of markets and an opening up to the international economy. The story of the Developmental State is, however, more nuanced (Wade, 2018).

The success of The Developmental State is underpinned by an ability of the East Asian countries to indigenously develop industries which at first served as first-tier supplier to already established Multinational Cooperation (MNC). These indigenously developed industries were even capable of competing with the MNCs head-to-head later. The industries were for example; chemicals, manufacturing of car parts, steel, ship building and electronics. How these industries were able ro evolve is according to Wade (2018) found in the political level, and perhaps more importantly, at the level of ideas. Also, neo-liberal scholars identified this political level as one where an elite consensus had emerged, which solidified the advantages of free markets and high international integration into the international economy at the highest level of the national governments. The proponents of the Developmental State theory also believe that the success of the East Asian countries was a result of and elite consensus but argues that it was not strictly built around adherence to neo-liberal values. Wade (2018) describes this view as a perceived elite consensus

around the following. Firstly, a high priority was given to attain, and sustain, a very high economic growth rate. Secondly, a very high rate of investment-to-GDP ratio was prioritized in order to secure a rapid movement to higher productivity activities. Thirdly, an elite consensus appeared around the need for the state to govern and coordinate this catch up strategy. This was achieved through the use of government-owned enterprises or a steering of private enterprises into sectors where productivity was high. Fourth, and perhaps most out of sync with neo-liberal values, a consensus around curbing the consumption rates of the urban labour force and farmers alike. This was done in order to secure a greater amount of capital ready for investment. The fifth element included in the elite consensus, was the willingness of the state to actively promote export of goods. The limited domestic consumption, due to the fact that these countries were relatively poor, the state promoted export in order to make its industrial policy investments profitable. This also meant that the Developmental State issued industrial policies designed to target replacements of imports and concentrate on importing capital goods, intermediate goods and raw materials. Notably, the industrial policy was used in order to avoid import of consumer goods, which arguably also challenges the neo-liberal ideals of free trade. This consensus highly inspired by Japan's industrial upgrading 10-20 years earlier (Wade, 2018).

As opposed to classical neo-liberal principles and ideas of good government, East Asian countries did not rely on democratic checks and balances between ministries, the government or an independent central bank. Hence, the Developmental State had a very high degree of centralized bureaucratic power. More specifically, this power was centralised in the top of core ministries such as the Ministry of International Trade and Industry in post-war Japan. Also, the financial sector was dominated by state-owned banks, which also practiced industrial policy by providing loans to strategically designated firms and industries. The senior members of the government-controlled entities and ministries was also characterized by having a close relationship with capitalists, while still having the autonomy to discipline private industry. This was achieved while having sufficient feedback from the owners of capital to still get the corporate sector to "buy-in" on the overall project of the Developmental State. This is what Peter Evans called Embedded Autonomy (Evans, 1995).

Notably, the embedded autonomy of the bureaucrats does not include pressures from civil society such as labour unions. The Asian Tigers were, until transitioning to various forms of democracy – Singapore excluded - in the late 1980´s, forms of one-party states and military rules. Arguably, one of the downsides of the Developmental State are labour suppression and a general marginalisation of the working class. This was part of the Developmental State model as was considered necessary in order to keep consumption and labour costs low (Wade, 2018). This is described as the *elite consensus* between the public and private elite in order to keep the state-business vision for the future industrial upgrading on track. The violent turmoil in which these states were born, and an outside threat from e.g. the Soviet Union, China or North Korea, was contributing factors of the reason as to why the working class were marginalized in such a way.

At the policy level, the Developmental State is characterised by using its power to push production into sectors with increasing returns and keeping a large share of the ownership of production on national hands. The industrial policies of the East Asian countries utilised various tools in order to push production where the state wanted it, using a wide array of credits and tax rebates. They also used directed credit and other fiscal incentives to designate high value-adding industries as well as trade protection through tariff-free imports of intermediate goods, but not consumer goods. The state also bargained with incoming MNCs to the country. This materialised in restrictions on FDI inputs as for instance local content requirements for production facilities built in the country. This trade protection put a weakened international competition and helped national producers meet quality standards and being able to compete with international producers' superiority in the future.

In short, the Developmental State can be identified as one with little natural resources, a low average income, a shortage of capital and an elite consensus about the *idea* of catching up, and industrial policies directing at national industries into designated sectors. Furthermore, the Developmental State uses policies in order to decrease private consumption in order to achieve high investment rates and re-investment rates while avoiding non-productive wealth accumulation and luxury consumption. Trade policy was used to insulate local production until it was able to compete with the quality and efficiency of international producers. All of this in a

setting of recent political turmoil, dictatorial government and perceived close enemies banding the country together (Wade, 2018).

Renaissance for Industrial Policy

After the financial crisis of 2008-2009 the academic literature, as well as use, of industrial policy can be said to have gone through some degree of "renaissance". The collapse of the financial sector resulting in an economic crisis, questioned the arguments fostered in the neo-liberal period after the 1980s of the private market being the most efficient actor to allocate resources. The "renaissance" of the interest in industrial policies meant that the World Bank began actively researching the area, while the Bruegel policy review published the report "Rethinking Industrial Policy" (Aghion, Boulanger and Cohen, 2011) and the World Institute for Development Economics Research (WIDER) published the "New Challenges for Industrial Policy" (Naudé, 2010b). It was not only the international organizations and academics that began drawing their attention to industrial policies, a number of nations, both developing and developed, began exercising both short and long-term industrial policies. France established the Strategic Investment Fund and the Grand Loan to support growing businesses and help their economy after the recession. Netherland started the Top Sectors Initiative in 2010 and a newly formed Ministry of Economic Affairs, Agriculture and Innovation responsible of promoting new cohesive innovations policies over the top nine sectors. The UK set up the Strategic Investments Fund in order to strengthen the capacity for innovation, job creation and growth. This fund was later discontinued but was replaced by the Secretary of State for Business, Innovation and Skills affirming the UK government's support for industrial policies. Although the US did not introduce any definitive industrial policies following the financial crisis, it did launch an "innovation strategy" which was also assigned to improve Information and Communication Technologies as well as education and public services. Lastly China also updated its industrial policy after the financial crisis (Warwick, 2013).

Since late 1990s economists have recognised that a gap of knowledge are central to the understanding of why some countries developed and some are underdeveloped (Stiglitz, Yifu Lin and Monga, 2013). Furthermore, an acceptance of knowledge markets being fundamentally imperfect arose. This means, that what the Solow model had many years earlier shown, namely

that most increases in the standard of living will come from the acquisition of knowledge, meant issues with imperfection due to the imperfection on these markets. This is because markets, left on their own, fails to maximize knowledge. This leads to the conclusion, that in order for the economy to increase the standard of living, some correction is needed. Furthermore, the areas where knowledge is of most importance tend to be imperfectly competitive, again hampering the optimal allocation of resources in the area of knowledge and learning. These arguments are significantly older than the crisis of 2008-2009. Their breakthrough, however, happened after the crisis forced even developed countries, with deep financial markets, to acknowledge the issue of market failure. (Stiglitz, Yifu Lin and Monga, 2013).

Now that a history of the arguments for and against industrial policy have been explored, as well as the history of its use in both developed and developing nations. This paper needs a typology in order to operationalize its findings regarding China´s "Made in China 2025" policy and the EU´s response.

A typography of Industrial Policy

We will now need a usable typology of industrial policies, as to operationalize both the EU response and the "Made in China 2025" industrial policy. Furthermore, the idea is to use the typology in order to outline the key differences in the industrial policy of the EU´s response and the Industrial policy, which is the "Made in China 2025" plan. The typology will also be used in order to confirm that especially the Chinese industrial policy is very wide-ranging and represents a new path for a developmental country.

In 2013, Ken Warwick published an OECD paper which sought to provide a typology of industrial policies, which was built upon the foundations of typologies of industrial policy research from Naudé (2010a), Cimoli *et al.* (2006) and Weiss (2013).

This foundation categorises the range of industrial policies made by governments on a scale from the *very narrow*, such as quantifiable subsidies granted to specific industries or companies, to the *very broad* actions taken in order to improve the general business environment for all. Warwick

keeps this distinction between *horizontal* and *selective* policies. Specifically, the works of Naude (2010) and Cimoli et al (2009) where the typology distinguishes between policies *dependent* on where they are aimed and what instruments are being used. This can be seen Naude (2010) typology (see appendix 1).

As opposed to the earlier works on creating typologies in order to categorise the industrial policies enforced by governments, Warwick seeks to distance his typology from the development literature from which these earlier examples are derived. Instead, Warwick seeks to utilise the natural typology inherent in the multi-factor productivity models as they are known from mainstream economics. This typology divides the instruments of industrial policy into the categories of product market, labour markets, capital and credit market, land markets and technology markets. This distinction is made while keeping the "traditional" groupings of the horizontal and the selective policies in a two-way approach. An example of the use of this typology could be that the efforts of the Danish government to facilitate the export of pork to China. This policy would fall under the selective policies in the domain of the products parked (Warwick, 2013) (see appendix 2).

As illustrated in Appendix 2, there is a final domain in the two-way typology named Systems/Institutions. Warwick defines it as the domain wherein the more generic horizontal policies such as support for entrepreneur ship, economy wide efforts to improve the flow of information as well as an overall competitiveness strategy would fit in the systems/institutions domain´s horizontal category. The systems/institutions domain can also be seen as a "catch all" failsafe in the typology.

Warwick dives a bit deeper into the classification of the different types of industrial policies. Specifically, after designating a policy in the appropriate domain, and if the policy is selective, a further query should be made as to whether the policy is strategic or defensive/reactive. Warwick defines many of the "hold-over" policies in the wake of the financial crisis as policies which could be defined as defensive/reactive. This distinction is by Warwick depicted in the following Figure 1 (appendix 3).

With regards to the policies which would instead fall in the strategic category of figure 1 (appendix 3), a further distinction is made. The Warwick typoplogy defines two distinct difference between sector-specific industrial policies. These are either put into effect with a more long-term strategic goal instead of a more defensive/reactive one. These Strategic industrial policies should be distinguished by whether they are aimed at catching up or making new ground on the frontier of technological progress. In other words, whether they are aimed at using better existing technology or on building and innovating the next technological step. Furthermore, Warwick makes a distinction between comparative advantage following and comparative advantage defying policy. Specifically in the developmental literature, which is focused on industrial policies aimed at catching up, a debate about whether developmental countries should strictly follow policies adhering to their resource endowment and are comparative advantage following, or, like can be seen by the theory of the Developmental State, should not shy away from policies which are seen as comparative advantage defying. Warwick illustrates this in a two-by-two model as seen below in figure 2.

The Sector Specific Strategic industrial polices of countries at the frontier are represented in quadrant A and B. The Comparative Advantage following policies would be those which consolidate the areas wherein the country is already at and advantage, e.g. the tax breaks for shipping companies in Denmark. The comparative advantage-developing quadrant would be those industrial policies which are meant to secure comparative advantages in the future, e.g. the Danish governments establishment of a Green Fund in order to establish a comparative advantage in this area for the future. Quadrants C and D are the Sector Specific Strategic industrial policies in countries trying to catch up. On the comparative advantage following policies are those meant to exploit existing advantages, such as a resource endowment. The comparative advantage developing policies would be those designed to build and protect infant industries meant to eventually compete internationally, this is what was successful in the theory of the Developmental State.

Research Design

Philosophy of Science

This thesis applies a critical realist approach of philosophy of science in order to answer the research question. This approach to philosophy of science has emerged by combining and developing the two dominant approaches to philosophy of science – namely the naturalist and the constructivist approach (Moses and Knutsen, 2012). Like these approaches, critical realism is distinguished by its ontological, which is the study of 'being' and the most basic elements of our existence, epistemological, which relates to the perception of knowledge and how knowledge is developed, and methodological features, such as what types of methods are used. These characteristics will be described in the following paragraphs.

The ontology of critical realism is heavily influenced by naturalist ontological assumptions. Here, critical realists accept the naturalist perception that emphasises that true existence of a Real World apart from human interpretation (Moses and Knutsen, 2012). This means that there is a Real World 'out there' waiting for researchers to uncover. However, critical realist has developed this naturalist perception of a Real World by introducing the notion that it is layered or stratified (Benton and Craib, 2011). According to critical realists, reality is constructed of three layers, the real world, the actual level, and the empirical level, which are defined as following:

- The *real* world is the realm of mechanisms, tendencies, powers etc., and is the layer that science seeks to discover.
- The *actual* level of reality is the level of events that has taken place. These events can take place under experimental conditions or, as the case of this thesis, take place more complex and less predictive environments outside the laboratory.
- The *empirical* level consists of observations and must only be subset of the actual level.

According to critical realists, the aim of scientific enquiry is to uncover the mechanism of the real level of reality. On the actual level of reality, critical realists describe the events that have been caused by the mechanisms of the real level.

Critical realists also divided the world into open and closed systems. Closed systems are a systems or environments wherein scientific study can be completely isolated from any interference from other mechanisms that are causing an event to happen (Benton and Craib, 2011). The prerequisites for these systems are typically only present in a laboratory or similar controlled environments, which, according to critical realists, very rare circumstances and especially for research in social sciences. Hence, critical realists also emphasise the existence of open systems, wherein several mechanisms exist simultaneously and interferes with each other (Benton and Craib, 2011). This perception implies that it is very difficult to isolate only one mechanism causing an event to take place in an open system, thus emphasising that other and undiscovered mechanisms co-exists.

In terms of the epistemological assumptions, critical realism shares common ground with the constructivist approach. Though critical realists do assume the existence of a Real World beyond human interpretation, they also acknowledge that science is a social practice and thus knowledge is a social product (Benton and Craib, 2011). This assumption is what critical realists describes at the transitive dimension and focuses on the question of "*What must be the case for science to be possible?"* (Benton and Craib, 2011). This transitive dimension implies the notion that knowledge is cumulative and thus is a product of its social and historical context. Consequently, critical realists avoid concepts as universal laws and universal mechanisms, as they are deliberately aware of the fact that these mechanisms might be wrong at a later stage. This implies that knowledge is never complete.

In relation to the methodological assumptions, critical realism does not emphasise one set of methods to be correct. Instead, it argues that science should be driven by questions and not methods, which empowers the scholars to apply qualitative, quantitative or mixed methods in the pursuit of uncovering mechanism.

Application of the Critical Realist Approach

Applying the critical realist approach to philosophy of science enables the research of this thesis answer the research question and is achieved in various ways. Firstly, the ontological assumptions

of critical realism enable us to breakdown the different levels of reality of this thesis. At the actual level of reality, this thesis studies the events described in the analysis of this thesis, which are FDIs from China to EU countries and how the EU has responded to these FDIs. At the real level of reality, we utilise the framework of historical institutionalism to explain these events and thus enabling us to answer the research question. The empirical level of reality is not studied in this thesis, since the prerequisites described earlier were not accommodated as this study operates in an open system with multiple mechanisms unfolding at the same time, which makes it nearly impossible to isolate a single mechanism. The ontological assumptions of critical realism also enable the study of this thesis to utilise the theoretical framework provided by historical institutionalism in order to explain EUs response to the "Made in China 2025" strategy by focusing on the causal mechanisms of the response.

Secondly, the epistemological assumptions of critical realism enable us to utilise historical institutionalism to narrow down the units of analysis for the thesis. This way, the research of this thesis is predominantly focused on institutions as the unit of analysis. However, as will be described later is this thesis, historical institutionalism acknowledges that institutions cannot serves as the only causal explanation of an event, but instead opens the possibility that other actors contribute to the outcome of an event. This characteristic of historical institutionalism is shared in critical realist's assumption that knowledge is never definite and that there might be uncovered mechanism causing a certain event to take place – especially in an open system as the research of this thesis.

Thirdly, critical realism enables the research of this thesis to utilise mixed methods as the methodology, which is elaborated on in the following paragraphs.

Methods

This thesis utilises mixed methods in order to analyse and explain EUs response to the "Made in China 2025" strategy. The analysis of this thesis uses quantitative methods to describe FDIs patterns from China into the countries of the EU, which serves as a building block for the rest of the analysis. The quantitative methods provide the justification for the thesis in general as it

highlights the ‘problem’ while also serves the justification for further analysis. Specifically, the quantitative methods used are simple descriptive statistics where raw primary data from The China Global Investment Tracker are analysed using graphs and simple regression analysis to illustrate the patterns of Chinese FDIs into the EU over a period of time. This part of the analysis sets the stage for the rest of the analysis as it uncovers what actually is happening in relation to Chinese FDIs into EU countries.

After utilising quantitative methods to set stage for the analysis and illustrating the ‘problem’, a qualitative approach is then used in order to uncover the response of the EU in regard to the “Made in China 2025” strategy. This is done by using best fit cases, as the cases described in this thesis are selected upon the requirements that they need to reflect the actual policy of the “Made in China 2025” strategy. Analysing these cases are achieved by using ‘desk’ research, where we search previous legal cases and case-law in order to see earlier judgements.

Data Collection

The data relating to how much FDI flows into Europe from China can generally be categorized into two distinct sources. There is one source from within the EU system, namely Eurostat´s statistics on EU direct investment flows, named “breakdown by partner country and economic activity” (BPM6). These are however muddled by the fact that only net flows are counted in this statistic. This means, that the absolute flow of investments from the China, can vanish in counter-flows from EU countries to China in the same industries. This will also be the case when the data takes into account intra-company flows after an acquisition (*Eurostat - Data Explorer*, nd). The second source for data on Chinese investment flows into Europe is the data collected by the Chinese Ministry of Commerce (MOFCOM). The problem here, is that the figures presented by MOFCOM for Chinese investments into the EU are much larger than those reported by Eurostat. A Report by the European Think-tank Network on China (ETNC) speculates, that this discrepancy is a consequence of the flows from China to Europe being subjected to significant channelling of the funds through other countries or Hong Kong. An example of this could be the practice of establishing European holding companies when engaging in large M&As for tax reasons (Seaman *et al.*, 2017). For example, in the mega deal involving Supercell and Tencent, the money was

channelled through a holding company in Luxembourg. This aspect is believed to be better capture by datasets compiled using the Ultimate Beneficial Owner principle (UBO) than in the traditional methods used by both Eurostat and the Chinese government.

The general trend in the datasets are however robust. Hence the increase of FDI inflows into Europe up until the peak year in 2016 and the following falling FDI flows from China into the EU in both 2017 and 2018 can be seen across all sources. It is the magnitude which differs. It is on the basis of a modified approach to the numbers from the both Eurostat and the Chinese government that the report (Thilo, Mikko and Kratz, 2019), we will use, has been compiled by the Mercator Institute of China Studies. It should however be noted that neither the MOFCOM or data compiled using the UBO principle are impenetrable to the distortions created by the channelling of funds and the use of special purpose entities to "round trip" money in order to utilise lucrative tax incentives around the world. The way this problem is somewhat rectified by the reports used in this paper, is by using compiled data based on the ultimate beneficial owner (UBO) principle. This records data based on the ultimate owner of a foreign investment vehicle instead of the immediate owner. However, as said before, even this method is not free from the distortions arising from "round tripping" and special purpose entities. The 2017 European think tank report therefore concludes, that an entirely holistic picture of FDI flows are next to impossible to accomplish. This paper relies on the data collected by the Rhodium group and the Mercator Institute for China studies, however, since these are made by the private company Rhodium Group, the exact method is proprietary knowledge (Seaman *et al.*, 2017).

When it comes to the dividing the Chinese FDI inflows onto European sectors, the reports from the Rhodium Group and the Mercator Institute for China Studies are not well suited for the purpose of this paper. We will also not be using numbers based of the Chinese Ministry of Commerce´s data as a next best solution. Instead, this paper will seek to use the China Global Investment Tracker, which was launched by the Heritage Foundation and is now hosted by the American Enterprise Institute (AEI).(*China Global Investment Tracker | American Enterprise Institute - AEI*, no date). This dataset is compiled based on the ultimate beneficial owner principle much like the reports coming from the Rhodium Group and the Merics Institute for China Studies.

These figures are, however, not comparable to the traditional method of Balance of Payments (BOP) which the Chinese Ministry of Commerce and Eurostat compiles data from. This is a caveat, which will have to be kept in mind. It is still important to note that the overall trends of the FDI flows are very much robust, and represented over the different datasets (Seaman *et al.*, 2017).

Made in China 2025

Overall Strategy of "Made in China 2025"

On March 5th 2015, China's Prime Minister presented the "Report on the Work of the Government (2015)", revealing for the first time a national strategy to develop China from being a *manufacture of quantity to a manufacture of quality* (The State Council - The People's Republic of China, 2015a). This strategy was officially issued two months later on May 19th 2015 with the name of "Made in China 2025". As the name suggest, this strategy for the future of China's manufacturing is a ten-year plan with maturity in 2025. However, this ten-year plan actually only constitutes a third of the overall "Mand in China"-plan that is scheduled to run all the way to 2049 – marking the 100th anniversary of the founding of the People's Republic of China. Hence the 2025-plan is only the first step of three for the grand "Made in China" strategy, which seeks to place China as the leading manufacturing power by the year of 2049. At the heart of the "Made in China 2025" plan was the nine key areas of prioritisation made by the Chinese government. These nine tasks are the following:

"Improving manufacturing innovation, integrating technology and industry, strengthening the industrial base, fostering Chinese brands, enforcing green manufacturing, promoting breakthroughs in ten key sectors, advancing restructuring of the manufacturing sector, promoting service-oriented manufacturing and manufacturing-related service industries, and internationalizing manufacturing" (The State Council - The People's Republic of China, 2015b).

As the press release illustrates, this plan was not just a small development of China's manufacturing, but a complete reformation of every aspect of its economy. On an industry-

specific level, the Chinese government have identified ten key sectors wherein the primary focus for this plan is:

"1) New information technology, 2) High-end numerically controlled machine tools and robots, 3) Aerospace equipment, 4) Ocean engineering equipment and high-end vessels, 5) High-end rail transportation equipment, 6) Energy-saving cars and new energy cars, 7) Electrical equipment, 8) Farming machines, 9) New materials, such as polymers, and 10) Bio-medicine and high-end medical equipment (The State Council - The People's Republic of China, 2015b).

With the nine areas of foci including the ten industries, an overall goal of the "Made in China 2025" strategy is revealing; "*(…) to turn China into a global hub for high-tech industries*" (Zenglein and Holzmann, 2019). China is trying to leapfrog developed countries in high-tech industries in order to reach and pioneer the fourth industrial, which is characterised by labels as "Industry 4.0" (Germanys label), "Industrial Internet" (US's label) and "Smart Manufacturing" (China's label). This new industrial paradigm is characterised by advanced communication technologies embedded into intelligent machines (Wübbeke *et al.*, 2016a). This way, machines are connected and will be able to communicate with each other using data, sensors to make decision in order to optimise production processes. This forth industrial revolution is currently in the making among advanced economies that already have experienced the earlier stages:

- **1st revolution**: Started in the late 1700 by the invention of mechanical production which was powered by steam and water.
- **2nd revolution**: Started in the 1800 with the emergence of electricity to power machines resulting in mass production.
- **3rd revolution**: Started in the 1970s with industrial robots and the emergence of information technology as computers.

Though China are currently the number one manufacture hub in the world, they face enormous challenges if they want to become the world leading high-tech manufacture pioneering smart

manufacturing by 2049. Thus, the following section seeks to describe briefly the China's current level of industrial development.

China's developmental stage

In 1990 Chinas shared of global manufacturing accounted for 2.7 percent of global manufacturing, in 2014 this share had increased to 25 percent (Zhang *et al.*, 2016). During this period, China became the number one manufacturing country in the world by having a comparative advantage over other countries. These comparative advantages include for instance easy access to cheap manual labour as a result of a large labour force, low wages, poor working conditions etc., and cheap raw materials. Though labour costs are still moderate compared to China's neighbouring countries, its yearly wages have increased significantly since the 1990s (see tables). Another trend of the China's economy is that China's industrial production has slowed down almost year-after-year since 2010 (see table). Also, China's annual GDP growth has since 2007 fallen steadily from 14,23% of annual GDP growth in 2007 to 6,57% in 2018 (World Bank, 2020b).Following these trend, China is concerned about falling into the so-called 'middle-income trap' which is described by Garrett (2004) as a not being able to compete with advanced economies due to lack of technological progress while also being unable to compete with less developed economies because of domestic labour costs being too high.

According to Wübbeke *et al.*, (2016) China's current level of manufacturing progress is for the most part characterized by the tools of the second industrial revolution, while some sectors have just started integrating third industrial revolution tools. This challenge for upgrading China's economy today can be attributed to various reasons.

Firstly, R&D funding level in China is lower than competing countries as the US and Germany (see graph). Moreover, China only spends one-fourth the amount of basic research compared to developed countries (Zhang *et al.*, 2016). This is has resulted in a lack of innovation in core technologies, which is the second challenge the China's manufactural upgrading is facing. The lack of innovation of core technologies is illustrated by the fact that only 3 of 10.000 Chinese enterprises had independent intellectual property rights in core technologies (Zhang *et al.*, 2016).

This means that even though lots of technology is produced in China, the ownership of these core technologies usually belongs to multinational companies originated from developed economies. Consequently, the core technologies processed in China are imported and not a result of domestic innovation.

A third challenge facing China's manufacture industry is its low levels of information technology embedded into the production process compared to developed economies as Germany and the US. One illustration of that is the fact that China landed a on place 62 in the Networked Readiness Index in 2014 whereas the US was number 7 and Germany number 12 (Bilbao-Osorio, Soumitra and Lanvin, 2014). This index ranks the developments and usage of information technology within a country and is crucial if China wants to advance and pioneer the fourth industrial revolution. Another characteristics is, according to Zhang *et al.* (2016), China's large gab among different sectors, when it comes to the integration of information technology in the manufacturing process. Here industries as petrochemical and the steel industry has significantly higher degree of information technology embedded when comparing to other industries as for instance the garment industry (Zhang *et al.*, 2016). Also, on firm-size level there are gabs to the degree of informatisation, which is the extent to which a sector, economy or like, are information-based and thus more reliant on communication technologies. Here the level of informatisation is higher at medium-sized state-owned manufacturing enterprises than compared to small and micro enterprises (Zhang *et al.*, 2016).

A key characteristic of China's economy is its low levels of labour productivity (see graph). As illustrated in the graph, China's labour productivity is significantly lower than US's, Germany's and the European Union as a whole. This is partly a result of that fact that labour productivity is measured as the GDP per employed, which challenges China as a large part of its GPD is derived from low-added value activities as for instance low-added production and manufacture. Another reason causing China low levels of productivity comes from the fact that China's level of automation is very low compared to advanced economies as the US and German (see graph). The low level of automation is a product of Chinese enterprises becoming less and less willing to purchase new equipment for their production and manufacturing lines (see graph).

To conclude, even though China is the largest manufacturing country in the world, trends of slowing down the economy and manufacturing has revealed itself. Hence, the following section describes China's effort to accommodate these challenges by investigating the "Made in China 2025" plan in practice.

Made in China 2025 in Practice

Since the "Made in China 2025" plan was presented in 2015, the strategy has evolved from policy design to reality. This is manifestoed with release of the *"Made in China 2025" Key Area Technology Roadmap* that was published in September of 2015 and later revised in 2018. This roadmap is the guiding principles and goals for the implementation of the strategy. Being a top-down strategy, the "Made in China 2025" was designed at the highest governmental levels and then developed downwards through lower levels of governments. At the level of the Chinese provinces, 28 out of 31 provinces has presented an implementation plan for how they can materialise the strategy of the "Made in China 2025" (Zenglein and Holzmann, 2019). These plans typically includes a focus for how the province will advance and upgrade specific industries For instance, the city of Yuhao in the province of Zhejiang is focused on advancing its industries for new equipment, information technology, energy and materials (Zenglein and Holzmann, 2019).

Central to materialising the "Made in China 2025" strategy is creation of innovation centres and pilot demonstration projects. The pilot demonstration projects are state-driven sector-specific projects that allows the government to introduce new and cutting-edge technology as a way to speed up the technology in the *real* economy (Zenglein and Holzmann, 2019). As of 2019, around 4000 pilot demonstration projects have been announced where the majority has been distributed across the following industries:

- **Green manufacturing:** 1646 pilot demonstration projects
- **Smart manufacturing:** 845 pilot demonstration projects
- **Manufacturing & Tech innovation**: 599 pilot demonstration projects
- **Manufacturing & internet integration** 388 pilot demonstration projects

- **Industrial champions**: 390 pilot demonstration projects

(Zenglein and Holzmann, 2019)

These pilot projects are typically located in the 31 pilot cities that the “Made in China 2025” established in August 2016. The pilot cities have since then developed into what Prime minister Li Keqiang in July 2017 characterised as National Demonstration Zones (NDZ). These NDZs are upgraded pilot cities and are now forming city clusters (Zenglein and Holzmann, 2019), which serves similar purpose as the pilot projects of being real-life cases of developing new technological progress. The effects of these NDZs have been quite successful as 65% of China’s most promising smart manufacturing hubs are emerging from within these zones (Zenglein and Holzmann, 2019). Also, from 2016 to 2019, the “Made in China 2025” plan has fostered 12 innovation centres across China and planning to add 3 more by the end of 2020. The idea behind establishing innovation centres is to maximise innovation within a specific industry This is achieved by leveraging cooperate alliances in order to optimise and develop every stage of the innovation chain. As of 2019, the following 12 innovation centres in 9 locations have been established:

City (Province)	Industry Innovation Area
Beijing	Batteries
Shenyang (Liaoning)	Robots
Xi'an (Shaanxi)	3D printing
Yantai (Shandong)	(Automotive) light-weight material forming technology & equipment
Zhuzhou (Hunan)	Advanced railway transportation equipment
Guangzhou (Guangdong)	Print & flexible displays
Luoyang (Henan)	Smart agricultural machinery
Shanghai (Shanghai)	Three innovation centres: 1. Chips 2. Smart sensors 3. Maritime equipment
Wuhan (Hubei)	Two innovation centres: 1. Information & optoelectronics 2. Digital design

Source: (Zenglein and Holzmann, 2019)

Another way the "Made in China 2025" plan has materialised is the role of the State-Owned Enterprises (SOE). The SOEs are pressured by the government to increase the current low levels of productivity, which is primarily achieved through exposure to private-sector companies. This way, SOEs are at an increasingly frequency competing with privately-owned companies for contracts as a way to promote higher levels of productivity. Another way that the government pushes the "Made in China 2025" plan is through strategic decision-making as for instance promoting partnerships and mergers of critical SOEs if mutual benefits can be achieved. One example is the merger of two of China's largest nuclear SOEs into China National Nuclear Corporation which in 2018 (Zenglein and Holzmann, 2019).

Being one of the most comprehensive industrial policy initiatives to date, the "Made in China 2025" plan is estimated to cost several trillion CNY and is funded in a number of different ways.

Most commonly, China is using various financial tools to fund the upgrading of it manufacture by introducing insurance compensation schemes, tax incentives, providing finance for small and medium enterprises (SME), and direct funding through direct funding for pilot projects and demonstration zones (Zenglein and Holzmann, 2019).

Some of China's largest banks has pledged to help financing of the "Made in China 2025" initiatives. One of them being the China Development Bank (CDB) that pledged 300 billion CNY from 2016 to 2021 for "Made in China 2025" initiatives. Also, the Chinese government has created over 1800 government industrial investment funds with an aggregated size of 3 trillion CNY (Zenglein and Holzmann, 2019). These investment funds are divided across the different level of the Chinese governmental levels and serves the purpose of providing capital to pilot projects and other innovations.

One last key feature of the "Made in China 2025" plan is its outwards-looking dimension. So far the description of the strategy mainly been domestically focused, but "Made in China 2025" is actually also a very aware of how it can advance its domestic manufacturing by looking abroad. In the original presentation of the "Made in China 2025" initiative, the plan revealed the following about strategy for multinational Chinese enterprises:

"*We will encourage Chinese companies to participate in overseas infrastructure development projects and engage in cooperation with their foreign counterparts in building up production capacity. We will work to increase the international market share of Chinese railway, electric power, communications, engineering machinery, automobile, aircraft, electronics, and other equipment, and encourage the metallurgical, building materials, and other industries to invest overseas*" (The State Council - The People's Republic of China, 2015a).

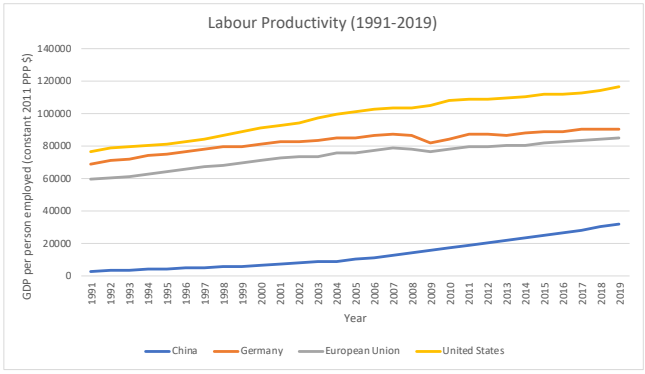
Consequently, the "Made in China 2025" strategy is not only a domestic industry policy, but also focuses on how to upgrade by looking at foreign companies. In this aspect, China is distinguishing between three categories of foreign companies and thus implying methods of how to close the technology gab between Chinese companies and foreign companies, where the underlying

assumption is that Chinese companies are less developed when it comes to technology and productivity.

The first category is *Bargaining chips* and are foreign companies that operates in sectors that has low prioritisation in the "Made in China 2025" strategy. This is for instance consumer good, retail, restaurants etc. (Zenglein and Holzmann, 2019). The second category is *Willing Tech Partners* and are companies that the Chinese government hopes to convince foreign companies to move their most sophisticated parts of their production to China in order to upgrade domestic industries (Zenglein and Holzmann, 2019). This category is, according to Chinese government, the preferred one. The last category is *Hard-to-get Tech Targets*, which constitutes leading foreign tech companies that are operating is key areas of the "Made in China 2025" strategy. These companies are most difficult to convince, which is why the Chinese government typically resorts to one of the two following tactics; attract or acquire.

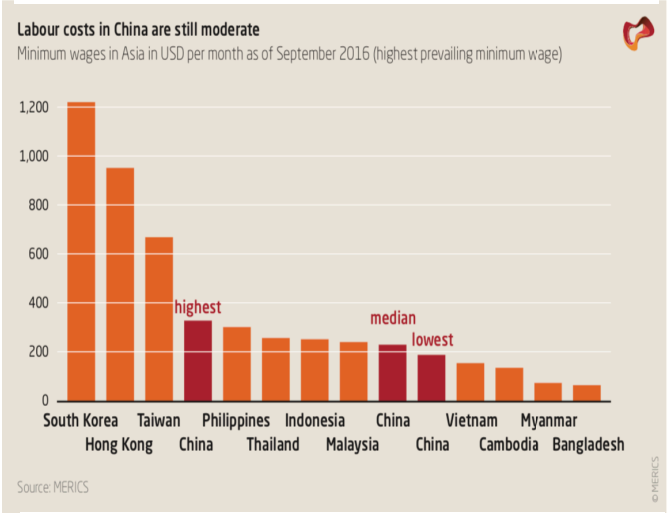
Attracting a foreign company to engage in the high-tech activities in Chinas is typically a process where the foreign company is offered attractive conditions of operating. One example is a contract offered to General Electric and Rolls Royce to deliver airplane engines to China's aircraft manufacture CRAIC on the condition to manufacture the engines in China (Zenglein and Holzmann, 2019) (Reuters (China), 2018). If this attracting foreign companies to invest does not work, then acquiring is typically the next step. Here, Chinese companies obtains new technology by simply buying it in the foreign market. In 2018, 58% of China's foreign direct investments (FDI) in Europe, in both numbers and value, was is attributed to the core industries of the "Made in China 2025" strategy (Thilo, Mikko and Kratz, 2019).

China Labour Productivity (1991-2019) – measured as GDP per person employed (constant 2011 PPP $)



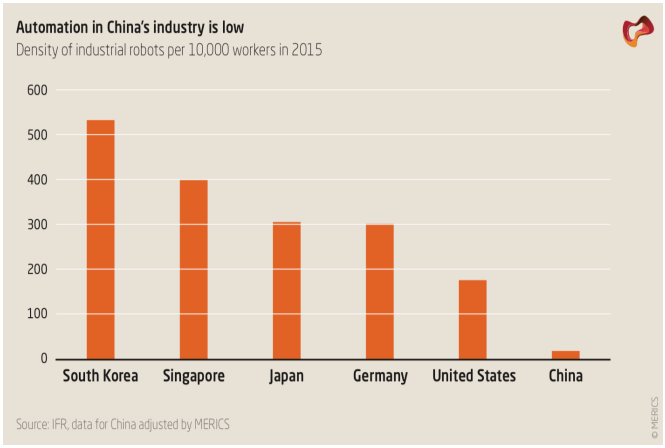
Source: (World Bank, 2020c)

Labour costs in South and East Asian



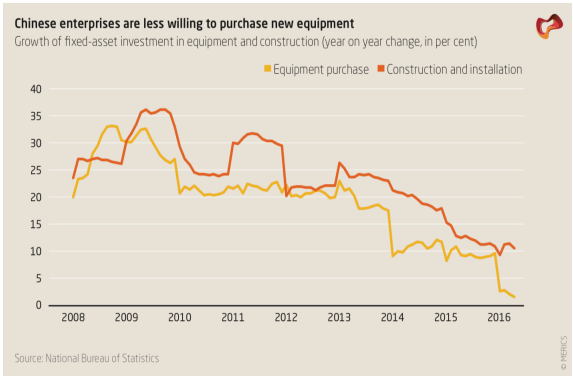
Source: (Wübbeke *et al.*, 2016a)

Level of Automation in China (2015)



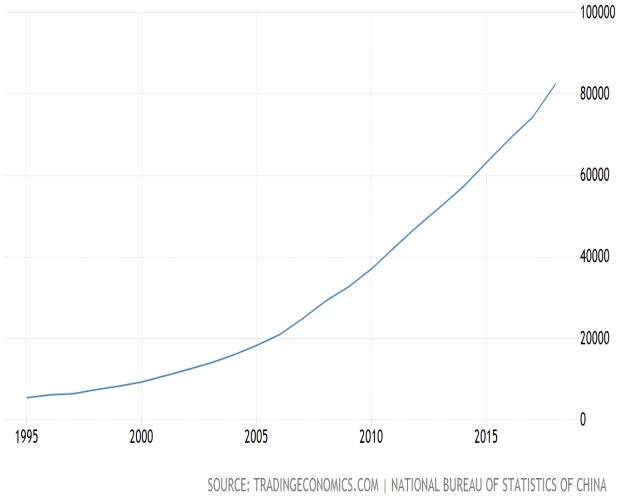
Source: (Wübbeke *et al.*, 2016a)

Chinese Enterprises Willingness to purchase new equipment (2008-2016)



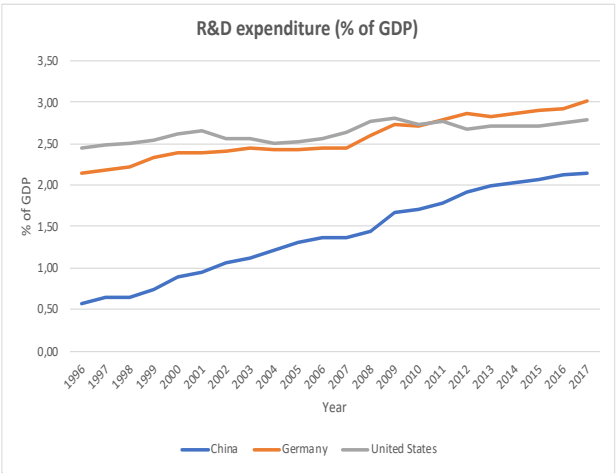
Source: (Wübbeke *et al.*, 2016a)

China yearly wage CNY/Year from 1995 to



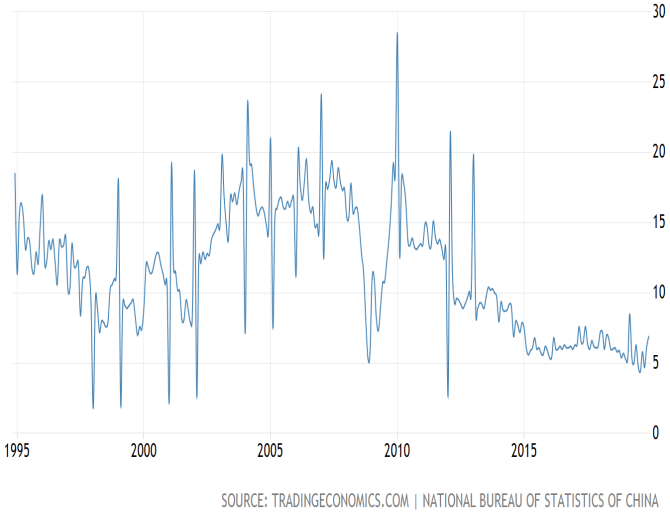
Source: (Trading Economics, 2019a)

China, Germany and the US R6D expenditures (% of



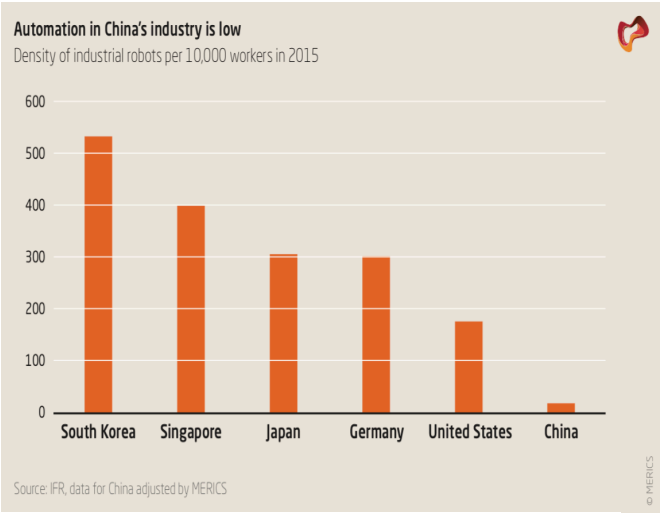
Source: (World Bank, 2020a)

China Industrial Production (1994-2019)



Source: (Trading Economics, 2020b)

Level of Automation in China as of 2015



Source: (Wübbeke *et al.*, 2016a)

EU structure – policy making

The analysis of thesis applies a historical institutionalist approach to uncover the mechanisms that explains the EUs response to the "Made in China 2025" plan. This implies that the unit of analysis will be the EU institutions. Hence, it is necessary to briefly describe the key EU institutions and legislative process, which the following paragraphs will do.

As stated in Article 13 of the Treaty on European Union there are seven institutions that make up the institutional framework of the EU and are; the European Parliament, the European Council, the Council of the European Union (typically referred to as 'the Council'), the European Commission, the Court of Justice of the European Union, the European Central Bank, and the Court of Auditors (source). These institutions each have their own jurisdiction and role. For instance, the Council sets the overall direction of the EU and is comprised of the Heads of States of the EU member states and the European Commission President. The European Parliament represents the citizens of the member states as they are elected directly. The European Commission represents the interest of the EU as a whole and are divided into 27 policy areas where each member state has one commissioner. Lastly, the Council represents the interests of

the national governments and is comprised of the ministers of each member state government depending on what policy areas that are being discussed. These institutions are established by EU treaties that defines the roles and responsibilities of each EU body and institution. The main EU treaties are:

Year	Treaty	Purpose
1952	Treaty establishing the European Coal and Steel Community	To create interdependence in coal and steel so that one country could no longer mobilise its armed forces without others knowing. This eased distrust and tensions after WWII. The ECSC treaty expired in 2002.
1958	Treaties of Rome: EEC and EURATOM treaties	To set up the European Economic Community (EEC) and the European Atomic Energy Community (Euratom).
1965	Merger Treaty - Brussels Treaty	creation of a single Commission and a single Council to serve the then three European Communities (EEC, Euratom, ECSC). Repealed by the Treaty of Amsterdam.
1987	Single European Act	To reform the institutions in preparation for Portugal and Spain's membership and speed up decision-making in preparation for the single market. Extension of qualified majority voting in the Council (making it harder for a single country to veto proposed legislation), creation of the cooperation and assent procedures, giving Parliament more influence.
1993	Treaty on European Union - Maastricht Treaty	To prepare for European Monetary Union and introduce elements of a political union (citizenship, common foreign and internal affairs policy). Establishment of the European Union and

		introduction of the co-decision procedure, giving Parliament more say in decision-making. New forms of cooperation between EU governments – for example on defence and justice and home affairs.
1999	Treaty of Amsterdam	To reform the EU institutions in preparation for the arrival of future member countries.
2003	Treaty of Nice	To reform the institutions so that the EU could function efficiently after reaching 25 member countries.
2009	Treaty of Lisbon	More power for the European Parliament, change of voting procedures in the Council, citizens' initiative, a permanent president of the European Council, a new High Representative for Foreign Affairs, a new EU diplomatic service.

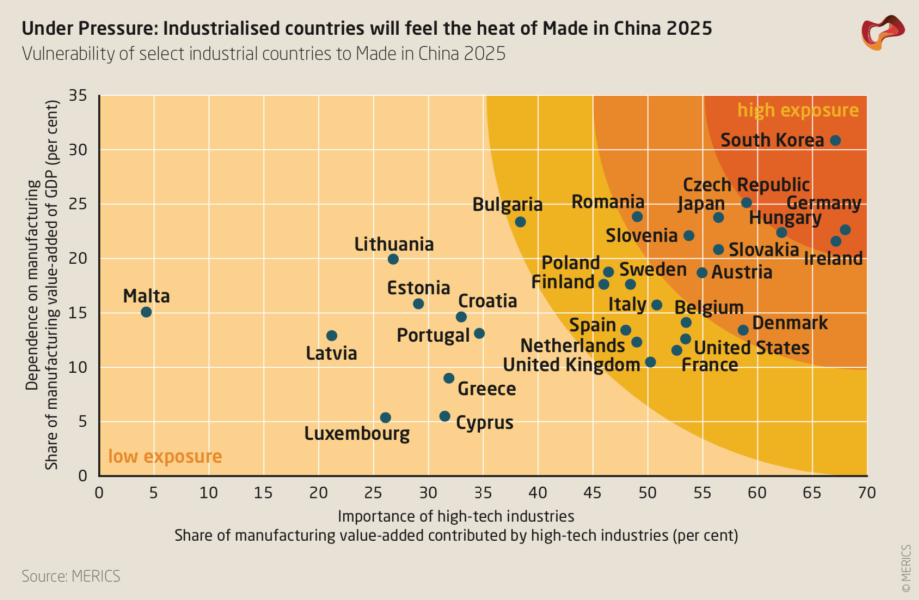
(The European Union, 2020)

EU legislation is divided into two categories – primary and secondary. Primary legislation consists of the treaties that lays out the responsibilities of the different EU institutions. Secondary law consists of regulations, directives and decisions within a specific policy area (source). The secondary law is drafted and proposed by the Commission to the Parliament and Council where the proposal needs to be approved by both bodies.

Why the EU?

The answer to this question is twofold. The first retains to why we have chosen to analyse the EU´s response as opposed to choosing other big economies, such as the United States, or countries with even closer economic ties to China such as South Korea or Japan. Firstly, we chose to look at the response of a great economic power, such as the European Union, due to these having leading roles in shaping how the rest of the world can deal with the outward expansion of China´s economic power. The fact that the actions and the institutions, are relatively more created and driven by the larger economies, combined with the fact that they are more prevalent in the

standard setting institutions on trade, such as the World Trade Organization, leads us to this decision. In short, we chose to analyse a large economic power due to its response having a greater effect on the rest of the world. We choose the European Union as the large economic power due to it being one of the actors, which are the most influenced by China´s "Made In China 2025" industrial policy (see figure below).



(Wübbeke *et al.*, 2016b)

The other part of the question is, why chose the European Union as the unit of analysis and not the individual countries within the Union? This again relates to our assumption that the way in which the world addresses the "Made in China 2025" strategy will be largely determined by the response of the large economies. There are most definitely economies within the EU, such as France or Germany, that could have been interesting to analyse on their own. However, on the world scale, the European Union´s internal market is the second largest economy in the world, only beat by the United States. This means that it is not only interesting how large EU countries', such as France and Germany, seeks to address the "Made in China 2025" strategy, it is equally important how these intentions will translate in the European Union context. In other words, we argue that the EU´s response is far more interesting, as it also entails the responses of many large economies. Furthermore, it will be interesting to analyse how a Union created with the intentions

of removing trade barriers and promoting less restrictions on capital movement, will deals with pressures to reinstate trade barriers and restrict the movement of capital.

Analysis

Chinese FDI in the EU28

We need to get an overview of the actual FDI inflows into Europe from China, if we are to identify which sectors we should be using in the case based analysis of EU case law. The FDI analysis will also serve as guidance, as to what sectors defined in the Made in China 2025 industrial policy has the most importance in the EU context. In other words, we will be identifying which EU sectors are "hardest hit" by Chinese capital acquiring major industrial actors. The analysis will also pinpoint which geographical parts of the EU sees most of the Chinese investments.

FDI overall and development

In 2017 China´s global outward FDI flows entered a new era. After rapid expansion throughout the earlier decade the outward flows took a sharp decline in 2017 and the current numbers from 2018 seems to show that this is not an outlier, but the start of a new strategy by the Chinese central government. This observation is echoed in the official Chinese statistics showing similar levels of aggregated outbound FDI. However, the numbers accumulated by Bloomberg seems to show an even more steep decline in the value of completed global M&A transactions by Chinese companies. (Hanemann, Thilo (Mercator); Huotari, Mikko; Kratz, 2019, p. 8 Figure 1). This is accompanied by Chinese companies, not only slowing down overall outward FDI, but also selling overseas assets in 2018 valued at tens of billions of dollars. There is an important caveat in these figures, namely, that the total amount could be a lot higher since stakes under 10% is not included in the numbers. The core reason for this apparent change in strategy is to be found on two fronts, firstly, in Chinese national policies and second, the response of the rest of the world. This paper is only focused on the response from the EU (Thilo, Mikko and Kratz, 2019).

Domestically, the Chinese government in Beijing has tightened the grip on the outbound capital flows. This has been achieved with tools such as pressuring highly leveraged firms to sell of their overseas assets, ostensibly, in order to curb the gearing of said firms. The Chinese central government has also reduced the available liquidity in the financial system and performed a general clean-up of the financial sector through its nationally owned banks. Naturally, this financial tightening of the available liquidity has led to a decline in outward FDI from Chinese companies and nationals. The second reason for the decline of the outbound FDI from China, is the political backlash and possibly new regulation imposed around the globe against Chinese capital. This paper will, more specifically, focus on the legislation enacted by EU in order to stem the tide of the Chinese FDI. There are also parts of this general backlash this paper will not cover extensively. One of these are that many emerging economies are revaluating the benefits and costs associated with receiving from older initiatives such as the Chinese belt and road initiative, which provides money for infrastructure. Secondly, in advanced economies, regulation is also targeted at preventing the Chinese inflow of FDI from becoming a security threat. This is followed by general concerns about the Chinese model of State-Capitalism and its compatibility with the modern western markets (Thilo, Mikko and Kratz, 2019).

FDI by countries

In order to further map the Chinese FDI inflows of FDI in the European Union, it is important to note that not all countries are equally popular, for Chinese capital inflows into European businesses. First, we will look at the FDI flows, divided on countries in the EU28.

The distribution of the Chinese FDI in terms of countries in the EU has followed the same pattern for numerous years. This was not only the case where FDI skyrocketed, but also in the beginning of the downwards trends for the FDI investments. The biggest FDI flows from China has always been to what has earlier been dubbed the “Big Three” in the European Union, both in terms of their size and the size their economy, namely the UK, Germany and France. In the flows in 2017 their piece of the Chinese FDI were 71% of the total. In 2018 this fell dramatically to 45% of the total Chinese FDI. The biggest recipient of the “Big Three”, and overall, is the UK. Their share in 2018 was again the biggest, sitting at 4.2 billion euros. This was driven primarily by the Chinese consortium

“Strategic IDC”´s Investment in Global Switch, a leading owner, operator and developer of large scale, carrier and cloud neutral multi-customer data centres across Europe and Asia-Pacific (*Data Centres across Europe and Asia-Pacific | Global Switch*, no date). The second driver of Chines FDI into the UK was Huadong Medicine´s buying the company called Sinclair Pharma, a company involved with complementary aesthetics technologies with a focus on collagen stimulation (*A Pure Play Aesthetics Company - Sinclair Pharma plc*, no date). Second of the “Big Three” and third of all the EU economies in 2018 was Germany. Their total was 2.1 billion euros of Chinese FDI, most notably Kerui Tiancheng´s acquisition of Biotest, a company working in areas of haematology, clinical immunology and intensive care medicine (*Biotest*, no date) and Ningbo´s takeover of Grammer, a company specialised in developing and manufacturing of components and systems for car interiors as well as driver and passenger seats for off-road vehicles, trucks, buses, and trains (*Grammer.com/company*, no date). France received the least Chinese FDI of the “Big Three” and was fifth in the EU overall. They received 1.6 billion euros in Chinese investments, the most notable acquisitions were Beijing Sanyuan Foods buying St Hubert, a restaurant chain (*Bienvenue chez St-Hubert ! | Restaurant St-Hubert*, no date) and CITIC´s buying Axilone Plastique, a company which provides plastic products (*Axilone Plastique SASU - Company Profile and News - Bloomberg Markets*, no date).

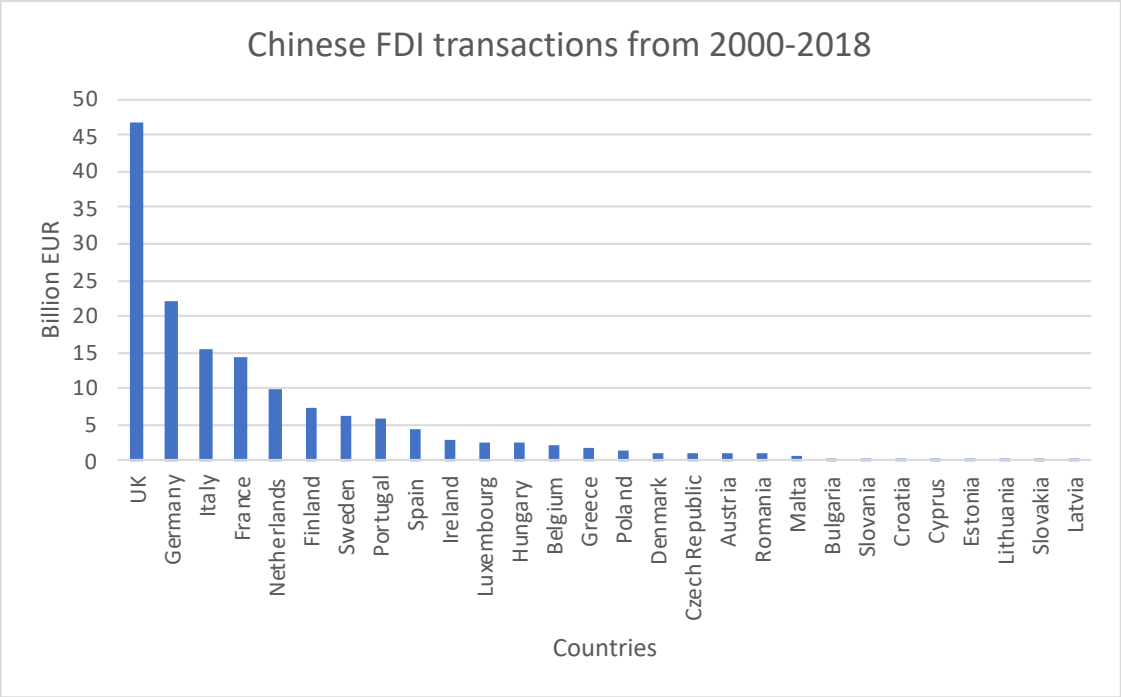
Apart from the traditional “Big Three” the top five countries receiving the most FDI in form of Chinese investments in 2018 was Sweden and Luxemburg. In the second position, only behind the UK, was Sweden. Here the Chinese investments totalled 3.4 billion euros. This is, however, almost entirely driven by the Chinese company Zhejiang Geely, which made a 3-billion-euro investment into the Swedish car manufacturer Volvo AB. Luxembourg had a total of 1.6 billion euros of incoming Chinese FDI and this was attributable to Legend´s buying the Banque Internationale á Luxembourg. This means that not only did the Chinese investments target the traditional big three in 2018, but was also, albeit via single major acquisitions, target both the Benelux region and northern Europe. (Thilo, Mikko and Kratz, 2019).

In 2018 southern Europe only accounted for about 13% of the Chinese FDI. Most of this was again due to few, but very large investments such as Orient Securities buying a stake in the Spanish

company Imagine Media Audiovisual, which operates as a film and interactive content producer. Imagina Media produces audio-visual content, administers and distributes sporting events and post-production services (*Imagina Media Audiovisual SA - Company Profile and News - Bloomberg Markets*, no date). SARI bought the Italian NMS Group, which is the largest company in Italy committed in innovation and oncology (*NMS Group - Nerviano Medical Sciences | LinkedIn*, no date). Also in Italy, a Chinese group of investors bought the company Esaote SpA, which produce biomedical diagnostics equipment, such as ultrasound imaging, magnetic resonance imaging and non-imaging diagnostic cardiology, as well as neurology instrumentations systems (*Esaote SpA - Company Profile and News - Bloomberg Markets*, no date). The Chinese inflow of FDI into southern Europe is in 2018, however, also defined by a deal which did not happen. Namely, the Chinese company Three Gorges´ attempted acquisition of the Portuguese utility company Energia de Portugal SA. This deal did not happen, but if it had, southern Europe would have jumped considerably in the statistics depicting Chinese investments in the EU. It is, however, worth noting that Energia de Portugal is still looking to sell of part of its business in 2020 in order to free up capital to invest in green technology (*Exclusive: EDP readies sale of electricity generation assets in Portugal - sources - Reuters*, no date). The design of the Made in China 2025 industrial policy, meaning it is focused on green energy production and not the part the company is selling leads us to consider it unlikely that a future buyer will be a Chinese company (Thilo, Mikko and Kratz, 2019).

The part of the EU which have received least of the Chinese FDI inflows is eastern Europe. Again in 2018 the amount of Chinese investments declined, as the region is not managing to attract significant amounts of Chinese FDI. Eastern Europe only accounts for 1,5% of the total FDI inflow from China to the EU. Although this number fell again in 2018, there was some pockets of growth in terms of greenfield investment in the region originating from China. These greenfield investments focused particularly on areas of manufacturing, research and development and projects related to renewable energy projects. These include the Unisun´s solar farm in Hungary, a R&D facility owned by Great Wall Motors in Austria and a plant owned by the Chinese company Nutech, a company specializing in nuclear pharmacy services such as diagnostic radiopharmaceuticals, in Poland. (*Nutech Inc - Company Profile and News - Bloomberg Markets*, no

date) (Thilo, Mikko and Kratz, 2019). The most interesting thing about the Chinese FDI inflows in eastern Europe is however their lacking presence. This, in and of itself, is also a significant signal. Now that the Chinese inflows of FDI into Europe form 2018 has been mapped, the next step is to analyse the accumulated value of the Chinese investments in European economies. Fortunately, the Merics organization and the Rhodium group´s report on the subject, also has data on the Chinese Cumulative value of FDI transaction in the EU by country. These data have some interesting insights and is presented by the following map.



(Thilo, Mikko and Kratz, 2019)

The most immediate difference when looking at the cumulative FDI transactions is the fact that Italy actually has cumulatively 1 billion euros more in Chinese FDI than France, although France is in the past decade one of the countries labelled as the big three and has gotten the lion's share of the Chinese FDI inflows. It is also interesting to note, that the UK has double the amount of cumulative FDI transactions in the EU country by country, than the nearest number 2, namely, Germany. Even though the northern Europe, namely Sweden was amongst the top receivers in 2018 of the Chinese FDI, the cumulative number makes it clear that from 2000-2018, the single deal involving Volvo makes up for half of the country's total of received Chinese FDI inflows. It is

also noteworthy that there have been very significant inflows into both the Netherlands and Finland. Almost the entirety of the cumulative FDI transactions in Denmark stems from Geely´s acquisition of Saxo Bank in 2018 for 1 billion euros. (Thilo, Mikko and Kratz, 2019). It is also interesting to note, that already in 2017, the cumulative Chinese FDI into Europe had caught up with the cumulative European FDI into China. In 2017 these numbers were respectively 132.3 billion euros in FDI from Europe to China and 131 billion euros of FDI from China to Europe (Thilo and Mikko, 2018). This picture is more interesting, in regard to Made in China 2015, when it is divided upon sectors in2018.

The mix of industries and sectors which received the Chinese investments in 2018 was remarkably diverse. This is, in part, also a consequence of the new policies instituted by the Chinese central government, which dries up liquidity in the country and push the highly geared Chinese companies to sell assets held overseas. Naturally, this has led to a significant curbing of mega deals, seen in the previous years. These are mega deals such as the Chinese buyout of Logicor, a real estate company which engages and leases a portfolio of logistics and distribution facilities (*Logicor Ltd - Company Profile and News - Bloomberg Markets*, no date). The Chinese acquisition of the Italian tiremaker Pirelli in 2015 for the sum of 7. billion euros, almost half of the total cumulative FDI inflows from China in Italy (*Pirelli & C SpA - Company Profile and News - Bloomberg Markets*, no date) (*ChemChina to buy Italian tire maker Pirelli in $7.7 billion deal - Reuters*, no date). An lastly, the Chinese acquisition of the Finnish game developer Supercell for 7.7 billion euros in 2016 (*China's Tencent buys 'Clash of Clans' maker Supercell for $8.6 billion - Reuters*, no date)(*Supercell Oy - Company Profile and News - Bloomberg Markets*, no date). This absence of mega deals made for a more diverse investment pattern in 2018, where no single industry accounted for more than 20% of the total Chinese FDI inflow into the European Union. The biggest industries, in which the Chinese companies invested, was the information and technology sector (ICT), the automotive sector and the financial and business sector. The strong growth in the automotive sector was primarily drive by Geely´s buying Volvo, and the growth in the financial services sector was primarily driven by Legend´s acquisition of Banque Internationale á Luxembourg and Geely´s acquisition of Saxo Bank. The increase in Chinese FDI to the ICT sector was more spread out across deals. The Health and Biotechnology sector also saw growth in 2018, driven by Kerui Tiancheng

buying Biotest. The automotive industry, the ICT sector and the Health and Biotechnology sector are all named as key sectors in China´s Made in China 2025 industrial policy. (Thilo, Mikko and Kratz, 2019)

Chinese FDIs EU Sectors

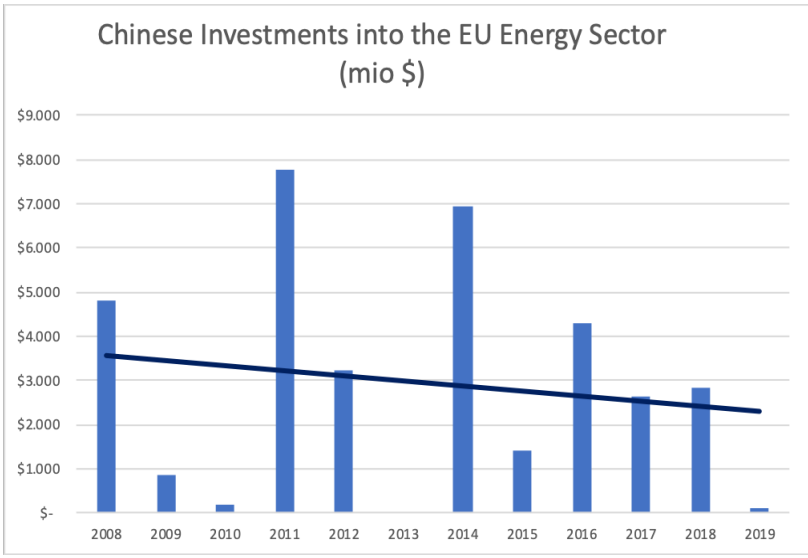
If we want aggregated data on how the Chinese FDI divided in sectors, the Rhodium and Merics report cannot help us. We will therefore compile such data ourselves. We will do this by using the China Global Investment Tracker compiled by The American Enterprise Institute and The Heritage Foundation (*China Global Investment Tracker | American Enterprise Institute - AEI*, no date) as mentioned earlier.

We will now examine the aggregate investment patterns into Europe relating to the 10 priority sectors set out in the "Made in China 2025" strategy. Here we will, once again, state that the figures we get here are not necessarily directly comparable with the data from the Rhodium Group and Mercator Institute for China Studies above. It can however be compared to the more robust overall trend lines. The following dataset is compiled using the Ultimate Beneficial Owner (UBO) principle and not the more broadly used Balance of Payments (BOP) principle. The excel data sheet is available in the excel-file attached in the hand-in of the thesis.

Energy Sector

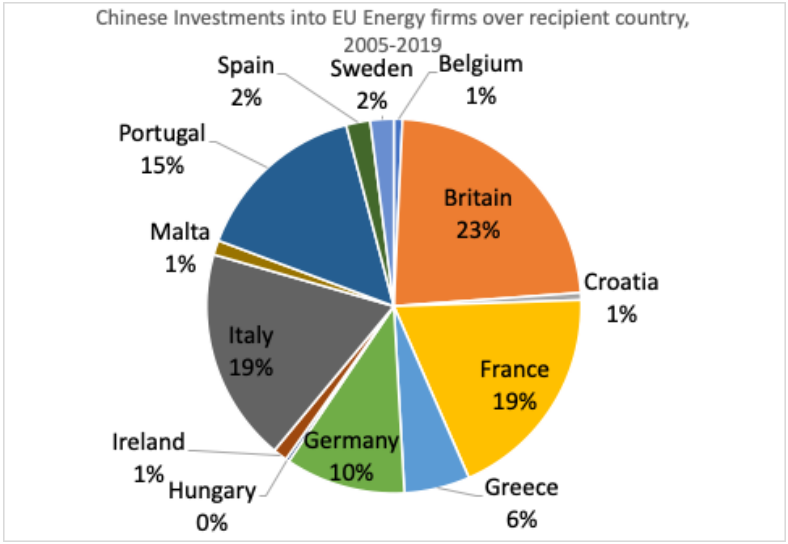
Firstly, we will take a look at the Energy sector as defined by the China Global Investment Tracker over the years 2005 to 2019. The lack of better data with more detailed sector selection means that the Energy sector in the data will have to serve as a proxy for the Green energy sector and power equipment, as these are the ones named a priority in the Made in China 2025 industrial policy.

The total sum of these investments are 35,1 billion dollars. The investments over time looks as such:



The investments into Energy firms, seems to follow the overall trend fairly well, meaning that it is trending downwards, however, the record year overall in 2016 is not represented as well and the slowdown in investments seems to be apparent already after the Energy sector´s record year in 2011. It is also important to note, that the development in the energy sector does not seem to allude to a fundamental change in the Chinese investment strategy, as the trend is not very strongly downwards trending. This would seem to show that the financial tightening in the Chinese home market is not as apparent in 2017 as it is in the overall trend line.

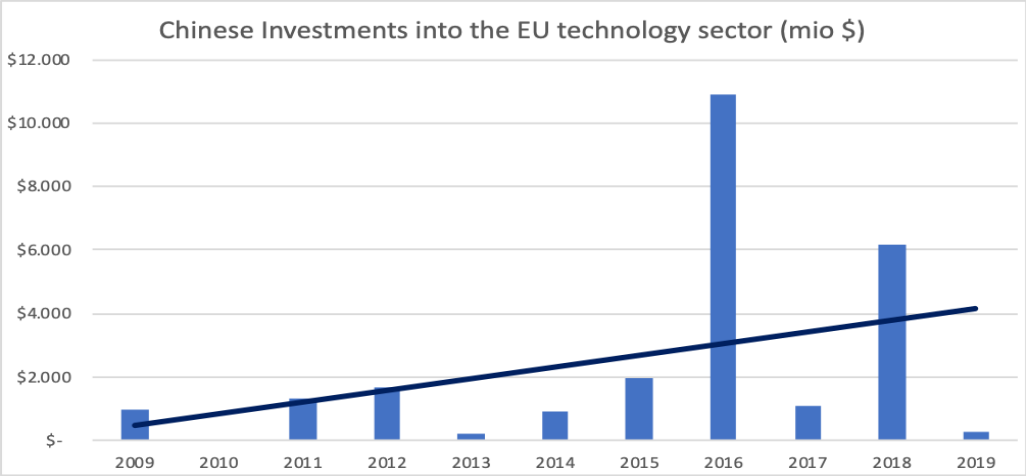
The investments into the Energy sector divided on the EU recipient country looks like this.



The big European economies are again apparent in the recipient countries. Particularly the major inflows from China into the UK shows the same trend as were observed in the overall trends from the Rhodium Group and Mercator Institute for China Study´s report, detailing the accumulative FDI flows into the EU. The investments in the energy sector does, however, seem to be more targeting Italian and French companies than in the overall data, and targeting Germany less than in the overall data. Notably, Portugal has received comparably more FDI into the energy sector than into the rest of its economy.

Technology Sector

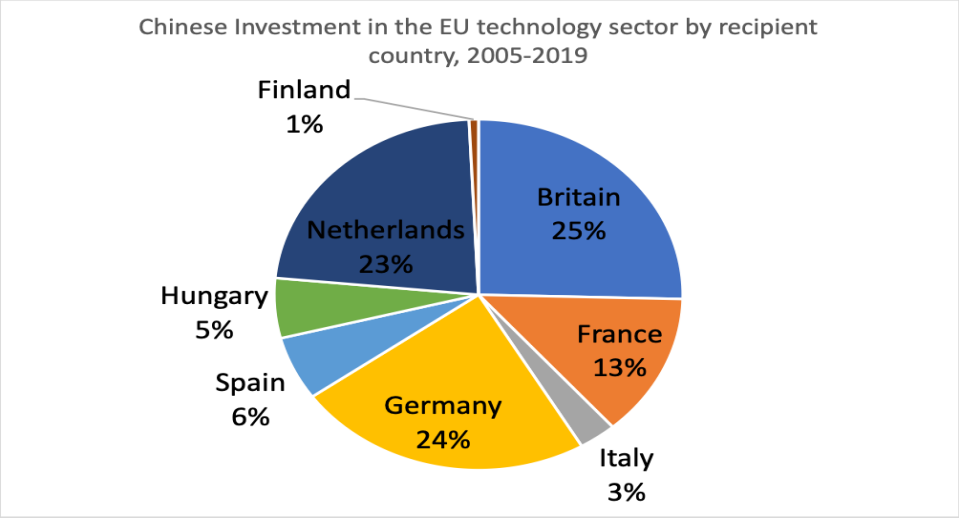
Again, the lack of data with a comparable quality as well as more in depth sector description means that this Technology Sector will have to serve as a reasonable proxy for the sectors defined in the Made in China 2025 plan as Information Technology and Robotics.
The total volume from 2005 to 2019 in this sector comes to a total of 25.5 billion dollars. Over time it looks as such



In the figures for the technology sector, the overall trend´s peak year in 2016 is a lot more visible. The Chinese tightening of the financial sector is however not very apparent in 2018 as this, contrary to overall trend, is the next biggest year for Chinese investments into the technology sector. What is even more surprising is the upwards general trend the technology sector FDI is continually showing. This is contrary to an overall downwards trend underlining that China is laying of its very expansive buyout strategy as a result of the international outcry. This data on the technology sector is even more telling, as the general idea of the “Made in China 2025” plan is to

evolve technologically, and this specific sector in the China Global investment Tracker, may be *overall* best proxy for the Chinese industrial policy. Furthermore, as this is data is based on the UBO principle.

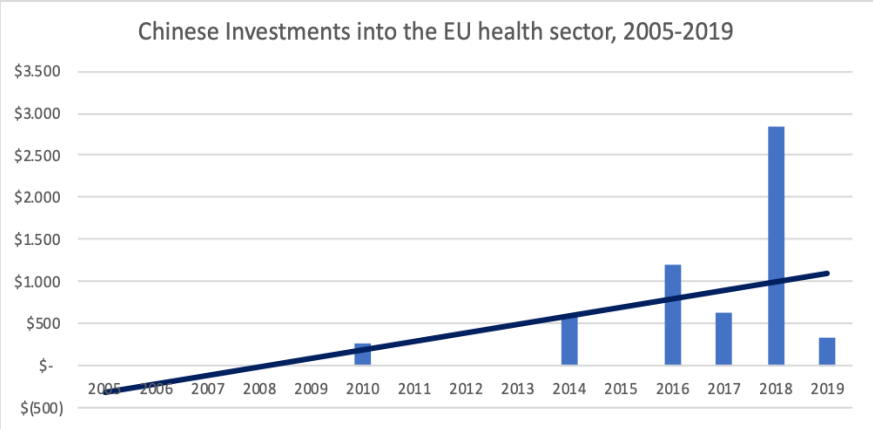
If we take the investment flow from China into the EU technology sector and divides it into the recipient countries, the figure looks like this



In the technology sector, Chinese companies seem to be more interested in Germany, Netherlands, Britain and to some extend France. This looks like the overall trends, although Italy is not a favoured destination when it comes to technology FDI and greenfield investments as it is when it comes to energy. The big outlier seems to be the Netherlands, which were not present in the figures on Energy investments. The Chinese investments into the Netherlands´ technology sector seems to be focused on semiconductors, with multiple buy-ins into the Dutch company NXP semiconductors as well as wholesale acquisition of its power unit division (*NXP Semiconductors Sells Unit to Chinese Firm for $1.8 Billion - WSJ*, no date). Notably, the investments into Netherlands´ technology sector begins from 2015. This figure also shows that in the technology sector, Chinese investments are overwhelmingly ending up in western European countries. Southern Europe – specifically Italy and Portugal- was more of a destination in the energy sector.

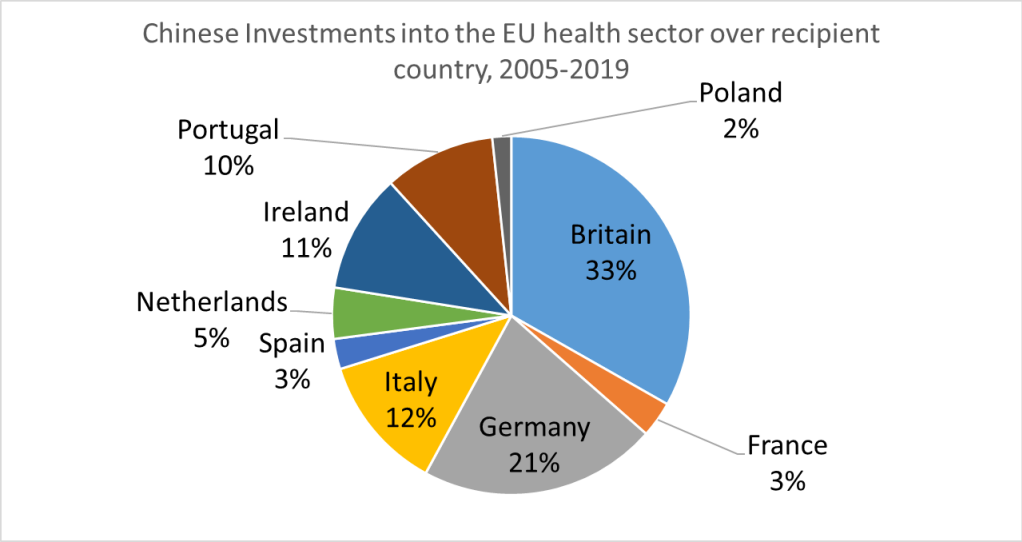
Health Sector

The China Global investment dataset has the category Health, and this sector description will work as a good proxy for the Made in China 2025´s targeted sector of medicine and medical devices. This sector seems to be a much smaller investment target for Chinese businesses into the EU, as the total volume of investments accumulated from 2005 to 2019 only sums to 5,9 billion dollars. Over time, it looks as such:



In the health sector we see yet another upwards trending line, as opposed to the downwards trend observed in the overall data. Secondly, it is notable that except in 2010, the interest from Chinese firms in EU owned companies working within the health sector, only began very late in the time period analysed here. Specifically, the unveiling of the “Made in China 2025” seems to have had a large impact on the investments flows, as approximately 85% of the total investments into this sector is made after 2015. The tightening of the financial policy internally in China is not overly visible in this data either, while the record year for investments was reached in 2018, when the overall investment pattern were already showing significant downtrends for the second time since 2016. When drawing these conclusions, it is, however, important to note that the total of the investments is significantly smaller than those seen in the previous sectors we analysed.

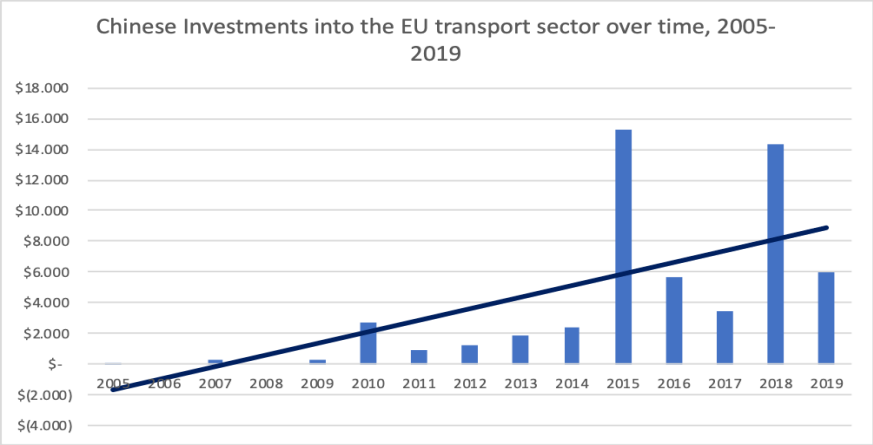
If the we take the data on the health sector and looks at it by country, it looks something like this.



Here we see, that both the traditional centres of investment, namely Britain and Germany still get the lion's share of the investments from China into the EU health sector. Notably, France only gets 3% of the investments and Ireland sees 11% of the investments. Italy with 12%, a level it lies on fairly often, and Portugal with 10% of the Chinese investments. In this sector we can see a more balanced picture between northern Europe and southern Europe, as 25% of the investments are towards southern Europe in Italy, Portugal and Spain. Interestingly, eastern Europe is also represented with 2% going to Poland. Even though the total level of investments into this sector is relatively low, it is also spread out over more deals in the period and is not comprised of a few mega deals. Only two investments into the health sector has been above 1 billion dollars and these are respectively; the 1.19 billion dollars investment in 2016 into the British company Bio Products Laboratory and the 1.15 billion dollars investment into the German Biotest in 2018. The newcomer in the data, Ireland, is also interesting. The country is a favoured tax haven within the EU and the China Global investment dataset cannot give any indication as to who the receiving company was. The only data available on the Chinese investments into Ireland is that there was two, one in 2018 and one in 2019, both made by the Chinese company WuXi Pharma tallying at 390 million dollars and 240 million dollars respectively. Therefore, one should be careful when drawing conclusions related to the investment location using the 11%, which ostensibly ended up in Ireland.

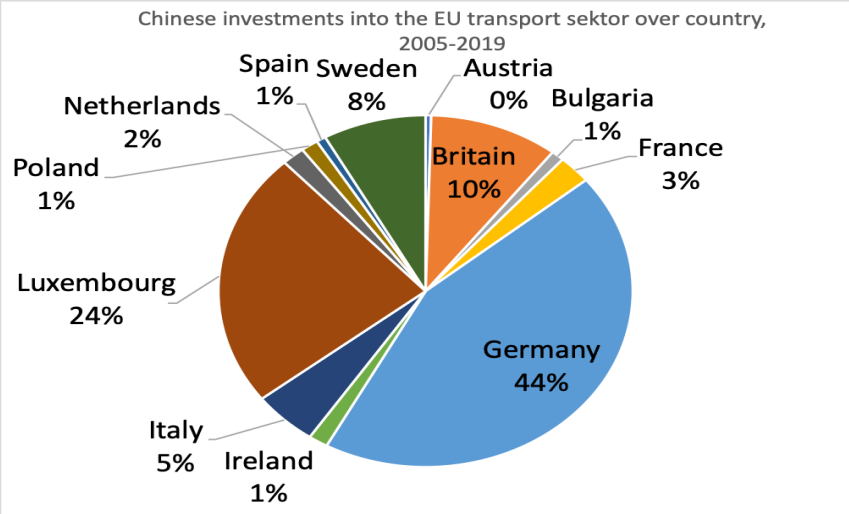
Transportation Section

The Made in China 2025 industrial plan also designates green vehicles as a priority sector, here the China Global Investment dataset has an usable proxy named transport. This covers the investments into all transport related companies, however, not companies working purely with logistics, this makes it a good proxy since it entails the sector producing vehicles, not driving them. This sector also encompasses companies related to shipping and aviation. The "Made in China 2025" plan also designates ocean engineering, high-tech ships, railway equipment and aerospace technology as priority sectors, so the transport designation will serve as a proxy for all four. The total of Chinese investments into the EU transport sector is 53.9 billion dollars over the period of 2005-2019. This distribution looks like this.



Again, the data shows an upward trending curve. Since the total volume of investment is very high in this sector, it would seem that it is one of the most important designated priority sectors for the Chinese "Made in China 2025" plan. At least with regard to the need for outside know-how and technology. This trend also does not show the record year of 2016, but here the top point occurs earlier in 2015. The financial tightening from the Chinese government is not apparent here either, as also 2018 shows a very high investment volume of 14 billion dollars. The year 2018 is however, as mentioned before, characterized by the huge investments from Geelys into the Swedish and German auto companies Daimler and Volvo. These two investments alone accounts for 12.2 billion dollars' worth of investment.

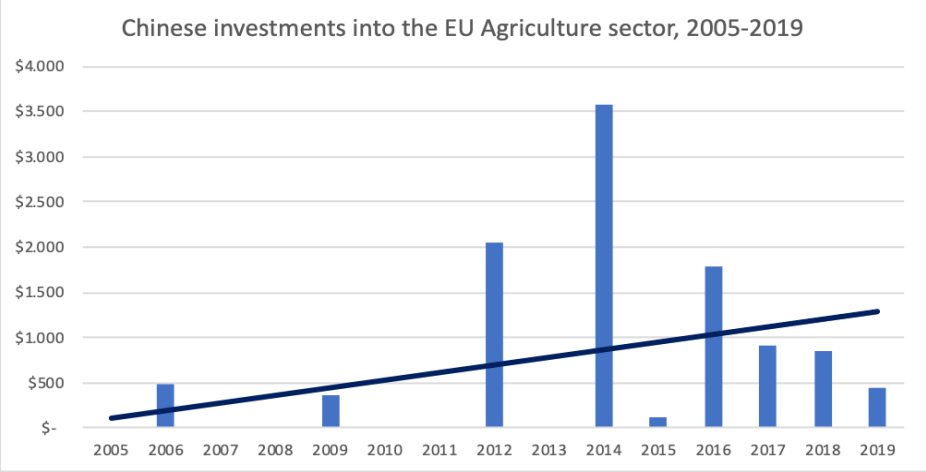
When we look at the Chinese investments into the EU´s transport sector, divided over recipient country, the picture looks like this.



This shows the expected picture, wherein Germany is a major site for Chinese investments in the transports sector, most of these in the auto industry. Britain is also represented with 10% of the investments from China and Sweden, primarily the investment in Volvo, is also fairly well represented. Luxembourg is the big outlier here, with the second biggest share of the Chinese investments. This primarily relates to the 2016 Chinese acquisition of the Luxembourg based DH services, a major supplier of automation technology to the auto industry. (*Weichai Power unit KION in US$2.1 billion European acquisition | South China Morning Post*, no date). Another unexpected insight from this data, is that the French and Italian transport industries only received 3% and 5% of the Chinese investments respectively. Both countries have major companies on the transportations sector, but the Chinese investments seems to have singled out Germany. This is an interesting bit of information, when examining the reasoning behind the EU´s response. Overall, this data again points towards a Chinese focus on the industries in western Europe. Southern Europe and Eastern Europe based investments are represented in the data, but only in what is, comparably, very limited volumes.

Agriculture

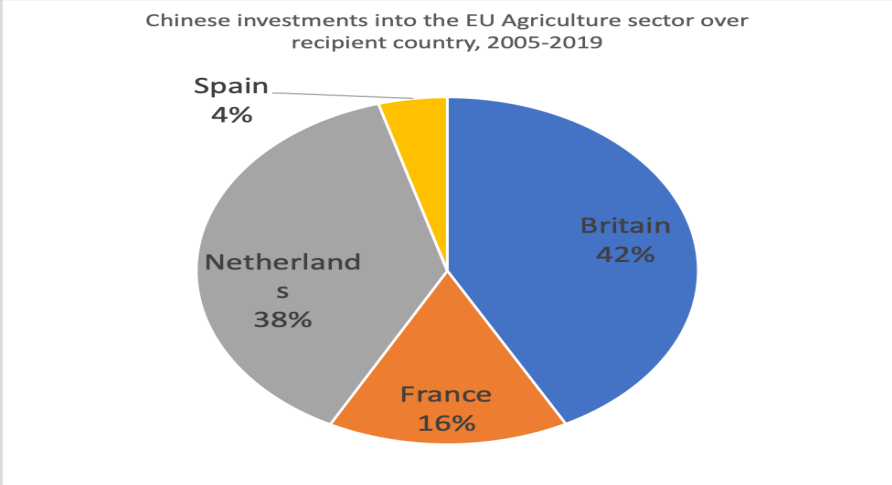
We now move on to the priority sectors in the made in China 2025 industrial policy, which does not have any immediately obvious proxy industries in the China Global Investment dataset. These are the designated sectors of farming equipment and new materials. This means that the following sector analysis are not as reliable as the proxy is worse. Firstly, we look at the agriculture sector of the China Global Investment tracker and uses it as a proxy for farming equipment. The total investment into this sector this is 10.6 billion dollars, and the development over time looks as such.



This again shows an upward trend line from 2005 to 2019, but it has been in decline since 2014, where this sector had its top year as opposed to the overall record year in 2016. The record year was, however, also 2016 in this sector if only data from after 2015 where the “Made in China 2025” industrial policy was made public. The Chinese tightening of liquidity availability and the financial sector in general is not obviously apparent here either, as the 2018 total is almost as big as the 2017 total. The downwards trend since 2016 is however still very apparent. This sector is also characterized by few large investments. For example, the record year in 2014 is comprised of only two deals. Only one of these would fit the designated farming equipment sector, namely COFCO´s 2-billion-dollar investment into the Dutch agriculture company Nidera, although this company does not exclusively produce farming equipment and refinement but does also deal in e.g. vegetable oil and rice. This investment in followed by another 1.4 billion dollar investment in 2016 (*Nidera Inc - Company Profile and News - Bloomberg Markets*, no date). The second large

deal in 2014 illustrates the problems inherent in using agriculture as a proxy for farming equipment, as this is Legends 1.5-billion-dollar investment into the British PizzaExpress. Arguably not a company producing farming equipment (*PizzaExpress Ltd - Company Profile and News - Bloomberg Markets*, no date).

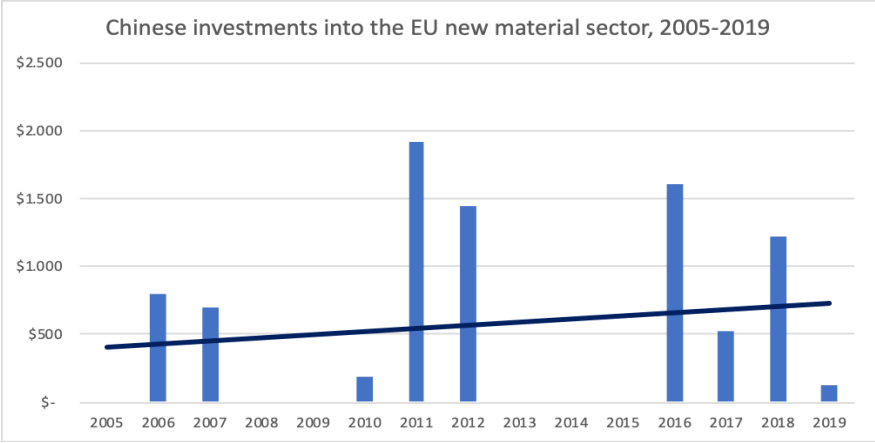
If we take a look at the investments into the EU agriculture sector divided on countries looks like this.



As can be seen these investments are heavily directed towards western Europe with the notable absence of Germany. Secondly, Netherland has received a comparably large part of the investments. The biggest share of these investments tracks back to the COFCO´s two-legged takeover of Nidera. The biggest part of the Chinese investments was once again placed in Britain, however, these investments are not necessarily relevant to the designate sector of farming equipment as the largest parts of them are the before mentioned investment into PizzaExpress and a second large 2-billion-dollar-investment made by Bright Foods into Weetabix. Weetabix being a producer and seller of wholegrain breakfast cereal, and not particularly specialized in the designated sector farming equipment. (*Weetabix Ltd - Company Profile and News - Bloomberg Markets*, no date). The investments into France, notably consist of a higher number of small investments, seemingly all in companies with holdings related to farming equipment of some sorts. Furthermore, southern Europe is only represented by the 4% into Spain and eastern Europe is wholly absent in the investment destinations.

New Materials

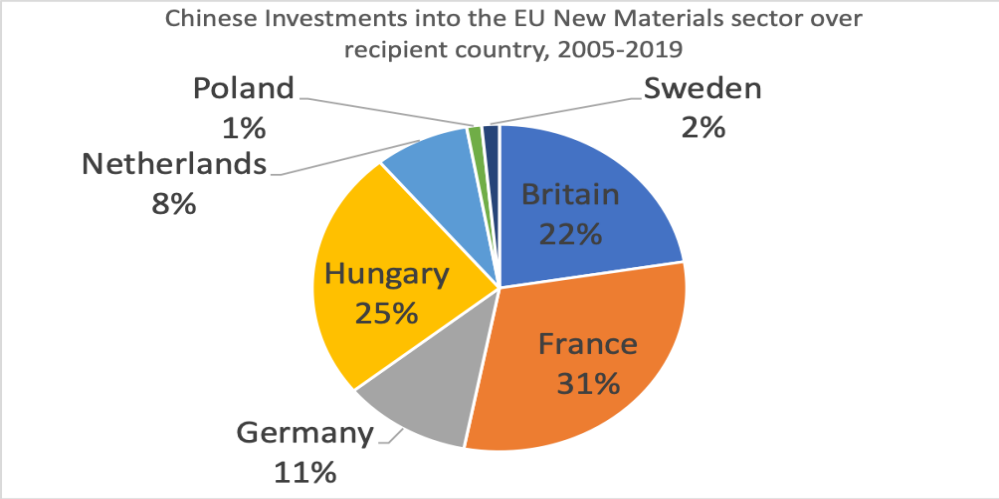
The designated sector of new materials is even harder to use a proxy for than the preceding sectors. According to the description used on the Chinese government website for the ZhangJiang national innovate industrial zone, the new materials industry entails companies which are developing High Performance Electronics, membrane or new types of ceramics, as well as high-performance carbon fibre. Furthermore, this sector also entails companies involved in advanced high quality special steel, high temperature alloy and engineering plastics as well as low cost environmentally friendly composite materials.(*New materials industry*, no date) Some of this sector have been captured in the examination of the technology sector earlier, however the China Global Investment dataset has a designated sector for metals and it is also possible to single out the textile industry. This combined with the chemicals sector of the dataset, may serve as a passable proxy for China´s investments into what the Chinese government would define as the new materials industry. The total investment into this proxy come to 8.5 billion dollars, and over time it looks as such:



This timeline shows a somewhat upwards trending line since 2005. However, the investments into the EU are sparse, and in several years, there is no investments made from China to Europe. The investments have its record year in 2011, four years earlier than the publication of the “Made in China 2025” plan, after the plans unveiling, the top year is 2016. This is also the top year in the overall data. This data does not show the apparent effect of the Chinese financial tightening in 2018, as this is a comparable high year for investments in this sector. 2016 is characterized by a 1.5 billion dollar investment into the French textile firm SMCP. The year 2018 is, however,

characterized by smaller investments into mostly the textiles industry in France and Germany as well as the Metal industry in the Netherlands and the Chemical industry in the Netherlands. The record year in 2011 is characterized by a large 1.6 billion dollar investment into BorsodChem a Hungarian chemicals company. The smaller scale of investments in this sector also means that the differences between e.g. the record year of 2011 and the year 2016 is actually not that large. The difference is “only” 700 million dollars. This also means that the years 2016 and 2018 are comparable close to each other.

If we divide the investment out upon the recipient countries it looks like this.



Western Europe is also well represented here, with Britain, France, Sweden and Germany. In this sector France gets the biggest part of the investments mostly in textiles and a bit in chemicals. The investments into Britain is primarily into the metal sector with investments into Anglo-American and Kalahari Minerals of roughly equal size. The investments into Germany are mostly into metals as well. More specifically, it is investments into the aluminium company Aluminiumwerk and the steel company ThyssenKrupp. Some of the investments into Germany, roughly 1/3, is into the textiles industry, specifically Chequers Capital. In the Netherlands the Chinese investments are centred around chemicals with an investment into Fibrant and in metals with an investment into Louis Dreyfus. Eastern Europe is also well represented in this sector. This is solely due to the investments into the Hungarian chemicals sector, most prominently the earlier mentioned investment into BorsodChem. The Chinese investments into the EU sectors, which may be dealing

with new materials, seems to be focused on western Europe lead by France, but with a significant interest in eastern Europe, represented by the Hungarian chemical sector.

Finding three focus sectors – using FDI data

In order to identify the most important sectors, we will use three factors in order to determine them. We single out three sectors, as these will be subject to closer examination in the analysis of the EU response. The first factor is volume, meaning the actual aggregated size of the Chinese Investments into the EU over sectors. The second factor helping us determine, which sectors are most important, is whether or not the "Made in China 2025" industrial policy can be observed in the data. In other words, is the volume of the investments primarily before, after or equally distributed around the 2015 mark. The third, and last, factor, is relating to the trend of the investments volume. It explores whether the sectoral investment trend lines are decreasing over the time period we have to analyse, or is it in an overall incline? Whether the China Global Investments dataset, has a quality proxy when examining the 10 designated industries will also be considered. However, it is not a factor in itself, as it has already been briefly discussed under each sector.

By volume

The largest sectors measured by volume is the transport sector. Being a proxy for the Chinese designated sectors of green vehicles, ocean engineering, high-tech ships, railway equipment and aerospace technology, the transport sector is also one of the more encompassing proxies which will also have an effect on its volume. The overall volume of the transport sector investments is 53.9 billion dollars from 2005-2019. This is more than double the volume of the 2nd largest sector. This is taken as evidence that its size is not only due to it spanning the most designated sectors. It is also worth mentioning that it seems the ten designated sectors by the Chinese governments has an overweight in transport related industries. The transport sector designated is considered a good proxy, as the logistics sector has its own designation in the China Global Investment dataset, hence not corrupting the picture here.

The second largest sector is the energy sector. This sector serves as a proxy for the designated sectors of the Green energy and the power equipment sector. The total volume here is 35.1 billion dollars over 2005-2019. This sector only encompasses two designated sector and does so well. The biggest caveat here, is that the green energy designated sector in the Made in China 2025 can also be interpreted as part of the green vehicles sector, as these two have a natural overlap in the case of electrifying vehicles. This is unfortunately not possible to infer upon the designations from the China Global investment dataset. Overall this serves as servable proxy for the green energy sector and a good proxy for the designated sector of power equipment.

The third largest sector is the technology sector. The total volume of investments for that is only slightly less than for the energy sector, and totals to 25.5 billion dollars worth of investment from 2005-2019. This serves as a proxy for the designated sectors of the Information Technology sector and the Robotics sector. It serves as good proxy for the two designated sectors which it represents, albeit the designation can seem a bit broad. This is also a part of the Chinese “Made in China 2025” policy most discussed in the western countries, as it is seen as one of the universal sectors wherein the growth of the coming decades will originate. The biggest problem with this sector designation is the generic term technology. One could reasonable argue that investments into the automotive industry and energy industry is also partly technology investments. The China Global Investment dataset´s designation does, however, cover primarily companies working in fields applicable to the IT sector and Robotics sector. Overall, despite the generic name, this is a good proxy for its designated sectors in the dataset.

The fourth largest sector is the agriculture sector serving as a proxy for the designated sector of farming equipment. It totals at 10.6 billion dollars’ worth of investment from 2005-2019. This sector is not a particularly good proxy for the designated farming equipment sector as can also be read from its part of the analysis. Several large investments which entails a good portion of the 10.6 billion dollars, are made into companies which can be assumed to not be optimal targets, if China is seeking to expand its know-how on farming equipment.

The fifth biggest is the new materials sector. This is the proxy for the sector, as it is defined by the Chinese authorities. It totals to 8.5 billion dollars' worth of investments. As previously mentioned, the China Global investment dataset does not have such a designation. With the use of the Chinese government designation we developed a proxy reliant on investments into chemicals, into steel and into textiles. This proxy may not be large enough, as the new materials sector is quite expansive. We do, however, believe that this is as close as we can get with the China Global Investment dataset. If the proxy holds up, this would seem to show that this sector is not one where China is particularly focused, or at least not outwardly oriented in its focus. The fact that the Chinese description of the sector comes from a government website detailing a specified industrial area for its purpose, seems to corroborate with this argument. (*New materials industry*, no date).

The smallest sector by volume is that of the health sector, with "only" 5.9 billion dollars worth of investment. This serves as a proxy for the Made in China 2025 designated sectors of medicine and medical devices. For this purpose, the China Global Investment dataset´s health designations serve as a very good proxy. The small volume invested does, however, suggest that either it is not a focus point by the Chines companies and government. Alternatively, it is one where the biggest parts of the development are made without the need, or availability, of using outward FDI investments in order to acquire patents and know-how.

By size, the top contenders are transport, although it serves as a very broad proxy for many designated sectors. The energy sector, although is serves may have some overlap with the transport sector due to the nature of some green vehicles also being electric. Lastly the technology sector, which despite its generic name seems to be a good proxy for the IT sector and Robotics as well as being highly topical in the discussion surrounding the Made in China 2025 industrial policy.

By Effect of Made in China 2025´s publication in 2015

In the energy sector, the distribution of investment over time shows that there does not seem to be any direct link between the publication of the "Made in China 2025" in 2015 and the investment behaviour of the Chinese investments into the EU. Investments does however peak in

2011 and is also notable in 2014 only one year before the publication. However, only 32 pct. of the investments in the period has taken place after the 2015 publication. This seems to argue against the sector being affected by the Made in China 2025 industrial policy. However, if an assumption is made, that before making the plan public, it was already part of the Chinese governments overall plan, we can take the high year of 2014 as part of this plan. This means that 54 pct. of the overall investments is part of the Made in China 2025 industrial policy. This assumption is however strengthened by the fact that two of the major acquisitions in this year was made by the Chinese sovereign wealth fund "SAFE limited" and the Chinese publicity owned company "State Grid". In conclusion the effect from the "Made in China 2025" industrial policy on the investments into the energy sector is not outright clear. By country this sector is notable focused on westerns Europe.

In the technology sector there seems to be a clear indication of the effect by the "Made in China 2025" industrial policy. As can be seen in the analysis, 80 pct. of the investment are made after the publication. This seems to argue that there is a definite focus on the technology sector as a result of the industrial policy and means that this characteristic strongly argues that the technology sector should be one of the three sectors where the EU´s response should be independently investigated. When analysed by country, this sector was also highly focused on western Europe.

The investments into the EU health care sector does also seem to show an indication, that the Made in China 2025 industrial policy has had a positive effect on the volume of investments directed from China. An astonishing 85 pct. of the investments are made after the 2015 publication. This also shows a clear argument for the health sector being interesting as a unit of analysis for the EU´s response. Again, this sector is also characterized by a focus on western Europe.

The investments into the EU´s transport sector seems to also see an increase in volume after the 2015 publication of the industrial policy. As it can be seen, 82 pct. of the investments into this sector, which is notable the biggest by investment volume as well as concentrated in Germany, is made after the 2015 publication. This is another clear argument for including this sector into the ones of interest when looking at the EU´s response.

In the agriculture sector the distribution of investments before and after 2015 seems to be more nuanced. Only 39 pct. is made after the 2015 publication of the “Made in China 2025” industrial policy. Here we will again have to consider that the period after and including 2015 is only around 36 pct. of the period. Although this would also be a relatively increase after the announcement of the Chinese government’s plan, it also shows that this effect is seemingly much less than in the previously mentioned sectors. This argues against the agriculture sector being one of the sectors where the EU´s response should be independently analysed. This goes along with the fact that this sector is not one of the highest volume sectors, and that the China Global Investment dataset does not seem be have a robust proxy for the Made in China 2025 designated sector of farming equipment. By country the investments into this sector is also very focused on western Europe.

The new materials sector is also characterized by not showing a definitive effect of the publication on the volume of investments after 2015. It is, however, seemingly more affected than the agriculture sector with 41 pct. of the investments in the period including and after 2015. This is of course also relatively more than usual, as this period is only 36 pct. of the overall period. Even though this is the case, the same arguments as against the agriculture sector applies here. This argues against it being chosen as one where the EU´s response should be independently investigated. It shows a smaller effect of the industrial policy than the previous, it does not have a relatively large volume and the proxy is not robust for the new materials designated Made in China 2025 sector. By Country, this sector is also seemingly very focused on companies in Western Europe.

In this factor´s conclusion there is a clear argument for the sectors technology, health care and transport, as these show the strongest signs of being affected by the 2015 introduction of the Made in China 2025 industrial policy. The effect of the policy in the, by volume, second biggest sector of energy is more nuanced. It does show a relative increase in the volume from 2015 and after, but it is not as apparent as it is in the other three. The sectors of agriculture and new material shows this same pattern, although, these also have arguments against being used, due to them not necessarily being robust proxies for their designated Made in China 2025 sectors.

Agriculture and new materials are also notably smaller sectors for investment by volume. All of the sectors do also seem to be focused on westerns Europe. This is somewhat unfortunate, as there might be interesting insights to gain from seeing the response from the EU qualified by which member states are the “hardest hit” by Chinese investments.

Slope of the development

In the energy sector, we can see the downwards sloping curve which is also apparent from the overall development as described in the report from the Rhodium group and the Mercator institute for China studies. This points to a declining interest over the last couple of years from Chinese companies in the EU energy sector. This speaks against the sector being used as one to look at the EU´s response independently afterwards.

The technology sector is upwards sloping on when looking at the entirety of the analysed period from 2005 to 2019. When taken from 2015 and forwards, this upwards sloping curve is still present, which is due to the two biggest years being 2016 and 2018. This argues for using the technology sector when looking at the EU´s response independently.

In the health sector we also see and upwards sloping curve when looking at the entirety of the analysed period. When looking at the data from 2015 we also see the upwards sloping curve. This is due to the investments almost being absent into this sector until 2016, which was the first year with over 1 billion dollars’ worth of investment. This argues for using this sector in relation to the EU´s response.

The transport sector is also upwards sloping when looking at the entire period. This is not the case when looking only at 2015 and beyond. This is, however, mostly due to the record year being in 2015. Furthermore, the downwards slope is also not very sharp after 2015. All in all, this argue slightly against using this sector when looking at the EU´s response.

The agriculture sector is also upwards sloping when looking at the entirety of the period. When looking from 2015 and beyond, the slope is clearly downwards sloping. The upwards slope over

the entire period is mostly due to the record year of 2014 and many years in the 2000´s not having any investment activity from China to the EU at all. This does, all in all, argue against using the agriculture sector when looking at the EU´s response.

The new materials sector also has a somewhat upwards sloping curve, when looking at the entire period. When looking only from 2015 and beyond, it is somewhat downwards sloping. Here it is important to mention that the curves are only slightly upwards trending and downwards trending. This is because the new materials have a pattern of big gaps in investments in 2008-2009 and 2013-2015, but with somewhat equal volume on either side of these gaps, with, of course, the before mentioned curves trending up and down. Overall this argues slightly against using this sector when we turn to the response from the EU.

Summary

Overall this has showed that in terms of volume the three with the best result are the energy sector, the technology sector and the transport sector. With respects to the seen effect of the 2015 publication of the Made in China 2025 industrial policy, there is only three which does not show a clear effect. These are the agriculture sector, the new materials sector and the energy sector. Due to the disadvantages of the agriculture and new materials sectors not being as robust proxies for their designated sectors, we will not be moving on with these two. The health sector is, after this, also a contender for being one of the three sectors this paper will be moving on with. We can now conclude that the technology sector and the transport sector will be two of the sectors we will be moving on with in the analysis of the EU´s response. The question becomes whether the third should be the energy sector or the health sector. In volume, the energy sector has shown much greater investments, but in both effect of the “Made in China 2025” and slightly in the slope of the curves over the analysed period, the health sector has shown to be the better option. With regards to the slope factor, this is only a small advantage, as the energy sector also has an upwards sloping curve from 2015 and beyond. This is combined with the major difference in volume – also a very important factor – means we will be analysing the energy sector. The EU´s response in regard to the health sector will also be discussed, more briefly, with regards to the recent developments involving communications from the Commission of the European Union due

to the corona virus and the corona crisis. In conclusion, the agriculture and new materials sector will not be further analysed. The health sector will be briefly discussed with regards to the corona virus, and the energy, transport and technology sectors will be further examined with regards to the EU´s response to the inflow of investments from China into these sectors.

The policy response of the European Union

The policy response of the European Union to the perceived threat of third country companies buying critical technology or structural resources in the EU has been defined by its recent regulation 2019/452, establishing a framework for the screening of foreign direct investments into the Union. (European Parliament and European Council, 2019). This regulation was adopted in March 2019 and is to be implemented as soon as October 11. 2020. The regulation established a framework for the actual screening of foreign direct investments into the union due to perceived threats to security or public order. Secondly the regulation also establishes a mechanism for cooperation between the individual member states and a mechanism for the cooperation between member states and the Commission. Lastly, it includes the possibility for the Commission to issue opinions on investments likely to affect security or public order. It is, however, important to note, that nothing in the regulation limits the right of the Member States to decide on which particular foreign direct investments to screen or not to screen.

When considering whether a foreign direct investment is likely to affect security and public order, the factors which may be taken into consideration by the Member States and the Commission are defined in article 4 of the regulation. They are described as the following.

If the foreign direct investment from a third country has potential effect on critical infrastructure such as energy, transport, water, health, defence and sensitive facilities. The critical infrastructure described here can also be of virtual character such as communication, media, data storage and processing or electoral or financial infrastructure. Furthermore, critical infrastructure can also relate to land and the real estate which may be involved in the use of critical infrastructure. (European Parliament and European Council, 2019). Foreign investments into critical technologies including artificial intelligence, robotics, semiconductors, cybersecurity, aerospace and the

technology related to energy storage, quantum and nuclear technologies and nano- and biotechnology. (European Parliament and European Council, 2019).

The regulation is more specific when pointing out that potential effects on supply of critical inputs such as energy, raw materials and food security as well as access to sensitive information including personal data or the ability to control this information, are reason for screening. Lastly the regulation also specifically designates effects on the freedom and pluralism of the media as reasons for screening (European Parliament and European Council, 2019 Article 4 1, (c, d ,e)).

According to the regulation, not only the sector in which the foreign direct investment is made should be considered a factor, when deciding if an investment should go through screening. The factors surrounding the investor itself is also something the Member States and the Commission may consider. An investment can be a target for screening if the foreign investor is directly or indirectly controlled by a national government, such as state bodies or armed forces. Furthermore, the investments can be screened it the foreign investor has already been involved in activities affecting security or public order, as well as if there is a serious risk that the foreign investor engages in illegal or criminal activities. (European Parliament and European Council, 2019)

In addition to being urged to establish the national screening programs in each Member State, the EU countries are also needed to, each year, submit an annual report over the preceding calendar year´s information of foreign direct investments that took place in the Member State´s territory. This should be done on the basis of all information available to them, as well aggregated information from requests received from other Member States following the cooperation mechanism in the regulation. Moreover, in each reporting period the Member States maintaining screening mechanisms shall also provide the aggregate data on the application of their screening mechanism. The Commission shall then provide an annual report on the implementation of the screening mechanisms. This report will in turn be presented to the European Parliament and the Council and afterwards made public. (European Parliament and European Council, 2019)

When a member state decides to make a foreign investment undergo the screening process, the cooperation mechanism instituted by the regulation comes into effect. The Member State undertaking the screening shall then provide a notification to the European Commission and the other Member States. Here, the Member State conducting the screening of the foreign direct investment, shall indicate whether the investment is likely to fall within the Merger regulation of the EU Regulation (EC) No 139/2004. This is the regulation wherein the Commission can declare a concentration, i.e. a single entity becoming too big, as incompatible with the common market. This is part of the EU anti-trust laws; this paper will not delve further into this section EU law. It should, however, be noted that the competencies of the EU Commission in the anti-trust legislation is significantly higher than in the regulation regarding the screening mechanism. (The Council of the European Union, 2004). When the Member State conducting a screening has notified the Commission and other Member States it must also provide specific information that are also described in the regulation (European Parliament and European Council, 2019 Article 6(1)). This information entails the ownership structure of the foreign investor and the ownership structure of the target for the foreign investment, more importantly it must also entail information on the ultimate investor and the participation in the capital. The Member State screening the investment must also entail information on the approximate value of the investment and what the activities of the foreign investor entails, as well as what the activities of the targeted undertaking are. In other words, what product services and business operations both the foreign investor and the targeted undertaking is involved in. If the foreign investor or targeted undertaking are multinational enterprises present in more countries, the screening Member State must also provide information on which other Member States may be involved. Lastly, and possibly one of the more tricky requirements imposed by the screening process, Member States must provide information, to the best of its ability, about the source of the funding involved in the investment (European Parliament and European Council, 2019).

Member States considering the foreign investment under screening to also affect its security and public order, or has additional information regarding the investment, may provide comments to the Member State conducting the screening. These comments will also be simultaneously sent to the Commission. The Commission then notifies the other Member States of the comments made.

Similarly, if the Commission considers the foreign investment to affect the public order and security of other Member States, or has additional information, it may issue an opinion to the Member State making the screening. This opinion may be issued regardless of whether other Member States has provided any comments. The Commission is, however, bound to issue such an opinion if more than 2/3 of the Member States considers the foreign investment to be likely to affect their security and public order. The Member State conducting the screening can also request and opinion from the Commission or comment from other Member States. Crucially, the Member State conducting the screening shall give due consideration to comments made by the other Member States and opinions issued by the Commission, but the final decision in the screening is unilaterally taken by the Member State responsible for the screening process. This highlights, that the regulation is focused communication and does not provide additional authority to the EU institutions (European Parliament and European Council, 2019).

The regulation also institutes a cooperation mechanism where a foreign investment is not undergoing a screening process. This means that other Member State which considers an investment to affect its security and public order, may make comments to the Member State wherein the investment takes place irrespective of whether a screening process is ongoing. The same applies to the Commissions ability to issue an opinion. A Member State or the Commission can the request information on the investments, this applies to the same information mentioned earlier. The request for information does however need to be justified and necessary to provide a comment or issue an opinion. The request for information, also has to be proportional to the request, and not unduly burdensome to deliver. Interestingly, the Member States and the Commission can also take this action, even if the foreign investment has already been completed. However, this only applies to foreign investments completed after the 10th of April 2019. Member States and the Commission can therefore not make comments, or request information, on older investments. This ability to retroactively to make comments and opinions is somewhat undercut by the fact that the Member State, wherein in the investment took place, still has complete authority on its screening and acceptability (European Parliament and European Council, 2019).

The regulation establishing a framework for the European screening process also has an article stipulating what governs the approach to foreign direct investments, which are likely to affect projects or programmes in the entire Unions interest. This can be activated at the Commission's prerogative or by the Member States. If the European Commission, or Member States, consider an investment to be likely to affect projects and programmes of the Union, on the same grounds as earlier, namely security or public order, the Commission can issue an opinion, or the Member States a comment. This will be addressed to the Member State wherein the investment takes place as per the usual procedures set out earlier. In the case of a Commission opinion, the language used in this article is more severe. Namely, article 8 says that the Member State wherein the investment takes place has to take "the utmost account" of the Commissions opinion. If the Member State does not follow the Commission´s opinion, it must, contrary to the earlier procedures, provide an explanation to why the Commission´s opinion is not followed. Programmes and projects in the Unions interest are defined as either being those involving a substantial or a significant share of EU funding. Or it can be those which are covered by EU law for critical infrastructure or critical inputs essential for security or public order. Notably, the European Commission can amend the list of these programmes using delegated acts. Delegated acts being a tool, wherein the Commission can amend EU law without the Parliament or Council, if neither has any protests. Furthermore, the Commission will have to consult experts designated by the Member States. The last note on the Regulation for establishing the screening mechanism is, that the Commission starting on October 12th 2023, and every five years following, shall evaluate the screening mechanism in a report to the European Parliament and the Council (European Parliament and European Council, 2019).

Restrictions on capital movement.

The regulation on the framework for the EU screening mechanism does not provide tools as to make actual restrictions of capital based on public security and public order. It is notably only a framework for the screening and cooperation within the EU when it comes to possibly problematic foreign direct investments. The ways, which the EU allows for restrictions on capital movement, comes from the Treaty on the Functioning of the European Union (TFEU), the articles relating to

these are the backbone to the response the EU allows, if e.g. the recent policy of a screening framework finds an investment problematic.

Firstly, Article 52 describes that measures can be undertaken by the Member States providing for special treatment of foreign nationals on grounds of public policy, public security or public health. Article 65 describes that the functioning of the European Union shall not prohibit Member States to make the relevant provisions when it comes to distinguishing between taxpayers which are not in the same situation, with regard to their place of residence, as to where their capital is invested. More interestingly, is also retains the rights for the Member States to take measures in order to prevent infringements on national law and regulations, or to lay down procedures on capital movements in order to get administrative or statistical information, and crucially, to take measures which are justified on the grounds of public policy or public security (The European Union, 2012 Article 65 and Article 52).

In article 66 it is stated that in exceptional circumstances movements of capital from a third country, which threatens to cause serious difficulties for the economic and monetary union, the Council, on a proposition from the Commission and after consulting with the European Central Bank, may take safety measures. These are, however, limited to a period not exceeding six months (The European Union, 2012). This means, that article 66 may not be overtly relevant for the response to foreign direct investments in the long run. The article is, however, of great importance when it comes to managing effects of shocks to the economy such as the corona crisis. Specifically, how the EU is equipped to react to a perceived greater threat of problematic foreign direct investment in times of low prices on e.g. the stock market. The options afforded to the Member State in accordance to EU law in the long run, is best seen in article 65 affording the right to take measures justified by public policy or public security.

Article 143 and 144 deals with the possible actions, which can be taken by countries with serious problems with their balance of payments. Article 143 states that where such difficulties are liable to jeopardize the functioning of the internal market, or common commercial policies for the EU. The Commission is to state what measures it recommends the Member State should take, after

investigating the position of the Member State of course. If these measures are not sufficient to amend the situation, the Commission shall, after consulting the Economic and Financial committee, recommend the Council to grant mutual assistance. The Council should then adopt directives or decision, which among other things, could avoid trade deflection where the Member States with balance of payments reintroduces quantitative restrictions against a third countries. If the Council does not adopt the necessary directives or decisions as well as mutual assistance, the Commission is to authorise the Member State in difficulties to take protective measures. This authorisation can, however, be revoked by the Council (The European Union, 2012). Article 144 then authorises a Member State faced with a sudden crisis in its balance of payments to take immediate protective action. These protective actions should, however, be abolished after the events described in article 143 has run its course. The immediate actions taken by a Member States must cause the least disruption possible to the internal market as possible, and not be wider in scope than what is strictly necessary (The European Union, 2012).

In conclusion, the measures, which the EU is capable of granting when it comes to measures restricting the movement of capital, can come into effect for two reasons. One is problems with a Member State´s balance of payments, the other is that investments may affect the country´s public policy or public security. It is the last of these reasonings this paper will take a closer look at as the response from the EU. One can rightly imagine that what entails effects on public policy and public security can be debated. This is also why the case-law from the European Court of Justice is of interest. It is needed if we are to further define where the articles dealing with restrictions on capital movement can be used by the Member States or the Union as a whole. More specifically, which sector they comparatively stronger or weaker.

A Communication, which is an official statement, from the Commission from the 25th of March in 2020 outlines which areas are by the European Court of Justice earlier defined as places where the freedoms granted in the above-mentioned treaty has found use. The Communication from the Commission´s message is, that the Commission sees the corona crisis a possible catalyst for an unwanted sell-off of Europe´s business and industrial actors - including SME´s. The Commission sees this as a possible problem, due to volatility and a perceived current undervaluation of the

European stock markets originating in the uncertainty the pandemic has caused. The Commission therefore reminds the Member States of the soon to be implemented screening framework we have laid out earlier, as well as the freedoms in the treaties which allows for protective measures. The Commission writes that the sector of public health has earlier been recognized by the Court of Justice of the European Union as an overriding reason in the general interest and thereby falls within the scope of public policy and public security. The Commission also details that other overriding reasons in the general interest entails protecting consumers, preserving the financial equilibrium of the social security system and achieving social policy objectives. The communication also states that the grounds for justification of capital restrictions are broader when transactions involves third country parties, than what is the case with intra-EU capital movements (European Commission, 2020).

Response in the Energy sector

When and where capital movement restrictions can be asserted with regard to the energy sector has been discussed by the European Court of Justice in the 2009 case between the Commission and the Italian Republic. In this case, the Italian Republic had passed legislation allowing its sitting government to be granted special powers, in order to oppose acquisitions made of companies directly or indirectly owned by the state in the sectors of defence, transport, telecommunications, energy resources and other public service sectors. These powers make the state capable of denying acquisitions of shares which represent at least 5% of the voting rights, the power to oppose collusion between shareholder representing at least 5% of the voting rights and the power to veto resolutions for the dissolution, merger, transfer abroad or altering of the company's objectives. The powers are to be restricted to usage in cases where there is a serious threat to the minimum national supply of e.g. energy or other resources essential to the public as a whole. The Commission then challenged this legislation on the grounds that the proportionality of the measures was not in line with the declared goal of the above-mentioned special powers. Essentially, the Commission held, that the concept of something being a real and serious risk, which is needed for the powers to activate, is potentially numerous, undetermined and undeterminable, leaving the legislation as not proportional. The European Court of Justice ruled in favour of the Commission.

This case does, however, have some interesting statements and referrals to earlier cases shedding a light on how the EU institutions handle the legality of restrictions on capital movement. First of all, in the case, the Commission states that restrictions on capital movement is definitely warranted when it comes overriding reasons of public interest. The Court also refers to an earlier case, stating that when dealing with bodies operating in oil, electricity or the telecommunications sector, securing the supply of such service may constitute a reason of overriding public interest, that much is clear. The capital restrictions made by individual EU countries are, however, dependent on the lack of Community harmonising measures, i.e. EU law, providing the necessary protection already. As can be seen by our research into the EU legislation dealing with restrictions on capital movement, no such Community harmonising measures are in effect. The fact that these are mentioned at all does, interestingly, point to the EU institutions recognising that the option regulating this through EU law. The case also shows, that the voting shares needed in order for an intervention being possible, and therefore a threat to supply security, is as low as 10%. This is from a case involving Belgium´s energy sector, where the Commission lost the case against the Member State. In conclusion, the Italian legislation was not seen as incompatible with EU law due to the goal of the legislation, namely protection the supply in strategically important sectors, it was found to be incompatible due to questions of proportionality (InfoCuria Case-Law, 2009b).

Response to the health sector.

The health sector can be examined using another Commission V the Italian Republic case. This case is also from 2009 and revolves around the Italian governments right to only allow trained and licensed pharmacists to own and operate pharmacies. The Commission believed that this was incompatible with the right of establishment, as non-pharmacists could not own pharmacies. The Italian Republic had other EU countries interject on their behalf, namely, the Hellenic Republic, the Kingdom of Spain, the French Republic, the Republic of Latvia and the Republic of Austria. These countries have similar rulesets surrounding the right to own and operate pharmacies. As in the previous case, it was not the right to have restrictions on the right of establishment directly in question, but whether this kind of legislation actually protects the public health. The argument for having such rules in the name of public health, is that the training and knowledge of the drugs,

which trained pharmacists have received, renders them less likely to make decisions which would have an adverse effect on health in the name of economic profit. Owners of pharmacies not trained in the subject, would be more likely to put economics ahead of health. The arguments put forwards by the Commission is, that such rules do not necessarily improve public health. In other words, the assumption that the medicinal training alters the actions one takes when faced with economic decisions, is based on an incorrect assumption. The European Court of Justice ruled in favour of the Italian Republic, as the Commission could not show a more proportional way of securing public health. This case has one interesting finding relating to other cases. Here the court ruled that an earlier case revolving around opticians in Greece, which the commission wanted to submit as case-law was not relevant. In the case relating to pharmacies the court also states that human health ranks foremost in the treaties and is therefore its own subject where the scope for intervention is broader. Essentially, the health sector has strong case-law arguing that the right of establishment can be side-lined in favour of public health (InfoCuria Case-Law, 2009a).

Response in the Technology Sector

When finding the relevant case-law, this paper has utilised the Guide to the Case Law of the European Court of Justice on Articles 49 et seq. TFEU (European Commission, 2017). This is full of excerpts from the case-law relevant to the treaty bound Freedom of Establishment. This is relevant due to the fact that we did not find any case-law directly testing the meaning of security and public policy exemptions related directly to technology driven case-law. We make the assumption that this guide comprised by the European Commission is comprehensive. Although there is no direct case law treating the rather broad sector of technology, the sector is somewhat represented in the case relating to energy, as telecommunications was also mentioned in the action. As this action showed, the telecommunications sector qualifies as one where the restrictions on outside capital investment can be stopped without being incompatible with EU law. Furthermore, there are obvious exceptions in the area of technology directly relating to military tech. As stated before, this paper does not seek to explain the EU´s response of China´s investments in military driven technology. The fact that the legislation on technology has not been directly tested overall is interesting in itself. It is one of the most discussed topics in the EU as it is considered important for keeping industrial actors, which are critical for the future production

capabilities in the Union, and it is still to be tested in the EU courts. Not only has the sector been subject to public discussion, our analysis of Chinese FDI into the European Union also showed it as an important part of the "Made in China 2025" industrial policy both by volume, effect of the industrial policy and overall upwards trending investment curve. This absence would point favourable towards the hypothesis that following historical institutionalism and path dependency the EU does not have institutions adept at restricting free trade and investments, but rather institutions more adept with breaking down barriers of trade. This shall be viewed in conjunction with the recent Communication from the Commission and the existence of the screening framework, as these clearly shows that the EU finds third party FDI to be possibly problematic. This conclusion on the technology sector must again be seen in respect to the use of a proxy sector for the "Made in China 2025" designated sectors as well as the limitations inherent in FDI data generally.

Response in the Transport sector

In the Guide to the Case Law of the European Court of Justice on Articles 49 et seq. TFEU (European Commission, 2017) the sector of Transport does not have a dedicated action determining its overall compatibility with the exception from the treaty freedom of establishment. The transport sector is, however, mentioned in the case relating to energy and petroleum along with telecommunications. This mentioning originates in the Italian legislation which the action revolved around, so we cannot assume that the proxy of a transport sector we are using in our FDI analysis is comparable to what is mentioned in this case. We would argue that the transport mentioned in the case around energy and petroleum supply is actually referring mostly to the area of logistics. This is contrary to the section analysis, where we used transport as a sector where it only stands for the production part of transportation, and distinctly, does not include logistical companies. This is why we assume that the transport mentioned in the case-law as one of the sectors where exemptions from the treaty freedom of establishment can be applied is not part of the "Made in China 2025" designated sector or analysed here. The case-law found in the Guide to the Case Law of the European Court of Justice on Articles 49 et seq. TFEU does touch upon production of vehicles. This is only in the form of road safety already being recognised as an overriding reason in the public interest by the European Court of Justice. The case where this

originates, is that of the Attanasio Group Srl v Commune de Carbognano revolving around whether mandatory distances between road service stations constitute a restriction of the freedom of establishment and is justified by the objectives of road service and the protection of health and the environment. The European Court of Justices ruled that in this case, mandatory distance between service stations did constitute a restriction to the freedom of establishment not justified (InfoCuria Case-Law, 2010). The reason behind the lack of cases, with respect to manufacturing of aerospace equipment, shipping and auto vehicles could be argued as being due to the fact, that the large manufacturing companies in this sector are largely state owned, and therefore the EU and its Member States does not see these as possible takeover targets.

Car manufacturing on the other hand is not represented but is definitely discussed by the Member States as a possible target for Chinese takeover, specifically by Germany, which has also seen the lion's share of Chinese investments into this sector. In fact, the German Government has already vetoed one Chinese acquisition in the German auto industry (*Germany Blocks China Deal to Buy Machine Tool Manufacturer | IndustryWeek*, no date). Furthermore, Chinese investments has already bought controlling shares in the Swedish car giant Volvo. This would lead to the conclusion, that a testing of the compatibility of this behaviour and the EU legislation is overdue. That this has not happened yet, would seem to also argue in favour of the hypothesis that the EU institutions are bound by path dependency into primarily seeking to remove trade restrictions.

Explaining EUs response to the "Made in China 2025" industrial policy strategy

Warwick´s typology on the response of the European Union

The placement of the EU´s screening framework regulation will be made using Warwick´s typology. We will take the Domains of the typology in order and discuss where the regulation from the EU fits in First, we have the Domain called the Product market. The EU response does not seem to fit within either as a horizontal policy or as a selective policy in this area. With the examples of policies, which Warwick states, there is not a direct match, although this is of course not an exhaustive list. Furthermore, the screening framework regulation does not seem to be

particularly directed at companies which are to be found in the production sector. The second Domain, called Labour and Skills, is again not a match on either the horizontal policy or the selective policy axis. This is due to it not having any direct interaction with what economists would dub the labour market. Next is the third Domain, the Capital markets. Here, the screening framework regulation does not directly apply, either as a horizontal policy, or as a selective policy. This is the case, as even though it is made to observe capital movements and investments, the regulation does not directly interact with the capital market in the hands-on-approach manner, which Warwick is alluding to with his examples of e.g. emergency loans, strategic investment funds or loan guarantees and the like. The regulation does however have an indirect effect on the capital markets, as an investment screening framework would be a part of a country´s overall investment regulation. Therefore, the regulation can be seen as having a limited fit under the horizontal policies on the capital markets.

In the fourth Domain of Land, the regulation does not fit in either the horizontal policies row or the selective policies row. In the technology Domain, the regulation does not fit either it has. This is because it has no direct relation to either. Finally, in the systems/institutions Domain, is where the screening framework regulation would fit the best. Specifically, it can be defined as a selective policy in this Domain. Although its cooperation part clearly serves as a way of distributing information in the EU´s internal market between the Member States, it is also one directed as the selective part of the systems and institutions dealing with foreign investments. An example of an EU horizontal policy in the Systems/institutions domain would be the Unions merger regulation, as this serves equally as a system whether and investment is coming from a Member State or a third-party country. This identification tells us, that the regulation is likely to be highly intertwined with the EU institutions and systems. This is a result of Warwick´s typology placing it in that Domain This discovery would seem to further, the argument, that the EU´s response to the Chinese investments is best analysed using the theory of historical institutionalism.

When something has been identified as a selective policy, Warwick´s typology goes further into qualifying the policy as either strategic or reactive/defensive. Warwick states that reactive/defensive policies are e.g. those instituted in the wake of the financial crisis and the

Communication from the Commission in the wake of the corona crisis referring to this legislation could seem to identify the legislation as more fitting for this category. If the legislation was to qualify as a strategic policy in Warwick´s typology, it would have to fit on the comparative advantage following quadrant, B, in the next part of the typology. It would have to fit here, at the EU is clearly not building comparative advantage on the frontier of the catching up spaces, therefore ruling out square D and A. The fact that the EU actors, which this regulation can be assumed to protect, would be on the frontier of their field technologically, the square C would also be ruled out. However, the regulation does not fit in square B called the consolidating on frontier strength, as this paper would argue, that such policies would have to come with a strengthening to the EU frontier comparative advantage-following companies, such as e.g. a more built in sectoral competitiveness strategy. Therefore, the Warwick typology would place the EU's screening framework regulation as a selective reactive/defensive policy. In Warwick´s typology, it is clear that he does not see these types of policies as particularly productive and if this opinion is assumed to be correct, it would again strengthen the argument that the EU does not have the optimal institutional structure in place, in order to productively dealing with problems which is perceives as threats best dealt with using policies relying on capital restriction and trade barriers.

Warwick´s typology on the China´s Made in China 2025 policy

In classifying China´s "Made in China 2025" policy, we will again use Warwick´s typology in order to gather the insights that this might yield. When going over the Domains in which this policy is most in accordance with, we will again start with the product market. The Chinese policy does have some similarities with the selective policies mentioned under the product market as national champions have been somewhat pointed to by the Chinese government. This is, however, a subsection of a much more wide-ranging industrial policy which the Made in China 2025 definitely is. In the labour and skills Domain, there is not any substantial arguments, as to why China´s industrial policy would fit the best in here. Although, there may be some targeted skill selective policies at the lower levels of the vast industrial policy, we do not see it fitting in this category, as we are evaluating the policy as a whole. The same applies for the capital markets Domain, here certain parts of the policy would probably be able to fit within, however, we are again seeking to place the policy in the Warwick typology as a whole.

Within the capital markets such fitting policies within the Made in China 2025 policy which may fit, would be selective policy initiatives dealing with strategic investment funds or loan guarantees etc. We know that certain selective policies within the land Domain is definitely used by the "Made in China 2025" strategy. We have earlier touched upon the Chinese selective policy use of place-based clusters policy and enterprise zones as examples. The same applies to the technology Domain as can be seen in examples of development of centres of expertise and selective technology funding. We would place the wide-ranging industrial policy Made in China 2025 in the Domain of systems/institutions, more specifically, in the selective policy part of the Domain. We argue that this is the correct positioning for the policy as a whole, due its wide-ranging nature and definite use of identifying strategic sectors, clusters policy and a sectoral competitiveness strategy. This wide-ranging nature of the "Made in China 2025" policy is further seen in the fact that part of it could potentially be placed in all of the Domains mentioned by Warwick. The clearest classification the typology leads us to, is that the policy is most certainly using selective policies.

The next step of the identification process is whether the policy is strategic in nature or reactive/defensive in nature. We would argue, that due to its long ranging objectives and outwards oriented approach to some of the technology acquisitions i.e. the Chinese classification as *Hard-to-get Tech Targets,* wherein part of the strategy is to acquire foreign companies. The policy is to be classified as a one of a strategic nature. This brings us to the next figure in the Warwick typology. The Chinese "Made in China 2025" policy is not seeking to be comparative advantage following. As we have mentioned earlier, China´s comparative advantage has been due to the cheapness of its labour. The goal of the policy is not to further this comparative advantage, but to develop new ones by combating the problem the country is facing with low levels of labour productivity and comparatively low levels of R&D funding. This rules out the quadrants of C and B in the Warwick typology. Secondly, we argue that China is actually seeking to build comparative advantages on the technologically frontier. We base this on the fact that all of the sectors designated in the "Made in China 2025" industrial policy are areas on the technological frontier. In other words, the Chinese industrial policy is not seeking to catch-up to the more developed western economies, but its goal is to leap-frog these. This places the "Made in China 2025"

industrial policy firmly in quadrant A, defined as seeking strategic advantage in new areas (Warwick, 2013).

Historical institutionalism

Utilising a historical institutionalist approach, we argue that the explanation of EUs legislative response is a result of path-dependence. More specifically, in the sectors of technology and transport, the EU´s response is comparatively weak, due to the lack of strong case law. Furthermore, the regulation on establishing a framework for the screening process of foreign investments is only a regulation, which provides a cooperative system in the EU, when dealing with foreign direct investments. It does not afford either the EU institutions or the Member States any further legislative power to reject foreign direct investments that is found problematic. We argue that this result is at odds with how seriously the EU institutions and, large Member States seem to take this problem.

The structure of treaties laying the foundation for the European Union shows that one of the fundamental goals of the EU is the free movement of goods, people and capital. According to the concept of path dependency from historical institutionalism, this means that the European Union is locked in a "path" which makes it less efficient at introducing legislation, not compatible with the foundation of the Union is built upon. Further restrictions on capital movement would be such legislation. We therefore argue that path dependency can explain the uncovered weak response from the EU, in terms of the screening framework put in place. Furthermore, it can explain the case law, or lack thereof, in the areas of technology and transport, where case law does not secure the Member State´s power to make restrictions on capital movement. In the sectors of Energy and Health, we find that the EU is not as bound by its path dependency as these have comparatively stronger case law allowing for capital restrictions. The conclusion remains that the new and more general legislation enacted by the EU in response to the increased inflows of foreign capital, can be explained by path dependency.

The use of the Warwick Typology, is seemingly also supporting our argument about the Institutions constituting and surrounding the European Union are better equipped at dealing with

issues where their preferred answer correlates to the path dependency dictating a Union more capable of tearing down barriers to trade than putting them up.

Limitations

Before we move on to the discussion of the findings and the subsequent conclusions made by this paper, we will discuss its limitations. More specifically, the limitations to what can be concluded on the basis of the findings in this paper, and what cannot be concluded.

First in the limitations, as to what can be concluded based of our findings, we will look at the FDI analysis conducted. It is important to mention, that our FDI analysis, wherein three sectors are identified as being key to the Chinese investments into Europe, cannot make inferences about the overall importance of the designated sectors in the Made in China 2025 plan. We can only see, which of the sectors has the largest effect via investments into Europe. Secondly, we do not make any arguments as to whether or not the direct investments from China actually are a real "threat" to the EU. The reason the EU perceives it as such, may as well be grounded in simple protectionism. We only analyse how the EU response is affected by path dependence. Although part of the FDI analysis was to identify the recipient European country of FDI flows, we cannot use this as a direct means of identifying which countries see these flows as problematic. When this paper has not carried out an investigation of how the screening framework was formed, through for example the use of process tracing, we cannot make credible conclusions as to which individual EU countries pulled in which individual direction. The ones we can pinpoint as highly targeted by the FDI flows from China in our analysis, is not necessarily those which would argue for further restrictions. Conclusions on the individual countries´ stance when the screening framework regulation was formed, would have been an outcome of far more factors than FDI volume. Therefore, we can only make conclusions based on the aggregate level of EU activities.

Thirdly, we do not seek to make conclusion, as to what is the "best practice" approach for the EU to take, when faced with this perceived problem. This leans close to the limitation, that we do not seek to uncover versus the threat is actually credible, or if the EU´s actions are simply protectionism. Lastly, this paper only analyses FDI flows from China to the EU. We do not focus on

FDI flows from other countries, for example, Russia into the EU. We do, however, make the assumption, that the EU´s response to the FDI flows are primarily driven by the Chinese investments. We make this assumption, due to the magnitude of the Chinese investments and their status as being a relatively new problem for the EU. Furthermore, we only make conclusions based on the EU´s policies designed to stop investments into the civil sector. In other words, the conclusions of this paper cannot necessarily be extrapolated onto the EU´s ability to allow protectionist measures in areas of military defence. We would, however, assume some overlap.

Discussion

We will not discuss the findings we have made, as well as discussing possible implications of the Corona crisis and China´s growing economic power.

Discussion of findings

FDI findings

The approach of using FDI data compiled by the China Global investment dataset, instead of using the data from Eurostat or Chinese government agencies, has already been discussed in the section relating to discrepancies in the data. We argued that the use of higher quality data collected using the Ultimate Beneficial Owner (UBO) principle, outweighs the negative impact of having to construct proxy sectors for the designated areas mentioned in the Made in China 2025 policy. This approach will of course have to be critically accessed in relation to the findings we have made. The three sectors, which this paper moved on with, namely energy, technology and transportation as well as a quick investigation if the health sector, is subject to criticism based on this mode of data collection. We do not find considerable weaknesses due to data collection with regard to the applied factor of investment volume.

The arguments against this way of qualifying the Chinese investments, has to be based on the imperfect choice to use proxies for the actually designated sectors. The finally chosen sectors for further analysis were all reasonably robust proxies. Weakest among them is the technology sector, as this could be seen as rather broad compared to what is actually designated in the “Made in

China 2025" plan. Furthermore, the use of investment volume as predictor of importance in the technology sector may be flawed due to the theoretically high disruption potential some smaller tech start-ups may have. Hence, our findings relaying, that the technology sector is of significant importance, should be seen in this light as well. This also means that our findings regarding to the EU not showing particularly strong case-law allowing for restrictions on capital movement into high-tech companies could, theoretically, be a result of the EU not perceiving foreign investments into this sector, as specifically important, and not, as we suggest, due to institutional path dependency. We would argue that the discussion of Chinese takeovers and the implications arising from high tech on Chinese hands, such as the discussion surrounding Huawei, seem to strengthen our findings, placing the foreign investments into the technology sector as of significant importance for the EU system.

The factors we used in order to identify three key sectors can also be discussed. We argue that the approach of using the effect of the "Made in China 2025" publication is well suited, as it indicates a relationship between investment and the publication of the plan by the Chinese central government. This approach can be challenged on the basis that it does not convey any causality, only a positive relationship between the publication and the subsequent investment volume. We argue, that the strong rule of the Chinese government would argue that what the central government communicates also makes its way, reasonably unscathed, into reality. Especially, when keeping in mind the Chinese government's strong hold on the capital market, due to the presence of many state-owned large banks and other state-owned capital institutions. Although historical data cannot necessarily predict the future, we still hold that the factor applied, using the slope of the investment curve as evidence for the Chinese prioritization of certain sectors, is still the best option we have in approximating this.

EU findings

When collecting the data needed for the showing of the European Union´s response. It was for the most part based on the actual regulation, putting in effect the framework for screening of foreign direct investments, and the Commission Guide to case-law relating to the right of establishment. The merits of using an already compiled guide to the case-law, instead of searching the EU´s vast

databases ourselves, can be discussed. We make the assumption, that the guide to case-law is comprehensive, this can hypothetically be incorrect. This can bring into question our findings, which are, that the EU seem to have stronger case-law supporting the right to make restrictions on capital flows into the energy and health sectors, than what is the case for the transportation and technology sectors. We argue, that the guide is up to date and comprehensive, as the communication made by the Commission, sent out recently regarding the possibilities to avoid cheap foreign buyouts of EU companies due to the corona crisis, not making references to cases, which cannot also be found in the guide to the case-law.

Our overall findings identifying the sectors China is seemingly prioritising the highest, with regard to investments in the EU being technology, transport and energy. As well as observing that the EU only seems have made new policy through the screening framework regulation, which does not directly address possibilities for the introduction of capital restrictions, and lastly, EU case-law only providing explicit possibilities of protective measures in the sectors relating to health and energy, can also be discussed. We infer that the reasoning behind what we see is a perceived problem for the EU and the lack of decisive legislation and case-law allowing the EU to institute capital restrictions in order to protect itself against this problem, is ultimately path dependency found in historical institutionalism. We know from articles, as well as our FDI analysis which countries are getting the highest volume of Chinese investments. These are the forces within the EU perceiving this as a problem and wanting to find European solutions. Specifically they are the classically powerful forces of western European pro EU countries, such as Germany (*Germany Blocks China Deal to Buy Machine Tool Manufacturer | IndustryWeek*, no date). The fact that the EU has not proven a decisive instrument in this problem solving, again, seems to indicate a path dependency of the institutions surrounding it. This leads us to the question of whether the EU is a forum where the solution for this perceived problem can even be found. However, if the EU countries want to have a lasting impact on the rest of the world, the EU is the classical way to achieve this. Furthermore, the question whether the EU is the right forum is also one, which would seem to strengthen us inferring path dependency as to the ineffectiveness of the EU when dealing with these perceived problems. Especially since the solutions would fundamentally go against its core values of freedom of trade and movement.

Corona as a critical juncture?

In the historical institutionalism literature, it is assumed that the only way for institutions to diverge from their current path dependency is through the so-called critical juncture. A critical juncture opens up different paths the institutions can take. This critical juncture would typically be attributed to events which are external to the set of institutions in question. As we have mentioned before, however, the actual definition of the concepts in historical institutionalism, such as critical junctures, is still debated in the literature. We move on with the definition just mentioned.

With the findings we have made in this paper, the need for a critical juncture in order for the European Union to be more adaptable and efficient at making restrictions on capital and trade is apparent. Especially in areas such as technology and transport. This leads us to the question, as to whether or not the outbreak of corona and the following ongoing crisis would qualify as such an opportune critical junction. A critical juncture where the institutions in and surrounding the European Union is capable to "choose and new path" so to speak.

On the one hand, the corona virus, and following crisis, would most certainly qualify as an event external to the European Union, and definitely one which represents a massive chock to nations, institutions and economies alike. We find the strongest argument is, that it serves as a critical junction for the specific institutions dealing with public health. More specifically, the systems and institutions, which govern the response mechanism in various individual countries. The argument stating that it could also serve as a critical junction for the EU institutions governing relations with third countries as well as capital restrictions and trade, is more debatable. Our findings seem to show, that on the matter relating to public health and security, as well as energy security, the EU case-law indicates an already strong advocation for the restrictions of capital in these areas. This shows, that the institutions of the EU regulating these sectors, may not necessarily need a critical juncture in order to be put on the path of more restrictive free trade and flows of capital. However, the communication laid out by the Commission, did refer to all important industrial actors as possibly qualifying as critical infrastructure, and hence open for capital restrictions.

Whether this has been tested in the EU courts system and institutions or not, it certainly shows intent by the Commission to let the debate on self-sufficiency in the health area, spill over into the general foreign direct investments area. Having established that the corona crisis seemingly qualifies as an external and critical event, and that parts of the EU system is somewhat interested in "switching paths", we must look at the theory of historical institutionalism, in order to check if it offers any guidance on whether or not this move will be successful.

The theory on historical institutionalism is generally vary of the idea of spill-over effects. As we mentioned in the literature review on historical institutionalism, this is one of critiques the literature aims at the neo-functionalist's approach. Specifically, its emphasis on spill-over effects being the driver of more European integration carried out as a result of the European Union. The idea that the current corona crisis acting as a critical juncture in the health area, creating a spill-over effect into other parts of the EU system of institutions, would seem to be contrary to one of the core ideas in historical institutionalism. In other words, in the contest between factors of path-dependency in the area of capital restriction on the one hand, and the spill-over effect of the critical juncture on the other hand, historical institutionalism would be in favour of the already in place path dependency prevailing. This argument is further strengthened by our findings of the already strong support in the EU case-law for restrictive measures, when it comes to public health. In conclusion, this would mean, that the guidance offered by historical institutionalism, and the findings of this paper, states that the corona crisis will *not* serve as a critical juncture indicating a possible shift from the path dependency keeping the EU towards less restrictions on capital and removing trade barriers.

Whether the corona crisis will actually serve as a critical juncture in this way, or in any way at all, can only be categorically denied or accepted in the future. The development of the EU´s stance on restrictions to trade in the transport and technology sectors specifically, will also serve as a good indication of whether the predictions made in this paper qualify as actually good approximations.

China as the new High-Tech Superpower?

Another interesting point that the analysis of this thesis raises, is the development of China as a potential high-tech superpower in 2049, or maybe even sooner, as a result of the "Made in China 2025" strategy. This scenario is already a hot topic in today's mainstream political debate as it will be a radical change of today's world order.

As the analysis in this thesis illustrates, China wants more than just becoming the leading manufacturer of technologically advanced products, they also want to own these technologies. In Warwick´s typology, China want to be at the frontier quadrants. Consequently, many concerns arise from the perspective of the EU countries if China become the new high-tech superpower. Central to most of these concerns is the fact that China is very different compared to western countries that constitutes the high-tech superpowers today. Today's high-tech superpowers as for instance the United States, Germany, Japan and South Korea all have embedded liberal democracy as form of government. Here, liberal values, civil rights and rule of law are the foundation of these democracies. This foundation is shared among all developed countries – including most of the member states of the EU. Critiques are worried that these values will not be respected if China were to become the pioneer in the high-tech industry. This concern has already materialized as of today in multiple cases.

One of them is the case of 5G network, which is the next generation network. Here, the Chinese tech giant Huawei is pioneering the development of this 5G network, both in terms of actual technological performance but also in terms of competitiveness among other competitors. In fact, the largest Danish telecommunications company TDC originally signed an agreement with Huawei where TDC would integrate the 5G network developed by Huawei. However, media and political pressures resulted in TDC withdrawing the agreement with Huawei and instead sign a strategic partnership with the Swedish telecommunications company Ericsson. The main argument for discarding the agreement with Huawei was the uncertainty in regard to the role of the Chinese government and how much influence and access it would have. Critiques questioned how Huawei would handle all that data and whether the Chinese government would have access to these data thus enabling them to spy on the users of the 5G network. The outcome of this case was a direct

result of the lack of trust in the Chinese government and institutions, as they are not founded on the same liberal institutional values as for instance Sweden are. By using the Swedish Ericsson to develop the 5G network infrastructure in Denmark, TDC can confidently ensure that Ericsson is not forwarding the data to the Swedish government as these relationships are laid out in the democratic institutions.

The TDC/Huawei case illustrates a number of challenges from a western point of view. One of them, as described being the possible threat of being involuntarily spied on by a foreign government. This challenges the liberal civil rights that for the most part is respected by western democratic governments. It also challenges EU regulation in terms of consumer protection. More specifically, the EU has some of the most extensive regulations in terms of data protection of consumers. Here, consumers are protected under the EU regulation called "General Data Protection Regulation" (GDPR). In order for companies to fulfil the requirements of the GDPR, they need to state explicitly how they manage user's data and what they do with the data. Even though large tech companies as Huawei ensures that their practices are GDPR compliant, they still have not succeeded in convincing foreign companies and governments. Another challenge that this case presents, is the security element of placing central infrastructure in the hands of a foreign and sometime hostile country.

The security element that a case like the TDC/Huawei poses are becoming one of the largest challenges of western countries. Governments across the world are building up its defence mechanism towards critical digital infrastructure. One of these critical infrastructures are communications lines that possibly could run on the future 5G network. Hence, a country's ability to communicate could essentially be endangered if a foreign hostile actor has the capabilities of controlling it. Also, governments are increasingly aware of the cyber-threats that are posed by China, which contributes to the argument of not placing critical digital infrastructure in the hands of major Chinese corporations.

A last element that the TDC/Huawei case pose in not related to national security or consumer protection, rather it focuses on the security of employees. Suppose that Chinese companies are

buying up western companies, which we have illustrated in the analysis of this thesis, how are the security of the employees affected? Though it is difficult assess at this point whether employees' freedoms are affected by Chinese money taking over the ownership of a company, it does propose some concerns. One of them is whether or not employees can be able speak freely in and out of working situations. Second, does the Chinese ownership spread the of Chinese anti-democratic values and propaganda? These are concerns that are too soon to answer for now, but are raised and must be accounted for in the future as Chinese FDIs are more frequent then ever since the initiation of the "Made in China 2025" strategy.

As the case of Huawei and its 5G network illustrates, China is at the very forefront of emerging technologies that will build the future digital infrastructures. This has fostered lots of speculations and worries of where this trend is leading to. However, are these dystopic forecasts for the future really realistic or is just political discourse? Hence, the following paragraphs discusses how likely the "Made in China 2025" strategy is.

One of the strengths of the "Made in China 2025" strategy is the fact that it is a Chinese industrial policy. The Chinese form of government allows decision-making to become more long-term oriented rather than being vulnerable to short-term political pressure. This way, the Chinese decision makers are able to invest and develop enterprises that traditional market competition would not develop since long-term result are too uncertain. This was also the case in the development of the Asian Tigers and especially South Korea, where the national industrial policy securing development of industries where short-term profit would be very difficult to achieve. Hence, the ability to make long-term decision by decision-makers have shown very successful in earlier industrial policy strategies.

Another strength of the "Made in China 2025" strategy is large government-backed funding that Chinese state-owned and private enterprise are entitled to get. As described previously in this thesis, Chinese-owned banks and investments funds are allocating hundreds of billions CNY in the development of emerging technologies and smart manufacturing. The financial capabilities will inevitably increase the speed of innovation in the core industries. Additionally, the large amount

of funding available also helps establishing and developing the polit projects and creation of National Demonstration Zones wherein China is aiming a building clusters of innovation. Establishing clusters of knowledge seems to be a good strategy for development of innovations. Across the world today, these clusters of knowledge are present in many industries as for instance in the financial industry where clusters as emerged in New York, London, Singapore etc., whereas a technological cluster has developed in Silicon Valley in California. Hence, China's strategy of establishing smart manufacturing and technological clusters could further enhance the success of the "Made in China 2025" strategy.

On the other hand, China also faces some critical challenges that can impact the implementation of the "Made in China 2025" strategy significantly in a negative direction. One of these challenges are the top-down catch-all approach that the Chinese government are pursuing with the "Made in China 2025" strategy. Though the top-down approach does entail some benefits – especially in terms of coordination, funding and overall direction of the industry policy, it also comes with challenges. One of them is the possibility of overlooking existing Chinese enterprises that are not capable of developing the innovations set out in the "Made in China 2025" strategy. These companies are the ones that today produces low-tech manufacturing with very little automatization. Another challenge is the possibility of neglecting the inherent learning and development of companies. This implies that, suppose a company receives large government funding, it can miss out on the benefits of learning from own procedures and thus resulting in inefficiencies, which ultimately can affect the competitiveness of the company. Lastly, the large government funding can also result in cases where investments are allocated inefficient in comparison to marked-based investments. The top-down strategy also challenges the entrepreneurial characteristics of advanced economies, as some of the most innovative and cutting-edge technologies have been developed by a single person sitting in a garage.

Apart from the design of the "Made in China 2025" strategy itself, China also faces some inherent economic challenges that will affect the successiveness it. One of them is the slowdown of the economic development, which is illustrated in the decreasing annual GDP growth rates. Here China can be tempted to prioritize investments in short-term outcome such as infrastructure

investments in order to maintain or avoid a decline in the growth rates. Another challenge is China's deficiency in skilled labour. The shortage of skilled labour is one of the core threats facing the successiveness of the "Made in China 2025" strategy, as China need to educate and build a large amount of skilled labour in record time in order to innovate in existing and emerging technologies. Suppose China succeeds in building a large shared of skilled workers, it will be challenged by what to do with its existing large share of low-skilled labour. How should China employ these people into an advanced economy? Additionally, the current stage of development of the Chinese economy lied somewhere between the 2nd and 3rd industrial revolution according to XXX, whereas advanced economies as the US and German ones have utilised the technology of the 3rd industrial revolution for many decades as of now.

Summing up, the success of the "Made in China 2025" strategy is still to be determined. China's form of government is to a large degree a strength that will foster innovation and industrial upgrading in some sectors. However, whether this will result in a complete re-design of its economy to enter the 4th industrial revolution is very questionable at the moment due to the many inherent challenges that China faces.

Conclusion

As a consequence of out literature reviews, we decided to rely on the collection of literature constituting a historical institutionalist approach. This theory helped us explain the weak response from the EU to the perceived threat, consisting of Chinese FDI acquiring key industrial actors within the EU. Secondly, we decided to use the typology on industrial policies, compiled by Warwick, in order to gain further insights into the actions of China, as well as actions of the EU.

Our analysis of the FDI flows from China to the EU showed a recent decrease in the overall volume of the Chinese investments into Europe. More than half of the overall FDI in 2018 could, however, be attributed to the sectors designated in the "Made in China 2025" industrial policy. The further analysis, wherein the FDI´s was divided onto proxy sectors for the sectors designated sectors in China´s industrial policy, we found that the most relevant sector were the proxies of technology, energy and transport. We also noted that a smaller investigation of the Health sector was called for.

With regard to the EU legislation on the incoming FDIs, we looked at the recent regulation detailing a new framework for the screening of foreign investments. More specifically, it was apparent that this seemed a rather weak protective regulation, at least compared to the scale of the Chinese FDI problem, perceived by the EU. Consequently, we dove into the case law surrounding the three identified important proxy sectors, as well as the health sector. Here we found stronger case-law supporting restrictions on capital in the health sector and the energy sector, than in the transport sector and technology sector. Parts of the technology sector is, however, protected by stronger case law, namely the telecommunications sector.

Consequently, this thesis concludes that the EU´s weak response to the "Made in China 2025" industrial policy and the increase in foreign direct investment could be explained by path-dependencies in the EU institutions. This insight implies that EU is capable of acting more decisive in areas where the goal is to lift trade barriers and/or capital restrictions. This path dependency is originating from one of the Union´s core purposes, being ensuring free movement of goods, people and capital within its Member States. In the sectors of energy and health, the EUs

institutional path is slightly different when comparing to the transportation and technology sector, as previous case-law are stronger. These conclusions are subject to the limitations mentioned in the limitations section, as well as those inherent in the ontology and epistemological assumptions in critical realism.

We also found relevant points of discussion in the possibility of the ongoing corona virus being a critical juncture, capable of breaking the EU´s path dependency and allowing its institutions to take a new path. Furthermore, we also found interesting discussion points with regard to the possible threats to consumer protection and freedom of speech, following a further expansion of China´s economic power. These are both interesting topics for further research. Lastly, we believe, that conducting a process tracing analysis of the formulation of the EU regulation establishing a framework for screening of foreign investments, could further enlighten the mechanisms leading to the EU´s response. Such an analysis would, however, not have as much representativeness on the entire EU system

List of references

A Pure Play Aesthetics Company - Sinclair Pharma plc (no date).

Aghion, P., Boulanger, J. and Cohen, E. (2011) 'Rethinking Industrial Policy', *bruegelpolicybrief*, (4).

Axilone Plastique SASU - Company Profile and News - Bloomberg Markets (no date).

Bienvenue chez St-Hubert ! | Restaurant St-Hubert (no date).

Bilbao-Osorio, B., Soumitra, D. and Lanvin, B. (2014) *The Global Information Technology Report 2014: Rewards and Risks of Big Data*. World Economic Forum.

Biotest (no date).

ChemChina to buy Italian tire maker Pirelli in $7.7 billion deal - Reuters (no date).

China's Tencent buys 'Clash of Clans' maker Supercell for $8.6 billion - Reuters (no date).

China Global Investment Tracker | American Enterprise Institute - AEI (no date).

Cimoli, M. *et al.* (2006) *Institutions and policies shaping industrial development: An introductory note LEM*. 2. Pisa.

Data Centres across Europe and Asia-Pacific | Global Switch (no date).

Esaote SpA - Company Profile and News - Bloomberg Markets (no date).

European Commission (2017) 'Guide to the Case Law Of the European Court of Justice on Articles 56 et seq. TFEU'. European Commission.

European Commission (2020) 'COMMUNICATION FROM THE COMMISSION'. Brussels, pp. 1–8. doi: 10.1017/CBO9781107415324.004.

European Parliament and European Council (2019) 'Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 establishing a framework for the screening of foreign direct investments into the Union. OJ L 79I'. Official Journal of the European Union, pp. 1–14.

Eurostat - Data Explorer (no date).

Evans, P. B. (1995) *Embedded Autonomy: States and Industrial Transformation*. Princeton University Press.

Exclusive: EDP readies sale of electricity generation assets in Portugal - sources - Reuters (no date).
Garrett, G. (2004) 'Globalization's Missing Middle', *Council on Foreign Relations*, 83(6), pp. 84–96. doi: 10.4135/9781412956260.n211.

Germany Blocks China Deal to Buy Machine Tool Manufacturer | IndustryWeek (no date) *Industry Week*.
Grammer.com/company (no date).

Haas, E. B. (1961) 'International Organization Foundation International Integration : The European and the Universal Process', *University of Wisconsin Press*, 15(3), pp. 366–392.
Haas, E. B. (1975) *The Obsolescence of Regional Integration Theory*. Institute of International Studies.

Hall, P. A. (1986) *Governing the Economy: The Politics of State Intervention in Britain and France*. Oxford University Press.

Hoffmann, S. (1966) 'Obstinate or Obsolete ? The Fate of the Nation-State and the Case of Western Europe', *The MIT Press and American Academy of Arts & Sciences*, 95(3), pp. 862–915.

Hooghe, L. and Marks, G. (2001) *Multi-level governance and European integration*. Rowman & Littlefield.

Hooghe, L. and Marks, G. (2019) 'Grand theories of European integration in the twenty-first century', *Journal of European Public Policy*. Taylor & Francis, 26(8), pp. 1113–1133. doi: 10.1080/13501763.2019.1569711.

Imagina Media Audiovisual SA - Company Profile and News - Bloomberg Markets (no date).

InfoCuria Case-Law (2009a) 'JUDGMENT OF THE COURT (Grand Chamber) In Case C-531/06'.

InfoCuria Case-Law (2009b) 'JUDGMENT OF THE COURT (Third Chamber) In Case C-326/07',.

InfoCuria Case-Law (2010) 'JUDGMENT OF THE COURT (Third Chamber) In Case C-384/08'.

Kohler-Koch, B. and Eising, R. (1999) *The transformation of governance in the European Union*. Routledge.

Kohler-Koch, B. and Rittberger, B. (2006) 'Review article: The "governance turn" in EU studies', *Journal of Common Market Studies*, 44(SUPPL. 1), pp. 27–49. doi: 10.1111/j.1468-5965.2006.00642.x.

Logicor Ltd - Company Profile and News - Bloomberg Markets (no date).

Maio, M. Di (2014) 'Industrial policy', in *International Development*. Oxford: Oxford University Press. doi: 10.1093/acprof:oso/9780199671656.003.0033.

Milward, A. (1992) *The European rescue of the nation-state*. Routledge.

Moravcsik, A. (1998) *The Choice for Europe: Social Purpose and State Power from Messina to Maastricht*. Cornell University Press.

Moravcsik, A. and Schimmelfennig, F. (2019) 'European Integration Theory', in *European Integration Theory*. Oxford University Press.

Naudé, W. (2010a) *Industrial Policy: Old and New Issues*. 106.

Naudé, W. (2010b) *New Challenges for Industrial Policy*. 106.

New materials industry (no date).

Nidera Inc - Company Profile and News - Bloomberg Markets (no date).

NMS Group - Nerviano Medical Sciences | LinkedIn (no date).

Nutech Inc - Company Profile and News - Bloomberg Markets (no date).

NXP Semiconductors Sells Unit to Chinese Firm for $1.8 Billion - WSJ (no date).

Pierson, P. (1996) 'The Path to European Integration: A Historical Institutional Analysis', *Comparative Political Studies*, 19(2), pp. 123–163.

Pirelli & C SpA - Company Profile and News - Bloomberg Markets (no date).

PizzaExpress Ltd - Company Profile and News - Bloomberg Markets (no date).

Reuters (China) (2018) *GE and Rolls Royce finalists for Chinese-Russian CR929 jet engine, designer says*.

Scharpf, F. (1999) *Governing in Europe: Effective and Democratic?* Oxford University Press.

Scharpf, F. W. (1988) 'the Joint-Decision Trap: Lessons From German Federalism and European Integration', *Public Administration*, 66(3), pp. 239–278. doi: 10.1111/j.1467-9299.1988.tb00694.x.
Seaman, J. *et al.* (2017) *Chinese Investment in Europe*.

Stiglitz, J. E., Yifu Lin, J. and Monga, C. (2013) 'Introduction: The Rejuvenation of Industrial Policy', in Stiglitz, J. E., Esteban, J., and Lin Yifu, J. (eds) *The Industrial Policy Revolution I :The Role of Government Beyond Ideology*. Basingstoke, GB: Palgrave Macmillan. doi: 10.1057/9781137335173.

Supercell Oy - Company Profile and News - Bloomberg Markets (no date).

The Council of the European Union (2004) 'COUNCIL REGULATION (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation)'. Official Journal of the European Union.

The European Union (2012) 'CONSOLIDATED VERSION OF THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION', *Ofiicial Journal of the European Union*. Official Journal of the European Union.

The European Union (2020) *EU institutions and bodies in brief*. Available at: https://europa.eu/european-union/about-eu/institutions-bodies_en?fbclid=IwAR12FrsNBM3dKFRAeHk-b2oG5oEMhTFNOoSfUwv2vl43lvp2_Hei3miMiW4.

The State Council - The People's Republic of China (2015a) *Full Text: Report on the Work of the Government (2015)*.

The State Council - The People's Republic of China (2015b) *'Made in China 2025' plan issued*.

Thilo, A. H., Mikko, H. and Kratz (2019) *Chinese Fdi in Europe : 2018 Trends and Impact of New Screening Policies*, *MERICS: Papers on China*. Berlin.

Thilo, H. and Mikko, H. (2018) *EU-CHINA FDI: WORKING TOWARDS RECIPROCITY IN INVESTMENT RELATIONS*, *MERICS: Papers on ChinaPapers on China*. Berlin and New York.

Trading Economics (2019) *China Average Yearly Wages*.

Trading Economics (2020) *China Industrial Production*.

Wade, R. H. (2018) 'The Developmental State: Dead or Alive?', *Development and Change*, 49(2), pp. 518–546. doi: 10.1111/dech.12381.

Wallace, H., Pollack, M. A. and Young, A. (2015) *Policy-making in the European Union*. 7th edn. Oxford University Press.

Warwick, K. (2013) *Beyond Industrial Policy: Emerging Issues and New Trends*, *OECD Science, Technology and Industry Policy Papers*. 2. OECD Publishing, Paris.

Weetabix Ltd - Company Profile and News - Bloomberg Markets (no date).

Weichai Power unit KION in US$2.1 billion European acquisition | South China Morning Post (no date).

Weiss, J. (2013) *Industrial Policy in the Twenty-First Century: Challenges for the Future*, *Pathways to Industrialization in the Twenty-First Century, Chapter 15*. Oxford University Press. doi: 10.1093/acprof:oso/9780199667857.003.0015.

World Bank (2020a) *GDP growth (annual %) - China*.

World Bank (2020b) *GDP per person employed (constant 2011 PPP $)*.

World Bank (2020c) *Research and development expenditure (% of GDP)*.

Wübbeke, J. *et al.* (2016a) 'Made in China 2025 The making of a high-tech superpower and consequences for industrial countries', *MERICS Mercator Institute for China Studies*, (2), p. 76.

Wübbeke, J. *et al.* (2016b) 'Made in China 2025 The making of a high-tech superpower and consequences for industrial countries', *MERICS Mercator Institute for China Studies*, (2), p. 76. Available at: https://www.merics.org/sites/default/files/2018-07/MPOC_No.2_MadeinChina2025_web_0.pdf.

Zenglein, M. J. and Holzmann, A. (2019) 'Evolving Made in China 2025', *Merics*, (8), p. 80.

Zhang, X. *et al.* (2016) 'The Transformation and Upgrading of the Chinese Manufacturing Industry: Based on "German Industry 4.0"', *Journal of Applied Business and Economics*, 18(5), pp. 97–105.

Appendices

Appendix 1

Domain	Instruments
Economic signals and incentives	- Intellectual property rights - Price regulations - Exchange rate policy (e.g., undervaluation) - Monetary (interest rate) policy - Countercyclical fiscal policy - Tax breaks
Scientific and technological innovation	- Scientific policies - High-tech lead projects - Funding of university research - Establishment of research centres - R&D subsidies and/or tax credits
Learning and improving technological capabilities	- Education and training policies - Foresight exercises (to identify national research priorities) - Labour training subsidies and/or tax breaks - Skills formation and upgrading schemes - International educational and research collaboration - Incentives for foreign direct investment
Selective industry support	- Impose import tariffs and/or quotas - Provide export subsidies/credit/support - Establish special economic zones - Use of state-owned enterprises/privatization - Create public utilities providing inputs (e.g., electricity) - Directed finance/subsidies - Provide public guarantees - Direct state procurement policy
Selection mechanisms	- Entry and exit regulations for firms - 'Live and let die' principle (Political will to end support to failing firms) - Introduce anti-trust and competition policy - Support national trading companies - Preferential access to finance - Long-term development finance
Distribution of information	- Collective action mechanisms - Promotion of standards - Use of consultative forums - Use of business chambers - Encouraging firm cooperation/firm linkages - Marketing of export industries - Dissemination of successful experiences
Improving productivity of firms and entrepreneurs	- Providing or subsidizing management training - Firm (SME) monitoring and assistance - Infrastructure, funding and management for incubators and cluster formation - Promotion of public-private partnerships - Location marketing and enhancement - Upgrading of economic infrastructure - Creation of venture capital funds

Source: Naudé (2010a)

Appendix 2

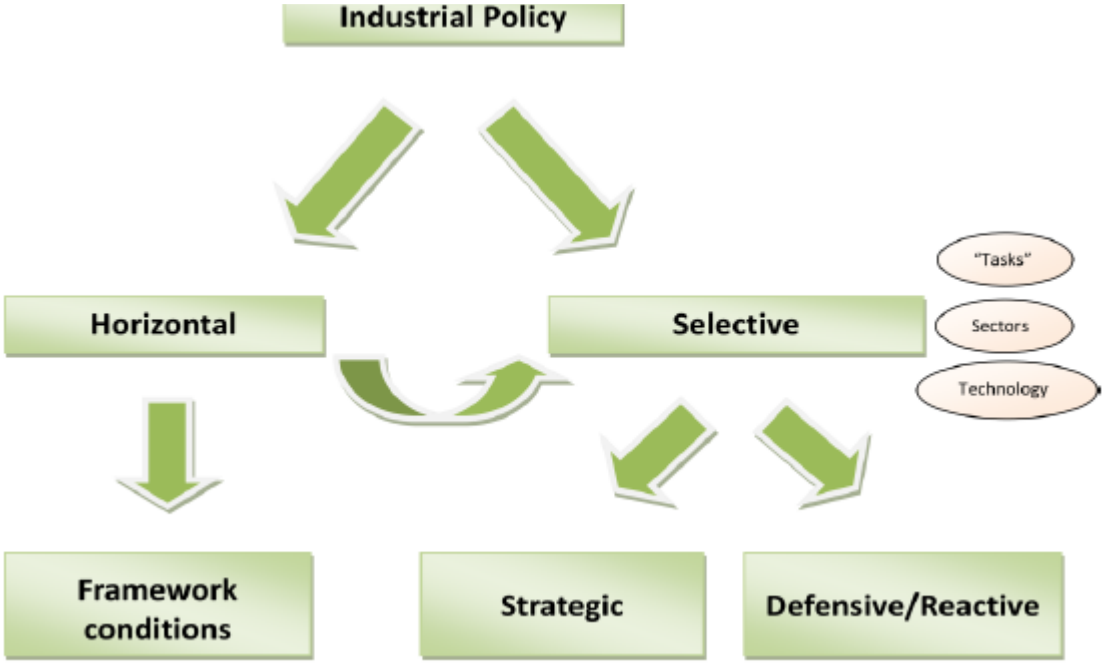
Tabel 2 - Warwick´s two-way typology

Domain	Horizontal Policies	Selective Policies
Product markets	Competition and anti-trust Indirect tax Product market regulation Exchange rate policy	National Champions Nationalisation/privatisation Output subsidies/state aids Export promotion Price regulation (*e.g.* pharma) Public procurement Trade policy Car scrappage
Labour and skills	Skills and education policies Training subsidies Wage subsidies Income and employment tax Management advisory services Labour market regulation	Targeted skills policies Apprenticeship policies Sector-specific advisory services
Capital markets	Loan guarantees Corporate tax/capital allowances Macro/financial stability Financial market regulation	Strategic Investment Fund Emergency Loans State Investment Bank Inward investment promotion
Land	Planning regulation Land use planning	Enterprise zones Place-based clusters policy Infrastructure
Technology	R&D tax credit Science Budget IPR regime	Green technology Lead Markets Public procurement for innovation Patent Box Selective technology funding Centres of expertise
Systems/Institutions	Entrepreneurship policy Scenario planning Distribution of information Overall competitiveness strategy	Indicative planning Foresight initiatives Identifying strategic sectors Sectoral competitiveness strategy Clusters policy

Source: Warwick (2013) page 27.

Appendix 3

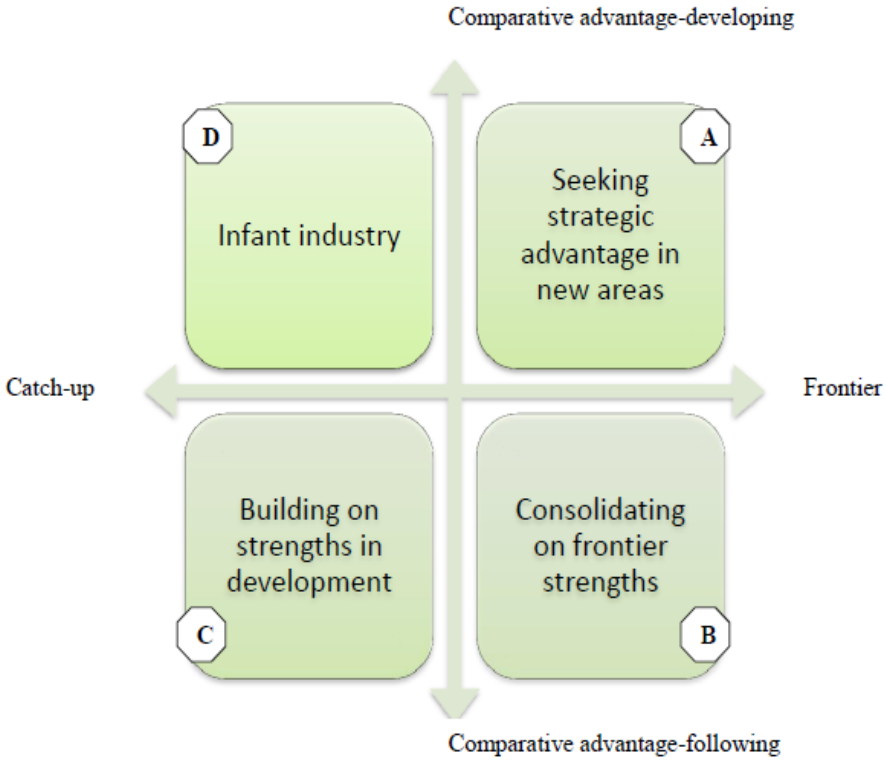
Figure 1. Warwick - A typology of industrial policies by policy orientation



Source: Warwick (2013) Page 29.

Appendix 4

Figure 2. Warwick - Two-way classification of strategic



Source: Warwick (2013)