Paper: Bastian Linneweh (University of Goettingen)


Introduction

In recent media and newspaper articles, it suggested that a new era of ‘de-globalization’ might be ahead. The aftermath of the financial crisis and the recent upswings of protectionism lead many experts to the conclusion that the current globalization phase may end. Despite the fact that world trade further increases, the new wave of foreign trade policies, like those of the Trump administration, will diminish the effects of globalization, whether for good or bad.¹

Economic historians have traced the progress of globalization processes from their beginnings in the 15th century, their first acceleration between 1860 and 1914 to their current impacts in the aftermath of the second wave of globalization after 1945.² In the history of globalization, the interwar period represents the only de-globalization phase so far. However, little is known about the intensity, impact and details of this process. What defines the de-globalization of this period? The paper aims to answer this question with a look on a global commodity market.

The exchange of commodities and manufactured goods shaped the first globalization phase in the 19th century. Plantation products like sugar, tea and especially cotton were an essential part of global capitalism, as recent publications demonstrated.³ After the First World War many of these markets disintegrated, which many economic historians took as indicators for de-globalization.⁴ However, the markets for some other commodities continued to expand, for

instance that for rubber. Between 1914 and 1945 the rubber market grew heavily because of the motorization in the industrializing countries. The consumption of rubber rose from about 150,000 t in 1913 to over 1,100,000 t in 1939. Newly established plantations in South East Asia secured the industrialization of northern countries. The global rubber economy consisted of different chains of wild rubber from South America and Africa and natural rubber from estates and smallholders from Southeast Asia. Markets and firms remained highly global in the Interwar period. The increasing demand for rubber makes it a good example to see what’s happened with ‘truly’ global markets in the times of ongoing de-globalization: they did not shrink, but changed substantially.

This paper uses a qualitative commodity chain approach to discuss the process of de-globalization using the case of rubber. Looking at the chain from the producers to the consumers, we will see how chains evolved in the interwar period, and which parts changed. This method has the advantage that it focuses the global connections between different actors in a specific market and includes the local actions of firms and companies. However, an ever more important player in the global market in the interwar period was the nation state. To consider this problem, I will focus on these interventions and how they configurated the market.

The paper first looks at the theory of globalization and de-globalization to analyze the definition of the two processes so far and the problems of defining them. In a next step, the paper will introduce the global rubber market and show its emergence in the time until World War I. In a next step the paper will focus on elements of de-globalization in the Interwar period. Overall, three developments become apparent: (1) import restrictions in consuming countries like Germany, which tried to control the rubber trade; (2) export restrictions in producing countries, like the British rubber regulation of the Stevenson scheme and their successor the International Rubber Regulation Agreement; and (3) the development of substitutes for natural rubber in the USA and Germany. Finally, the paper sums up these findings to argue that there are almost no tendencies of de-globalization in the global rubber market. However, what significantly changed in this time is the influence of the state on the commodity chain. So, if we want to understand globalization, we have to look not only on the successful phases from a global perspective, but also at the changes in these connections and their causes.

---


Definition of globalization and de-globalization

The process of globalization is still highly debated. Initial definitions by social scientist in the 1980s understood it as a contemporary event. The technological changes in communication media, containerization and the rising power of multinationals in the 1980s allowed closer connections between different parts of the world, more than ever before. Therefore, globalization was characterized by at least three trends: First, the nation state loses its power or is challenged by global forces. Furthermore, it leads to a cultural unification; often understood as a process of westernization or even Americanization. Finally, there is an advanced compression of space and time. Globalization ascended as a new master narrative, similar to modernization theory. However, historians showed that globalization was not an entirely new development. Its beginnings could be traced to the 15th century or even further back. While there is still a debate about the beginning of the process, several studies disproofed the modernization aspect. Globalization is not a one-way trend, expanding all the time. History has many examples of waves of intensive global connections and their consecutive declining. China under the Ming dynasty expanded with their treasury fleet across the Indian Ocean in 1405. However, after seven expeditions they stopped these efforts in 1433 and ended a phase of interactions and trading. Over a hundred years later, the European chartered companies invaded the Asian trading nodes and connected the markets of Asia with Europe. Nevertheless, these global waves were often limited to specific regions. Some as Africa or Russia played a lesser role in the world economy, so globalization had its limits.

Overall, globalization theories came to speak of at least two waves of globalization. A first wave emerged in the 19th century with the industrialization and the technological progress in transportation and communication. Its peak was reached at the beginning of the 20th century. The World War I put an end to this wave, and many countries tried to fight the consequences

---

of globalization with stricter national policies. This phase of de-globalization was fueled by the Great Depression and lasted until the end of World War II. The postwar period underwent an increasing globality, which intensified from the 1980s until at least 2008. Since then, as shown above, some speak of a dwindling globalization, which could lead to a new phase of de-globalization.

Recent studies have challenged this model, even though economic historians underscored this periodization by economic data. Findlay and O'Rourke indicate that tariffs for foodstuff rose more than 50% in European countries, while imports and exports after 1929 declined to less than 50% for most of the industrialized countries. However, business historians demonstrated that the 1920s remained a highly globalized decade. Especially US-multinationals captured new markets in the golden twenties, as Alfred Chandler already recognized in his work “Strategy and Structure”, for the case of Du Pont. Consequently, Geoffrey Jones showed in his article in the Oxford Handbook of Business History that the first global economy worked until 1929. Only then did the Great Depression lead to a disintegration of markets and companies. A conference about the ”Foundations of worldwide economic integration” came to a similar result. Christof Dejung showed that the intertwining of the global economy continued after the World War I. However, the global connections lost their predominantly European character. So, 1914 marks a bigger watershed for Europe in case of globalizations than for other parts of the worlds. These findings coincide with migration patterns, which further expanded in Asia in the 1920s, according to McKeown.

The debates demonstrated the significant problems in analyzing globalization. Many scholars used different methods and perspectives to trace the process. The German global historian Jürgen Osterhammel even maintains that globalization changed its structure already in the 1870s, when states tried to fight the negative result of globality, like the problems for agrarian

---

For him, globalization is a not a single term, but, like with the concept of multiple modernities, a range of processes. This view has the advantage to work with a wider definition of globalization, which is now almost the only way to catch up the varieties of theories.

This means however that in turn, there were also multiple de-globalizations, which could be analyzed separately from the original process of de-globalization reflected in foreign trade data. This is exactly what this paper intends: to look at the de-globalization processes in the interwar period. Following Osterhammel and defining globalization as processes of increased global intertwining, it can look at economic, social and cultural connections at the same time. In this paper I assume this perspective and therefore understand de-globalization to mean a reduction of global linkages in both quantity and quality. A wide definition helps to discuss the impact of globalization and de-globalization beyond economic factors, to include other forms of connections between economic actors, like flows of information. For instance, even World War I did not cut the German merchants and manufacturers entirely out from the global markets. Even in the war it was possible to plan the importation of rubber through the connections of the business communities.

The paper analyzes these connections with the Global Commodity Chain (GCC) approach, pioneered by Gerry Gereffi. The method has the advantage to reconstruct global industries in a stringent perspective to reveal their global connections. Different parts of the chain can be observed in a local, a national and a global perspective while focusing on single actors. Therefore, it connects the macro level with the micro level of globalization. A global industry is perfect for the analysis of globalization or de-globalization processes, as the chain connects locations of production or consumption and show their change over time. However, the original GCC approach has the problem that a single chain analysis cannot represent an entire industry. Therefore, the paper analyzes the rubber market through several commodity chains: those of plantation rubber, wild rubber, and synthetic rubber. When the chains relocated, or when new actors emerged to block or take over control of parts of the chain, it

19 See Osterhammel, J. / Petersson, Globalization, p. 20ff.
20 BiArch R 8721/23.
potentially signalizes processes of de-globalization. Otherwise, when more firms and additional persons from different regions participated in the chain, global connections were getting stronger. Now how did the commodity chains of the rubber market actually look like at the outset, before World War I?

The global rubber market – elements of globalization before 1914

Natural rubber is made from the latex of different trees and plants. It can be harvested by tapping a tree and the later coagulation of the product. While the history of rubber goes back to its use by the Inca and Aztecs, scientific research into the substance began in the 18th century. In the 19th century, inventors found first applications of rubber in the expanding textile industry, making use of its water-repellent nature. Charles Macintosh, a British chemist, was one of the first who utilized the potential of rubber as an industrial commodity, and used it for the manufacturing of rain coats, which hold his name as mackintoshes until today. Another important British inventor was a later business partner of Macintosh, Thomas Hancock, who improved the manufacturing of rubber.23 Next to Great Britain, the United States were a center of rubber consumption. However, rubber remained a difficult material, it changed in nature at different temperatures. A solution to that was found almost simultaneously in the USA and Britain. Charles Goodyear registered his patent for ‘vulcanization’ in 1844 in the USA. He mixed the natural rubber with sulfur, which leads to a new product with the rubber-specific characteristic of elasticity. Hancock registered his patent on a similar process in Britain, eight weeks before Goodyear.24 This innovation was the foundation for the rising demand for natural rubber. The industrialization in Europe and America gave new possibilities for the application of the material. Industrial belts, cable insulation and other products improved modern technologies. Then, the invention of the pneumatic tire and the rise of the car industry at the beginning of the 20th century took the demand of rubber to a new level.25

The increasing need for natural rubber lead to an expansion of the production in the middle of the 19th century. The natural habitat of the main latex producing trees and plants lies in the area between twenty degree north and south of the equator. The natural rubber for the early

British and American industries came almost entirely from Brazil. In the Brazilian Amazonas basin, the rubber tree (*hevea brasiliensis*) had his natural habitat. As these trees grew wild in the rain forest, often in quite a distance to each other, the product from this source is labelled wild rubber. A market for wild rubber emerged as early as the 1860.\(^{26}\) If we look at the commodity chain of wild rubber from Brazil, we find the many different actors involved.\(^{27}\)

The wild rubber was produced by a local rubber tapper, called ‘seringueiro’. The daily work consisted of the tapping of the trees in their *estrada*, which often consisted of more than 100 trees. The tapper collected the latex in little tin bowls, called ‘tigelinhas’, and coagulated the outcome over a fire to a bale of natural rubber.\(^{28}\) At certain times the *seringueiro* brought the bales to a trading station, were he sold it to intermediaries. Another arrangement was the contract model, in which intermediaries picked up the rubber bales directly at the cabin of the tapper. From the trading points, the wild rubber was transported to a port for export. In the beginning of the rubber production, this was Para at the delta of the Amazon. Later, also Manaus and Iquitos became points of export. In these cities, trading firms bought the product from the intermediaries. The position between the tappers and the trading firm in the commodity chain was mainly in the hand of local intermediaries called *aviadores*. These Brazilian and Portuguese merchants supplied the tapper in the jungle with the necessary goods to survive in the rainforest.\(^{29}\)

The *aviadores* houses expanded as the rubber demand increased at the end of the 19\(^{th}\) century. Overviews in German journals show more than 16 *aviadores*, which organized the export of more than 40,000 tons of rubber.\(^{30}\) Many studies focused on the relationship between the *seringueiros*, *aviadores* and the *patrao* (the owner of the land where the tappers worked). According to Barham and Coomes, the argument that most rubber tapping went on under slave-like labor conditions is not sustainable, as labor was scarce in the amazon and surveillance difficult to achieve.\(^{31}\) Consequently, a principal agent problem emerged when

---


\(^{27}\) For the Commodity Chain of Rubber in Brazil see also Frank, Zephyr / Mussacchio, Aldo, Brazil in the international Rubber Trade, 1870-1930, in: Steven Topik u.a. (Ed.), From silver to cocaine. Latin American commodity chains and the building of the world economy, 1500 - 2000, Durham, NC 2006, p. 271–300.


\(^{29}\) See Barbara, The Amazon rubber boom, 1850 - 1920, p. 165ff.

\(^{30}\) Gummi Zeitung, 27 (Feb. 1913, No. 19, p.752.

tappers were exploited. Though, the case of the Putumayo Indians shows, that brutal exploitation of indigenous workers were used, but not common.\textsuperscript{32}

At the port cities, trading firms from several countries tried to buy rubber on commission for their costumers or for to trade it on their own account. London emerged as the central marketplace for natural rubber from Brazil; other markets were established in New York, Hamburg, Antwerp and Le Havre. The trading companies, like the German firm Weber & Schaer, served several markets in selling their natural rubber. While they were located in Hamburg, Weber & Schaer bought rubber in Lisbon or Antwerp to sell it in France, Russia, England, or the USA.\textsuperscript{33} Most of the trading firms were not only interested in rubber. The British firm of Ed. Schluter & Co also exported coffee from Brazil.\textsuperscript{34} The manufacturing industry in the industrializing countries bought the rubber either at the market places through brokers or own employees, if they had no contract with a trading firm.

In the industrializing countries, a number of larger firms were among the consumers. For instance, Dunlop (established in 1889 in Britain), Continental (established in 1871 in Germany), and B. F. Goodrich (established in 1870 in Akron, Ohio) relied on this commodity chain to the Brazilian Amazon for producing their first tires. However, most of the rubber production was in the hand of local actors. Many manufactures and traders had problems with this organization. According to them, the production in the rainforest remained ineffective and the products had a poor quality. Several attempts of Western firms to improve this organization failed.\textsuperscript{35} With the expanding demand for rubber, new regions were searched for rubber plants. Another natural habitat was found in the African rainforest.

The wild rubber chain from Africa was quite similar to the Brazilian chain. In the Amazonas workers came mostly from other parts of Brazil, as the immigration of workers was largely forbidden. The African rubber production relied more on indigenous people. European trading firms, like O’Swald from Hamburg, organized the expeditions of local intermediaries in the hinterland to trade rubber with them; in the case of O’Swald in German Southeast Africa.\textsuperscript{36} Again the production lay in the hands of local merchants, while the European or American

\textsuperscript{32} Hardenburg, Walter Ernest, The Putumayo. The devil's paradise; travels in the Peruvian Amazon region and an account of the atrocities committed upon the Indians therein, London 1912.


\textsuperscript{34} The ledger of Ed. Schluter & Co. shows next to rubber particularly coffee. See: LMA CLC/B/077/MS35983/003


\textsuperscript{36} Staatsarchiv Hamburg 731-8_A 764
traders organized the transportation to the market places at home.\textsuperscript{37} This arrangement could be found in the German colonies in almost the same way as in the British Gold coast.\textsuperscript{38} The production remained largely under control of locals.

An exception was the Congo Free State, the second largest exporter of wild rubber in the beginning of the 20\textsuperscript{th} century. Here, the chain was based on a forced labor regime, in which indigenous people were terrorized to collect rubber from the wild vines of \textit{landolphia} in the jungle. While Leopold II ruled his territory almost like a company, the whole export went to Antwerp and was sold by a single Belgian firm.\textsuperscript{39} The atrocities ended only with a takeover of the Belgian government in 1908, they shape the picture of rubber production until today.\textsuperscript{40}

In addition to the wild rubber chain, a new organization emerged with the rubber plantation industry. At the beginning of the 20\textsuperscript{th} century, many planters in almost all equatorial colonies rubber plantations invested in rubber trees and plants. The British attempts in Southeast Asia proved to be the most successful venture, as they came early and utilized the right plant, the Brazilian rubber tree \textit{hevea brasiliensis}. In 1876 the India Office with Clements Markham organized the ‘export’ of 70,000 Hevea seeds from Brazil trough Henry Wickham.\textsuperscript{41} After a germination time in the Kew Gardens, the plants were send to the Botanical Garden in Henarathgoda in Ceylon, and further distributed to Singapore.\textsuperscript{42} The Botanical Gardens served as a research vehicle and published the knowledge about the cultivation of the rubber tree. Especially H.M. Ridley, director of the Botanical Garden in Singapore from 1888 to 1911, promoted the rubber tree in the colony and distributed the seeds to interested planters and local peasants.\textsuperscript{43}

Soon old tea or coffee plantations adopted rubber as an alternative.\textsuperscript{44} Chinese entrepreneurs were another important group that invested in rubber early. But by far the most important group for the expanding plantation industry remained trading firms, especially British trading firms, like Guthrie or Harrisons & Crossfield. According to Jones they looked for ways to

\textsuperscript{37} Staatsarchiv Hamburg 621-1/147_2.
\textsuperscript{39} See Wieduwilt, C-H., Die Kautschukproduktion und der Kautschukhandel der Welt, Diss. Tübingen 1912, S. 64 ff.
\textsuperscript{41} For the Story of Henry Wickham see: Jackson, Joe, The Thief at the End of the World, New York 2010.
\textsuperscript{42} Loadman, John., Tears of the tree. The story of rubber-a modern marvel, Oxford 2005, p. 81ff.
\textsuperscript{43} For Ridley see: Tate, Desmond J. M., The RGA history of the plantation industry in the Malay Peninsula, Kuala Lumpur 1996, p. 193.
\textsuperscript{44} Cumming, C. M., Rubber Planting in Malaya. London 1914, p. 15 ff; Tate, The RGA history, p. 221f.
spread their risks with new products and integrated in the rubber production.\textsuperscript{45} In the case of Harrisons & Crossfield, Charles Arthur Lampard organized the investment in a former tea plantation, owned by W.S. Benett, which was supposed to be replanted with hevea trees. In 1903, the Pataling Rubber Estates Syndicate Limited was founded, in which H&C held shares, and for which they acted as agents and secretaries.\textsuperscript{46} The trading houses provided important skills, because they linked the producers with the global market in London and helped with the financing of the project, while also managing the newly established company. They emerged from the process as ‘Agency Houses’.

This organizational innovation secured the rise of the new chain for the global rubber market. Migrant workers from India, Java or China collected rubber on the newly floated plantations, while the trading company managed the production, transportation and selling on the markets. The first plantations were ready for production in the 1910s, right when rubber prices rose due to the demand of the emerging automobile industry. Dividends of over 200\% attracted many investors from the financial market of London, who financed the expansion of rubber plantations. Next to the Malayan peninsular, Ceylon and the Netherlands East Indies experienced a boom of investments.\textsuperscript{47} In the Giacomin region, a cluster emerged which supported the expansion of the rubber industry.\textsuperscript{48}

However, other countries tried to establish plantations in their colonial territories as well. In the German colonies of Cameroon and Togo, the officials and entrepreneurs tried to establish plantations based on the \textit{Kickxia} tree, \textit{Manihot glazivoii} or \textit{Castilloa elastic}.\textsuperscript{49} Botanical experts believed that these rubber tree types grew better in the African climate than the \textit{hevea brasiliensis}. Experimental plantations in French and Portuguese colonies followed.\textsuperscript{50} In a short period, the production of rubber became more professional, evolved from its wild forms to an organized plantation industry, as Ross mentioned.\textsuperscript{51} Yet according to Munro, the new production from Africa failed to become competitive on the markets for different reasons: on

\textsuperscript{46} See LMA CLC/B/112/MS37783 for the agency agreement and also Harrisons and Crosfield Ltd., One hundred years as East India Merchants. 1844-1943, 1944, pp. 20ff.
\textsuperscript{47} Drabble, J. H., Rubber in Malaya 1876-1922. The genesis of the industry, Kuala Lumpur 1973.
\textsuperscript{49} Christy, 1911; Tropenpflanzer, 1899, No. 6, pp. 243ff.
the one hand, the quality of the final product could not compete with others; on the other hand, the enormous success of the British and Dutch colonies led to declining commodity prices and thus kept the African production from being competitive.⁵²

Overall, these chains were constitutive for the global rubber market at the beginning of the 20th century and remained to be so after the World War I. The wild rubber chains depended strongly on the geographic region of production. The organization of the chain shows that it was difficult for European or American consumers to push for improvements of the production. The chain of plantation rubber exhibits a different kind of organization. Through the centralization on a plantation, production could be improved. With migrant workers, the global connections of this industry expanded further. After World War I, the market for rubber changed in some way, and one can ask how much this can be understood as a process of de-globalization.

**Elements of de-globalization between 1918 and 1945**

The time between 1914 and 1945 marks a huge expansion of the natural rubber industry, while their commodity chains changed, too. Many of the plantation projects initialized in the 1910s got ready for tapping after World War I. The production of plantation rubber rose from 75,000 t in 1914 to 316,000 t in 1920.⁵³ While supply and stocks of rubber grew, the industry had to fight with the postwar recession and the economic problems of the European states after the war. Especially Germany suffered economic trouble. Since rubber was an expansive import article, the state controlled the import and export of rubber goods with the Kautschukabrechnungsstelle (Rubber Account Authority) and the Außenhandelsstelle Kautschuk (Foreign Trade Authority Rubber). This institution worked in corporation with the manufacturers and merchants to protect the rubber industry from foreign attacks. This institution marks a first form of de-globalization, as it restricted the free trading of rubber.

However, the automobile sector in the USA remained strong and, not least thanks to Fordism, expanded. The USA developed into the main consumer of natural rubber, using over 206,000 tons in 1920.⁵⁴ The new tire market allowed new firms like Goodyear and Firestone to

---


⁵³ Drabble, Rubber in Malaya, p. 220.

challenge the position of B.F. Goodrich and U.S. Rubber, as competition among these Big Four intensified. Even though the expansion of consumption was impressive, it was not enough to cover the rising supply of rubber from the southeast, which more and more displaced the wild rubber from the market. The heavy decline of rubber prices at the London and New York markets made the rubber producers worry. 55 Their interest group, the Rubber Growers Association, looked for an answer. After a voluntary production stop for their members failed to stabilize the price, they turned to the British state for help. To secure the British planting interest in Southeast Asia and the important source of dollars for the British Empire, the so-called Stevenson plan was organized.

The Stevenson Restriction Scheme aimed at supporting the rubber price by trying to control the output of the natural rubber industry. This export restriction marks a second form of de-globalization in the rubber market. 56 After a successful start, the plan collapsed and ended in 1928, but the export restrictions in the rubber market continued. With another decline of rubber prices in the Great Depression, a new scheme was planned, trying to avoid mistakes of the Stevenson plan, which did not incorporate the Dutch East Indies and manufactures from other consuming countries than Great Britain. As a result the International Rubber Restriction Agreement, first signed in 1934, controlled the export of rubber until World War II.

The Great Depression and their effects on the industrialized countries was one of the major causes for economic de-globalization, foremost the decline of trade in several countries. Autarky ambitions were another reason. Germany pursued fierce politics to attain this aim, and rubber was an important part of it. Even Hitler recognized the problem of rubber supply and made it a central objective in his Four Year Plan in 1936. 57 Even before the Führer’s orders, state institutions already intervened in the rubber chain, through new import restrictions (similar to those of the Außenhandelsstelle Kautschuk) and the development of alternatives to natural rubber. The formation of a synthetic rubber industry illustrates a third form of de-globalization in the rubber market. An economic substitute to natural rubber would make a global trade obsolete.

55 The price declined to 19 cents in New York in December 1920, while they were at 55 cents in January 1920. See. India Rubber World, 63 (Jan. 1920), p. 298.
Overall, three causes for de-globalization appeared in the global rubber market in the interwar period. What were the specific consequences, how did they affect the commodity chains as well as the global rubber market?

I. Import restrictions in Germany after the First World War

World War I and the British blockade of the North Sea cut the German Reich from the global trade networks. Especially rubber became one of the scarce materials essential for modern warfare. It was necessary in industrial applications to maintain production, but also for tires and communication (cable insulation) as well as for the building of modern weapons. The German state realized the problem and created the Kautschukabrechnungsstelle (Rubber Account Authority), which was organized in the Kriegsrohstoffamt (War Commodity Board). This institution brought together industrials, merchants and officials to coordinate the distribution of rubber in the war. Important members were Sigmund Seligman (chairman of Continental) and Alfred Weber (from the trading firm Weber & Schaer). Apart from planning distribution, they also created different plans to import rubber into Germany. Established networks were essential for the plan to purchase rubber in Brazil, smuggle it to Sweden and finally bring it to Germany. The British thwarted this plan, but it is an indication of how intact these networks remained even in the war.

Nevertheless, Germany had to suffer an enormous scarce of rubber. In 1918 the natural rubber consumption amounted to some 170 t for the whole year, while in 1913, Germany had consumed over 29,000 tons. The Kautschukabrechnungsstelle also managed the distribution of rubber. They developed a scheme based on the rubber consumption in the month before the war started. Firms could apply for rubber shipment, while the Kautschukabrechnungsstelle controlled the supplies. After the defeat of Germany, the latter remained in control of the rubber trade and the distribution to the industry. It also acted as a buyer of rubber shortly after the war, until it was dissolved in October 1919.

---

59 BArch R8720/1.
60 BArch R8721/23.
62 BArch R 3101/2257, p. 190ff.
In the period after the November revolution in 1918, several ideas for the future economic orientation circulated, even a planned economy was debated. The rubber trading firms from Hamburg criticized these ambitions and pointed to the importance of free trade. Free trade in rubber had resumed, any further restriction would harm the connection to international business partners, announced the rubber traders association of Germany to the German ministry of the economy. The manufacturers, led by their speaker Sigmund Seligmann, labelled these actions of the state as the “worst case of state controlled economy”. Nevertheless, they had to agree to establish a new institution which controlled the trading of rubber, as the new German state had enormous problems getting foreign credits or currencies.

The Außenhandelsstelle Kautschuk began its work on February 26, 1920. In the constituent meeting the representatives of the rubber industry, traders, consumer associations and the state elected Walter Lindemann to be secretary of the new institution. As former chairman of the German Association for the Rubber Manufactures, he had a broad network to rely on. Twelve members of different stakeholders formed a consulting council, with seven from the industry, including Sigmund Seligman from Continental. In the following weeks, Lindemann organized the work of the institution. An important result was that the import of rubber, and similar commodities remained free, which was confirmed by an order of the ministry for the economy on September 16, 1919.

While the Außenhandelsstelle did not affect the trading of natural rubber, it did control the import and export of several other items. The import of manufactured goods was widely forbidden. Only products that were essential for the German industry and not available on the domestic market were exempt from this restriction. The export of manufactured goods was allowed, if they did not undercut domestic prices, but the firms had to submit an application for every single export. Monthly records show the work of the Außenhandelsstelle. In January 1921 for example it allowed 5,811 applications for exports worth 43 Mio. Reichsmark, while there were only 73 applications for imports with a value of 950,000 Reichmark. These figures reveal the efforts for trading rubber products in Germany and the de-globalizing character of the institution.

---

63 BArch R 3101/2232, p. 89ff.
64 BArch R 3101 / 2232, p. 68ff.
65 BArch R 3101/2260, p. 25ff.
66 BArch R 3101/2260, p. 30.
67 BArch R 3101/2260, p. 30.
68 BArch R 3101/2260, p. 136ff.
However, the work of Lindemann and his organization was not welcomed by the industry and by the state. Several complaints and accusations can be found in the records. A part of it concerned the slow process of approval\textsuperscript{69}, another part blamed Lindemann for corruption, an alleged preference for other firms and for taking money for the revision of applications.\textsuperscript{70} Then there was trouble with state officials. While the ministry negotiated with Italy for a new trade agreement, Lindemann criticized the staff. He was against the trade agreement, arguing that it would end the German rubber industry, because Italy could then import rubber goods to Germany. He called one German official a jerk and was put to trial for that.\textsuperscript{71} As result, he was deposed from his office. Only the intervention of Seligman and other manufacturers lead to a rehabilitation of Lindemann.\textsuperscript{72} The cases shows how the German rubber manufacturers used this institution to protect their market from cheaper foreign imports and how they secured their interest.

The Außenhandelstelle Kautschuk demonstrates how the import restrictions in Germany interfered in the trading of rubber. Even though it did not interrupt the trading of natural rubber, it clearly showed the approach of the state to control global trade. The state appeared as a new actor in the commodity chain of rubber and used its power, if necessary, to govern the chain. Regardless of the problems of the institution, it also shows how big the administrative effort was. When the Außenhandelsstelle was dissolved in November 1923, it accounted for almost 200,000 approvals of import and export applications.\textsuperscript{73} Overall, the German rubber market de-globalized in this period, due to the heavy payment problems of the German republic after the war, while their supply with raw rubber actually remained intact and surpassed the level of 1913 already in 1921.\textsuperscript{74} The de-globalization effect of the Außenhandelsstelle focused on the protection of the home market for manufactured products and a decline of imports in rubber goods.\textsuperscript{75}

**II. Stevenson Restriction Scheme and International Rubber Regulation Agreement**

\textsuperscript{69} BArch R 3101/2262, p. 124
\textsuperscript{70} BArch R 3101/2263, p. 232f.
\textsuperscript{71} BArch R 3101/2263, p.41ff.
\textsuperscript{72} BArch R 3101/2263, p. 96ff.
\textsuperscript{73} BArch R 3101/2264, p. 35.
\textsuperscript{75} The import of rubber and rubber goods in 1923 accounted 22,600 t, while in 1913 more than 28, 000t were imported. See: GummiZeitung, 38 (1924), no.25+26, p. 416.
The interwar period held several problems for the plantation industry after their prosperous beginning in the 1910s. The price explosion and the expanding demand lead to the floatation of numerous plantation projects, which worked as free-standing companies, administered often by the agency houses.\textsuperscript{76} However, rubber plantations need 6-8 years till they are capable to actually produce latex. Most of the floated plantations in the 1910s had the problem that they became workable after 1916, when the demand especially for consumer products imploded.\textsuperscript{77} After the war, overproduction and the rising stocks in Southeast Asia became a serious problem for the industry. The price for rubber declined from 55 cents to 0.19 cents in the year 1920.\textsuperscript{78} At first, the planters tried to solve the problem on their own, but after their failure to voluntarily control production, the Rubber Growers Association turned to the British state for help.\textsuperscript{79}

The British Government had good reasons to help the rubber industry. First, large British investments had flown to Southeast Asia. A compilation by the U.S. Department of Commerce from 1926 shows that almost 769 million Dollars were invested in the rubber industry, over 550 million from British investors.\textsuperscript{80} Second, rubber was an important commodity to gain foreign currency, especially dollars, as America was the main consumer of rubber.\textsuperscript{81} Therefore Winston Churchill, as Secretary of the Colonies in 1921, set up a committee under the direction of Sir James Stevenson, his Commercial Adviser. The Stevenson Committee supported a restriction of production for Ceylon and Malaya, but also recommended a participation of the Dutch government. While the Dutch refused this effort, due to the problem of controlling the native rubber producer, Churchill decided to set up restrictions anyway. On November 1, 1922 the Stevenson Restriction Scheme began to control the rubber chain.\textsuperscript{82}

The plan aimed at the price of rubber and administered the local colonial government in Ceylon and Malaya to set up ordinances to install export controls. Therefore, a standard production volume was defined for every estate and territory. In a next step, the standard

\textsuperscript{76} For free-standing companies see Wilkins, Mira / Schröter, Harm G. (Ed.), The free-standing company in the world economy 1830 - 1996, Oxford 1998.

\textsuperscript{77} Lawrence, James Cooper, The world’s struggle with rubber. 1905-1931, New York 1931, p. 12.

\textsuperscript{78} India Rubber World, 63 (Jan. 1920), p. 298.

\textsuperscript{79} India Rubber Journal, 60 (Sept. 1920), p. 525, 623. and Tate, The RGA history, p. 320.

\textsuperscript{80} Figart, David Milton, The plantation rubber industry in the Middle East, Washington, DC 1925, p. 88.

\textsuperscript{81} In 1927 British Malaya Export to the United States accounted 597 Mio Dollar, over 333 Mio were rubber exports. See TNA CO 740 / 5, p.156, 452.

\textsuperscript{82} Majesty’s Stationery Office, Report of a Committee, Appointed by the Secretary of State for the Colonies to Investigate and Report upon the present: Rubber Situation in British Colonies and Protectorates, Presented to Parliament by Command of His Majesty. June, 1922.
production became restricted to a certain percentage by the Colonial Office, which published the quota quarterly. While the price in the year before the scheme was only 9 pence, the new price level aimed for a range of 1sh 3d to 1sh 6d. In the first years, the price of rubber continuously rose and reached a new high in 1925, with 3 sh. 7d in October.83 The scheme used a system of coupons, which regulated the interaction between buyer and seller and was controlled by the officials.84 As in the case of Germany, the state again became a major actor in the chain and tried to control the market.

The political implementations of this scheme were discussed controversially at the time, but these are not relevant for argumentation of this paper.85 However, while the Stevenson Restriction Scheme is clearly an indicator for a de-globalization of the rubber market, it is important to look at how the firms in the commodity chain actually dealt with this restriction. The big American manufacturers Goodyear, Goodrich, Firestone and U.S. Rubber had not invested extensively in the production process before World War I, but in part, this was about to change.

Goodyear and U.S. Rubber began to search for opportunities to invest in rubber plantations in regions outside of the restriction scheme. The rubber industry in the Dutch East Indies represented the best alternative; it expanded in the 1920s. U.S. Rubber extended their holdings in Sumatra to 88,000 acer and improved the working of their plantations, as Yacob has shown.86 Goodyear had already invested in a plantation in 1916 and expanded in the 1920s to 62,500 acer in Sumatra.87 Firestone pursued another strategy and laid their plans for Malayan plantations to rest. Harvey Firestone was one of the fierce enemies of the market restriction and planned a plantation in Liberia, which was established in 1926.88 A close friend of Harvey Firestone, Henry Ford, went one step further and built up the luckless Fordlandia in the jungle of the Amazon in 1924, to produce tires directly at the source of the rubber.89 Goodrich was the only manufacturer of the big four that stayed away from

83 Holt, Marketing of crude rubber, p. 44ff.
84 Holt, Marketing of crude rubber, p. 51f.
85 See McFadyean, Andrew, The history of rubber regulation 1934 - 1943, London 1944. McFadyean compiled this book with the International Rubber Regulation Committee to show the success of the regulation and to promote the further regulation. TNA SUPP 14, 769 / Ministry of Supply Files History of Rubber Regulations. See also Drabble, the Interwar Years, p. 171ff.
plantations. The strategies of the other actors of the commodity chain show that the restriction scheme in the British colonies did not so much accelerate de-globalization, but actually lead to additional global connections.

Because of these strategies and several other problems, the Restriction scheme was abandoned after six years, in 1928. Already before the Great Depression, the rubber industry reached a new historical low in prices. The state and the rubber producers looked for a solution and aimed for another market restriction scheme, but this time in collaboration with other nations. The International Rubber Regulation Agreement became effective in 1934 and lasted until 1943.90 This restriction was shaped by the international cooperation between the producing countries from British and Dutch colonies. Next to Sir John Campbell and V. Lowinger from the Colonial Office, two chairmen from Agency Houses, Eric Miller from Harrisons & Crossfield and Sir John Hay from Guthrie, played a big role in the International Rubber Regulation Committee. Apart from the Dutch participants (van Gelderen, Bolderhey and le Cosquino de Bussy), members from Ceylon, Siam, French Indo-China and India worked together to stabilize the rubber market. In an Advisory Panel, three representatives of the consuming countries could express their interests and information. In this panel sat George Beharrel, chairman of the Dunlop company for the British rubber consumer, Otto A. Friedrich as German representative, and Colonel A. F. Townsend for the United States, who was succeeded by A.L. Vlies (President of the Rubber Manufacturers Association). In the meetings of the committee, which were held in London, the Advisory Panel was present for specific topics of the meeting, for example production cost or consumption questions. However, they had no voice in the setting of the quotas.91

Generally, this development from the national attempt of the Stevenson scheme, to the International Rubber Regulation Agreement demonstrates the growing international cooperation between the different actors in the chain, at least in the case of plantation rubber. Smallholders and native producers were not represented in this forum, only through their colonial representatives. The policies of the IRRA discriminate against their production of rubber in several stages, with export tariffs or prohibition of replanting.92 Overall, the cooperation in the 1930s paved the way for the control of the rubber economy in the post-war

90 See Drabble, the Interwar Years, p. 56.
92 For smallholder rubber see: Bauer, Peter Tamas, The rubber industry. A study in competition and monopoly, London 1948. and Drabble, the Interwar Years, p. 203.
era, with the international cooperation in the Rubber Study Group, whose organization already took place in 1943.\(^{93}\) The case of export restrictions demonstrates that the state became an important factor in the chain, and, it shows the limited extent of de-globalization in terms of the market participants. In effect, it supported the backward integration of manufacturers around the world and brought about an international cooperation in the rubber market. A way to cope without such cooperation was the path towards synthetic rubber. Here, states supported new commodity chains to get independent of imports.

### III. Synthetic rubber and rubber in World War II

The development of synthetic rubber reaches back to the beginning of the twentieth century; it is closely related to the natural rubber market. Initial efforts were made in almost all industrializing countries, but due to the price decline after 1911 and the success of the plantation industry, these attempts stopped. Only during World War I, the German Bayer AG used its knowledge of the rubber synthesis to develop methyl rubber, which it produced in small quantities for military goods. Yet this synthetic rubber could not compete in quality and price with the natural product.\(^{94}\)

A new interest in synthetic rubber arose in the wake of the Stevenson restrictions and the price increases in 1926. Again several firms pursued the development of a synthetic alternative for natural rubber. The I.G. Farben, as successor of the Bayer AG, dismissed the methyl process and used butadiene as a new basis. The resulting product was called BUNA, as it used sodium as accelerator. Its chemical properties were similar to natural rubber, but it was inferior to it in the manufacture of typical rubber products.\(^{95}\) The massive decline of rubber prices after 1925 ended this endeavor. However, research was carried out not only in Germany. Also in the Soviet Union and the USA, several institutions worked on synthetic rubber. Du Pont was able to launch Duprene (later renamed Neoprene) in the context of the Great Depression in 1930. Their success was based on the marketing of the product as a specialty rubber. While the product could not compete with natural rubber regarding most

\(^{93}\) See the correspondence in TNA T 160 / 1257 / 1 and 2. COMMITTEES. England Rubber regulations Committee; post-war economic problems.


properties, it had better characteristics in the resistance to oil and fuel. Following the success of Du Pont, I.G. Farben pursued a similar strategy and promoted BUNA N as a specialty rubber in the United States, in corporation with General Tire.

These developments show that the research in synthetic rubber actually constituted an international exchange of knowledge, i.e. as such it was not de-globalizing. It was closely bound to the global market and dependent on the rise and decline of prices. The creation of a full substitute was not possible at this stage, neither was it wished by the main consumers. With their rubber plantations, most of the manufacturers had a good supply of rubber, and with the IRRA a nearly solid price. Only Goodrich engaged in the research for synthetic alternatives under the lead of chemist Waldo Semon. It developed Ameripol in 1940. That is why Du Pont and IG Farben aimed at the specialty market, were they had advantages against the natural product.

However, the rise of National Socialism in Germany changed the outlook. Autarky, the erection of a closed economy became an aim, and rubber was an important part in this program. Already short after the elections in 1933, the Ministry of Economy asked the I.G. Farben for production of a synthetic rubber that would work for tires. While the company was sceptic of the use of BUNA N and BUNA S, they applied for a license from DuPont. Neoprene turned out to be also not suitable for tires, so they focused on BUNA S and agreed to build a factory using massive government subsidies in the end of 1935. The rubber agreement of September between I.G. Farben and the German state in 1937 reflects the degree of governmental support, as it came on top of 90 Million Reichsmark, a tariff on natural rubber and a guarantee for purchases of the product at a fixed price. The factory in Schkopau was finished in 1937 and three additional plants were planned. Nevertheless, until the beginning of World War II, the German economy never reached the propagated degree of autarky. Even in 1939, the output of synthetic rubber was just 25,000 tons, while the imports of natural rubber until July amounted to nearly 65,000 tons. Most of the rubber imports in these years came from Malaya and Dutch East Indies, but also Brazil and Belgium were listed

---

97 Plumpe, Gottfried, Die IG-Farbenindustrie-AG, p. 356.
100 Plumpe, Gottfried, Industrie, technischer Fortschritt und Staat, p. 579ff.
102 See GummiZeitung, 53 (Sept. 1939), Nr.38, p. 996.
in the statistics, so wild rubber remained in the global economy.\textsuperscript{103} This demonstrates that the Third Reich participated in the global commodity chains of rubber until the beginning of the war. Then, the war certainly de-globalized the German territories from the global trade.

The United States became another important player in the synthetic rubber market. After the Japanese occupation of Southeast Asia in 1942, only Ceylon remained as a natural rubber producer out of Japanese control.\textsuperscript{104} This problem pushed the efforts towards synthetic rubber, which had already begun before the Japanese aggression. After the beginning of the German conquests in Europe, the United States set up the Rubber Reserve Company (RRC), which was subordinated to the Reconstruction Finance Corporation (RFC). This institution acted as a central buyer of natural rubber and build stocks in the United States. In addition, it started a campaign for scrap rubber and introduced speed limits to curb the wear and tear of tires. The RRC also promoted the synthetic rubber industry, but it was only aimed for a capacity of 10,000 tons.\textsuperscript{105} This was about 1\% of the American rubber consumption.\textsuperscript{106} The Japanese attack on Malaya accelerated these efforts. Finlay has analyzed one side of these efforts, the growing of American rubber plants. The establishment of the synthetic rubber industry, which could support the domestic demand, was the other.\textsuperscript{107}

Similar to Germany, the planers were looking for a synthetic material which could substitute natural rubber as broadly as possible. None of the American industrial products (Thiokol, Ameriopol, Neoprene) seemed suitable for this purpose. However, several U.S. firms had cooperated with the I.G. Farben and tested some samples of BUNA S in the late 1930s. Next to the already mentioned General Tire, also Goodyear and Goodrich had visited the plants in Germany and talked with the German engineers.\textsuperscript{108} The German chemical company also had a close cooperation with Standard Oil of Jersey, institutionalized in the Joint American Study Group and Company. This connection served as a vehicle to exchange patents on different research fields, I.G. in chemical research and Standard in petrochemical analysis. In October 1939, Standard negotiated with I.G. about the BUNA patents in Den Haag. Standard was successful and transferred the patents after new negotiations and some controversies in the

\textsuperscript{103} See GummiZeitung, 50 (Feb. 1936), Nr.6, p. 136f.
\textsuperscript{104} Clarence-Smith, The battle for rubber in the Second World War, p. 4.
\textsuperscript{105} See Vernon, Herbert/Attilio, Bisio, Synthetic rubber. A project that had to succeed, Westport, Conn. 1985, p. 39ff.
\textsuperscript{106} In 1942 the United States consumed more than 750.000t, See: Barron, Modern synthetic Rubbers, p. 28.
U.S. to the RFC, were it was published in a patent pool for the new synthetic rubber producers.\footnote{Howard, Frank A., Buna Rubber. The birth of an industry, New York 1947, p. 59ff.}

The RFC subsidized the new synthetic rubber industry with large sums. While in Germany the I.G. Farben was at the center of the commodity chain, in the United Stated, the rubber manufactures operated the plants and managed to increase the production level in short time. According to Streb, the different kind of contracts supported the American effort.\footnote{See Streb, Jochen, Internationale Wettbewerbsfähigkeit durch nationale Technologiepolitik? Die staatliche Förderung der Synthesekautschukproduktion in Deutschland und in den USA während des zweiten Weltkriegs, Heidelberg 2000, p. 23ff.} In 1945, almost 770,000 tons of synthetic rubber were produced and helped the Allies to win the war.\footnote{Barron, Modern synthetic Rubbers, p. 39.}

The development of synthetic rubber in the age of extreme shows that it was not just an autarky project as it was often termed. The international exchange and cooperation existed through the whole interwar period. And with the fall of Malaya, even the wild rubber industry in South America and Africa was revived and supplied crucial natural rubber to the United Stated and Great Britain, as Wilkinson has shown for Brazil and Fenske for Benin.\footnote{See Clarence-Smith, William G., The battle for rubber in the Second World War: cooperation and resistance, in: Jonathan Curry-Machado (Hg.), Global histories, imperial commodities, local interactions, Basingstoke 2013, 215ff. and Wilkinson, Xenia Vunovic, Tapping the Amazon for Victory: Brasil’s “Battle for Rubber” of World War II, Washington 2009. for Brazil and Fenske, James, The battle for rubber in Benin, in: The economic history review : a journal of economic and social history, 67 (2014), S. 1012–1034. for Benin.} So, even when World War II began, some of the global rubber chains still existed, while other were indeed cut and remained abandoned.

**Conclusion**

Globalization and de-globalization are processes that are not easy to reconstruct. This paper uses the global rubber market in the interwar period to discuss how the market was affected by de-globalizing effects. The approach of global commodity chain analysis helps to identify these global connections and their break-ups. In the case of the global rubber market, several developments threatened its global character. Especially three different forms of control and substitution appeared in the interwar period: the state restrictions to control the import and export of rubber goods, the export restrictions schemes in the plantation industry, and the
construction of domestic synthetic rubber industries. All three are evidence of de-globalizing processes.

The case of the state controls in Germany demonstrates the emergence of the state in the commodity chain. While the controls were not expanded to the import of natural rubber, they meant a lot for the rubber industry. The industry managed to use the institution as a protection against the power of foreign companies. Therefore, the restrictions had de-globalizing effects for the consumers, but the German industry remained in the global chain of natural rubber. Their main problem was in the limited possibilities for imports due to the lack of foreign currencies.

When Winston Churchill pushed the Stevenson Restriction Scheme through parliament in 1922, this also had de-globalizing effects. Nevertheless, the demand for rubber remained high in the industrializing countries, especially the United States. Therefore the governmental control of the commodity chain also lead to a further globalization of alternative producers of natural rubber. American rubber manufactures like Firestone, Goodyear and U.S. Rubber integrated backwards in rubber plantations outside the British restriction area. The failure of the restrictions had another effect: It furthered the necessary international cooperation to stabilize the market. The International Rubber Regulation Agreement demonstrated these efforts and lead to the planning of a Rubber Study Group.

Synthetic rubber, one of the autarky projects of the Third Reich, relied on the international cooperation of firms in the research and development of a substitute to natural rubber. Again the state subsidized the project and supported the establishment of a new commodity chain. However, in the interwar period, synthetic rubber could never substitute natural rubber completely. Neither Germany nor the United States turned away from natural rubber. Other commodity chains re-emerged, like with the wild rubber from the Amazon.

These findings show that it is not easy to differentiate between a phase of globalization and de-globalization in the global rubber market. Clearly, the market changed in the interwar period, but remained highly global through its actors and chains. It confirms the considerations of Osterhammel to trace several globalizations and also several de-globalizations. As the case of the rubber market reveals, these two processes often alternated. While one region de-globalized, for instance the wild rubber chains of Africa, other globalized. Often new actors and firms used these possibilities to expand and prosper, even in

-23-
de-globalizing times. The participation of agency houses in the restriction show their interest in trying to control the de-globalizing effects of trade.

Nevertheless, one interesting finding is that the state emerged as an important agent in the controlling of these chains after World War I. On the one side, states tried to protect their industries and economies, while on the other side they tried to control markets. This is an obvious change in the process of globalization, especially in the economic conditions. Therefore, a differentiation in a liberal economic form of globalization and a political economic form of globalization might be useful to include these different aspects in our reflections of this process. Further investigation of other commodity markets would help us to understand the changes in times of dwindling trade.

**Literature and sources:**

BArch (Bundesarchiv Berlin) R 8720/1

BArch R 8721/23

BArch R 3101/2257

BArch R 3101/2232

BArch R 3101/2260

BArch R 3101/2263

BArch R 3101/2264


LMA (London Metropolitan Archives) CLC/B/077/MS35983/003

LMA CLC/B/112/MS37783

Majesty’s Stationery Office, Report of a Committee, Appointed by the Secretary of State for the Colonies to Investigate and Report upon the present: Rubber Situation in British Colonies and Protectorates, Presented to Parliament by Command of His Majesty. June, 1922.

Staatsarchiv Hamburg 731-8_A 764

Staatsarchiv Hamburg 621-l/147_2

TNA (National Archives London) CO 740 / 5

TNA FCO 141 / 16253, minutes of the International Rubber Regulation Committee.

TNA SUPP 14, 769 / Ministry of Supply Files History of Rubber Regulations.


Brown, Ian (Ed.), The Economies of Africa and Asia in the Inter-war Depression, London 2014.


Cumming, C. M., Rubber Planting in Malaya. London 1914.


Figart, David Milton, The plantation rubber industry in the Middle East, Washington, DC 1925.


Gereffi, Gary / Korzeniewicz, Miguel, Commodity chains and global capitalism, Westport, Conn. 1994.


Harrisons and Crosfield Ltd., One hundred years as East India Merchants. 1844-1943, 1944.


Lawrence, James Cooper, The world's struggle with rubber. 1905-1931, New York 1931


Loadman, John, Tears of the tree. The story of rubber—a modern marvel, Oxford 2005


Morris, Peter, The American Synthetic Rubber Research Program, Philadelphia 1989


Vaas, Wilhelm., Die Kautschukwarenindustrie Deutschlands, Berlin 1921.

Vernon, Herbert/Attilio, Bisio, Synthetic rubber. A project that had to succeed, Westport, Conn. 1985.


Wieduwilt, C-H., Die Kautschukproduktion und der Kautschukhandel der Welt, Diss. Tübingen 1912.
