CAPTURING REALITY – TWO EXAMPLES OF THE INTERPLAY OF STATISTICS AND INDUCTIVE THEORISING IN THE GERMAN HISTORICAL SCHOOL OF ECONOMICS

Universität Hamburg

Fakultät für Wirtschafts- und Sozialwissenschaften

Dissertation

Zur Erlangung der Würde der Doktorin der Wirtschafts- und Sozialwissenschaften

(gemäß der Promotionsordnung vom 18.Januar 2017)

vorgelegt von

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aus Paderborn

Hamburg, Juni 2025

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Datum der Disputation: 17. Juli 2024

Danksagung

Mein herzlicher Dank gilt meiner Erstbetreuerin und Doktormutter Elisabeth Allgoewer für ihren wertvollen Rat, ihre ständige Unterstützung und ihr Vertrauen, mit denen sie mich in meiner Arbeit in den vergangenen Jahren begleitet hat.

Ebenfalls herzlich danke ich meinem Zweitgutachter Harald Hagemann für sein wertvolles Feedback und seine Anregungen auf vielen gemeinsamen Konferenzen.

Ich bin sehr dankbar für die zahlreichen Gespräche, das hilfreiche Feedback und die ständige Begleitung durch meine Kollegen und Freunde Felix Schroeter, Yannick Mangold, Ulrich Hoffmann und Kai Brüggemann.

Im Rahmen von Konferenzen, Doktorandenseminaren und Summer Schools habe ich zudem wertvolle Rückmeldungen und Anregungen erhalten. Hierfür möchte ich u.a. danken: Heinz Rieter, Muriel Dal Pont Legrand, Johannes Schmidt, Victor Bianchini, Cinla Akdere, Gianluca Damiani.

Nicht zuletzt danke ich von Herzen meinem Mann Frederick und meinen Eltern für ihre immerwährende Unterstützung, ohne die diese Arbeit nicht zustande gekommen wäre.

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The term "statistics" is typically associated, on the one hand, with a systematic collection of – mostly quantitative – *data*. Official statistics, for example, constitute an important data source to investigate the characteristics and development of (macro)economic determinants. On the other hand, statistics designates a discipline that is integral to the research field of economics. In this sense, statistics denotes a *method*. It defines a set of tools for describing and exploring data, and for drawing conclusions based on them. These tools contain graphical representation, arithmetic operations as well as mathematical probability theory. While statistics has developed into a rather standardised method that is communicated to students of economics in typical textbooks of statistics, in history, there have been manifold disputes and large disagreement about the role of statistics and the appropriateness of quantification and mathematisation in the study of the economy. Different visions and concepts of statistics were propagated by different (schools of) economists. These were shaped by different definitions of the object of investigation as well as the purpose of studies in economics, which came along with a particular epistemological understanding of the type of knowledge that can be generated in the field of economic science. This dissertation investigates two examples of the conceptualisation and use of statistics by economists in the tradition of German historical economics. The first one regards Georg Friedrich Knapp's theoretical and applied work on (social) statistics in the late 1860s and early 1870s, and his development of a "statistical mode" of economic investigation. The second example concerns Kurt Singer and Arthur Spiethoff's statistical business cycle observation in the second half of the 1920s and Singer's methodological considerations on business cycle research. The examples have in common that the economists used statsistics as an instrument for organising empirical knowledge and linked it with inductive theorising. In this way, they attempted to capture the essential characteristics of the observed social and economic phenomena.

The developments of statistics and economic research are closely linked. Early forms of statistics emerged in the 17th and 18th century in the shape of the opposing strands of German statistics and English political arithmetic. Around 1660, Hermann Conring (1606-1681) established German statistics as a discipline of systematic state description (Desrosières 1998: 19). In the 18th century, the German strand of statistics was propagated especially by researchers at Göttingen University, among them Gottfried Achenwall (1719-1772). German

statistics was conceptualised as a framework for describing a state in its multifold branches, including geographical, legal, political, economic and populational aspects. The aim of statistics was to develop a proper terminology or taxonomy with which to grasp the peculiar characteristics of each considered state. Those characteristics were usually presented in literary form; statistics was understood as a means of qualitative description. Scholars were sceptical of quantification and comparison. Both would imply the possibility to break the characteristics of different states and their branches down to similar units of observation. The proponents of German statistics, in contrast, emphasised the incommensurability of the different categories and units of observation (Desrosières 1998: 19-22). Consequently, in their view the "construction of equivalence" (Desrosières 1998: 20) was possible only to a limited extent. Moreover, from the viewpoint of German statistics, numerical description did not suffice for a proper characterisation of a state since it could only scratch its "material" surface, while failing to get to its more complex qualitative core (Böhme 1971: 22). At about the same time statistics was introduced in Germany, in England a new kind of scientific inquiry into the economy, called political arithmetic, emerged. It was inspired and developed by the works of John Graunt (1620-1674) and William Petty (1623-1687). In contrast to a holistic description of the state intended by German academic statistics, the political arithmeticians aimed to serve state administrators with practical knowledge and solutions to concrete problems. For that purpose, they developed and applied a "set of techniques […] of recording and calculation" of quantitative data (Desrosières 1998: 23). Inspired by his engagement in the natural sciences, especially in medicine, Petty wanted to implement a "strict objectivism" (Kurz 2008: 34) into the study of the economy and political affairs. For that purpose, he explicitly rejected literary expressions and "intellectual arguments" and considered only elements of the political economy that were quantitatively measurable (Petty [1690] 1986: 221). He intended to explain only those (causal) connections between the determinants of the political economy that had an analogy to the natural sciences and could be expressed in mathematical terms (Kurz 2008: 35). Due to a lack of data, political arithmeticians were concerned with the development of estimates, for example in the field of population research (Desrosières 1998: 23-24).

The year 1830 marks the beginning of an enormous increase in the availability and use of quantitative information in various fields (Porter 2001: 14). Around that time, the Belgian astronomer and statistician Adolphe Quetelet (1796-1874) set the grounds for a new science of "the society" based on the investigation of numerical data. He made conclusions about the workings of societies directly via statistical reasoning. For example, he interpreted the

mean value of a set of observations as a real object of investigation and referred to the law of large numbers and binomial distribution to support his claim of the existence of social laws. Each member of (a subgroup of) society was assigned the same mean characteristics regarding physical constitution and moral disposition. Quetelet regarded the members of a society to be determined by laws that are similar to laws in physics. This kind of quantitative statistical investigation of the society inspired by the natural sciences established itself especially in France and Great Britain. In Germany, academic statisticians resisted the idea of statistics as a numerical enterprise until the 1850s and 1860s, even though "the society" gained raising attention of German statisticians and economists as an object of scientific investigation, too. During the 1860s, a critical engagement with Quetelet's work led to a stronger implementation of numerical information into academic research also in Germany (Porter 1990: 352-354). However, the use of numerical data and statistics by German scholars diverged considerably from the concept of statistics developed in the Western European countries. German scholars refused the natural science-analogy of the society as well as an interpretation of statistical regularities as laws. In contrast, they emphasised the uniqueness of historically evolved societies. These were considered as organisms that consist of heterogenous (groups of) individuals (Hacking 1990: 382-384, Porter 1990: 361-365). These individuals are part of a cultural community, with the state as the central cultural and identity-providing authority. German statisticians and economists regarded quantitative statistics as a method of mass observation. Instead of discovering laws, statistics provided them with a means of representing the peculiarity and diversity of the people in a society (Porter 1990: 351).

This type of descriptive statistics was central to the work of the "German Younger Historical School of Economics", which dominated economic studies in Germany from the 1870s until World War I. Its members applied a holistic view of the economy and integrated into their studies the investigation of social, cultural, and political institutions. These were considered to be unique for any observed (national) economy and subject to historical change. Therefore, the economists refrained from formulating general laws of the economy. They favoured empirical research and refused deductive theorising and abstract models of the economy that were common to English Classical Political Economy (Rieter 2014: 136-137). Statistics, understood as "historical economics" (Porter 2001: 17), served the members of the Younger Historical School with a means to break out of the dogmatic confines of theoretical assumptions and instead turn to the holistic investigation of the observed reality (Knapp 1925: 326-327). The importance of statistics for economic research of the time is reflected, among other

things, in the strong link between official statistics and the academic sphere. Several professors of economics or state science were at the same time heading a public statistical office. Statistical seminars were established, the most influential one in 1862 by Ernst Engel (1821-1896), head of the Prussian Royal Statistical Office, where economists were trained in practical statistical work (Knapp 1925: 324-325). Statistics was understood primarily as a means of observing the peculiar. The notion to infer generalisable knowledge via statistical operations was viewed with scepticism (Hacking 1990: 383). That is why Porter (2001: 17) argues that for economists of the Younger Historical School "statistics was a highly empirical enterprise". Corresponding to the concept of statistics as a form of mass observation, they were concerned with the preparation and interpretation of tables. They abstained from statistical reasoning in the sense of deriving knowledge directly through means of mathematical-statistical operations and data manipulation. In part, the investigation of statistical data was guided by philosophical presuppositions, like the notion of ongoing cultural progress, as well as the belief in the reformative powers of the state. Furthermore, there prevailed some scepticism regarding the appropriateness of quantification. Some spheres of investigation, like morality, seemed to be inaccessible by numbers and incommensurable with more material categories of observation. This stance was for example taken by Gustav Schmoller (1838-1917), whose "historical-ethical" programme of economics particularly shaped the work of the economists of the Younger Historical School (Rieter 2014: 145). There were, however, also economists who attempted to develop statistics into a more formal and objective technique of socio-economic investigation. One example is Georg Friedrich Knapp (1842-1926). Knapp was one of the central figures of the Younger Historical School of Economics and a close companion of Schmoller. Yet he distanced himself partly from Schmoller's normatively framed research programme and instead represented a "'historical-realistic'"[1] (Fuchs 1926: 2) concept of economics and social sciences. The first contribution of this doctoral thesis, which is written in the form of a scientific paper, investigates Knapp's "historical-realistic" research approach and reveals that it was decisively shaped by Knapp's engagement in the development of statistics.

Knapp stood firmly on the ground of the historical and holistic concept of German statistics. That means that he shared the notion of statistics as a means of description and mass observation. His comprehensive critique of Quetelet's mechanical interpretation of social statistics (Knapp 1872) was widely read and became influential for the debate on statistics in

[1] All translations from German are by the author.

Germany (Porter 2020: 189). In contrast to some of his colleagues of the Younger Historical School, he however decidedly demanded the extension of quantitative statistical observation even to such spheres, which seemed to be reserved to philosophical investigations, like the study of the social determinants and motives of human behaviour. According to Knapp, (im)moral human behavior was decisively influenced by social and economic conditions. He thus called for a social ethics based on a comprehensive statistical investigation of the society. In Knapp's view, quantitative statistics provided a means to discover the various determinants of human action and measure the intensity of their influence. Furthermore, Knapp regarded population statistics as elementary to the social sciences. According to him, it provided insight into the physical constitution of the people, the provision with material means and distribution conflicts. While Schmoller highlighted the reconciliatory moment of an ongoing moral development of the people, Knapp pointed to the struggle for existence inherent to every society.

Knapp's ambition was to enhance the scientific rigour of the use of statistics in economics and social sciences. In his early work on statistics, he developed a theoretical foundation for the statistical investigation of population change. Therein, he defined the totalities of observation and identified their properties as well as their interrelatedness in general terms. He articulated his theory in formal-mathematical language to ensure precision and reliability. This theoretical outline was meant to serve the practical working statistician with a general framework for the investigation of specific and unique populations. Knapp's statistical work thus took up the taxonomical and ordering element of statistics that was emphasised by early German statisticians of the 17th and 18th century. Unlike his predecessors and parts of his colleagues of the Younger Historical School of Economics, Knapp however decidedly supported the further advancement of *quantitative* statistics in order to reach a higher level of objectivity, ensure completeness and precision and establish standardised procedures of investigation. Knapp's formal-mathematical treatises on statistics met with little enthusiasm by Schmoller and further colleagues. Although Knapp gave up his focus on statistics in 1874, his later work is still shaped by a "statistical mode" of inductive theoretical investigation. In his major work on monetary theory (1905), Knapp provided a detailed taxonomy of observed (historical) monetary constitutions. He developed this taxonomy as a general ordering framework for the characterisation and analysis of any kind of specific monetary constitution. While he thus accounted for the peculiarity of the observed reality, he furthermore identified its common – essential – characteristics. He adhered to specific requirements of scientific rigour, such as generality, completeness, consistency, and emphasised the formal character

of his investigation of monetary constitutions. In summary, while Knapp shared with his colleagues a historical and holistic conception of statistics, his aim was to enhance the scientific standards of its application and to link it with inductive theorising. With his engagement in statistics, Knapp thus endeavoured a reform of the work of the Younger Historical School of Economics.

The beginning of the 20th century brought about further international advances in statistical reasoning and the rise of a new combination of empirical evidence and formal theory – econometrics. Econometrics emerged in the US as well as in Europe, where the Netherlands and Scandinavia proved to be particularly fruitful environments. Compared to the statisticians of the 19th century, the pioneers of econometrics focused more strongly on deductive theory, which they regarded the central approach to gain knowledge about the workings of the economy. However, in order the be able to properly apply theoretical insights to reality it was necessary to link theory with empirical evidence. With the help of econometrics, these scholars aspired to develop new theories as well as to measure and test existing ones against reality. The endeavour to make complex theory amenable to numbers led to a considerable increase in the mathematisation of economics (Morgan 1990: 1-3, 5-6). A further progress in statistical thinking and advances in the tools of practical statistics since the late 19th century constituted a precondition for the development of econometrics. For example, the statisticians of the late 19th century had searched for ways to handle the plurality of causes of observed socio-economic phenomena by means of (mathematical) statistics. The concept of "normal distribution", as well as the methods of least squares and (multiple) regression were introduced to studies in economics (Morgan 1990: 8-10). Econmetrics became well-established by the 1940s (Morgan 1990: 2).

Next to the theory-oriented group of econometricians, in the early 20th century, there advanced a strand of empirically focused statisticians, especially in the US. The influential American empiricism was in fact inspired by the inductive and theory-sceptic style of the German Younger Historical School of Economics. Several renowned American economists had done their advanced studies in Germany in the 1870s, 1880s and 1890s. They imported the concept of a "true science" (Craver/Leijonhufvud 1987: 178) that was founded on a comprehensive observation of the (historical) reality to American economics (Craver/Leijonhufvud 1987: 176-178). However, American empiricism departed from the holistic and sociological framing of economic research and found role models for methods of statistical reasoning rather in the natural sciences, especially in chemistry and physics (Tooze 2001: 32). The goal was to infer concrete economic predictions and recommendations for action.

The development of statistics and econometrics was driven in particular in the field of business cycle studies. The pressing question of how to handle the social and economic turmoil of World War I and the successive national and international crises led to a shift from the 19th century investigations of the society and human behaviour to macro-economic studies of the interdependencies and dynamics of the overall economy. Thus, business cycle research became one of the major fields of economic investigation in the 1920s and 1930s. Econometricians like Ragnar Frisch (1895-1973) motivated their early econometric studies by the ambition to serve policymakers with means to smooth out business cycles (Louçã 1999: 409-410). In a study for the League of Nations (1939), which was one of the first comprehensive works in econometrics, Jan Tinbergen (1903-1994) puts to test existing business cycle theories. The study of business cycles was also the major concern of the proponents of American empiricism in the 1910s and 1920s. In 1917, the Harvard University established a "Committee on Economic Research" to study and advance statistical methods in economics. The committee's chief statistician, Warren Persons, developed a business cycle barometer that was internationally discussed and broadly adopted. Persons refrained from theoretical assumptions and endeavoured to construct his barometer solely based on a statistical analysis of time-series data. For that purpose, he developed and applied a method of time-series decomposition that allowed him to expose the cyclical component of the data series. The barometer consisted of a graphical representation of three indexed time-series, which were plotted together in a chart. Based on that barometer, since 1922, the "Harvard Economic Service" published a weekly newsletter, which it addressed mainly to businesspeople. It provided them with targeted information about the macro-economy and forecasts of business activity in the near future (Friedman 2009: 57-58).

In Germany, the turmoil of World War I came along with the breakdown of the Younger Historical School of Economics. Schmoller's death in 1917 and the fall of the Deutsche Reich marks the end of historical economics of his imprint. Since German historical economics pursued a holistic perspective of economic research and explicitly considered sociological and cultural questions, it was decisively hit by the cultural crisis in Germany following the breakdown of the Kaiserreich (Häuser 1994: 51). Furthermore, the style of economic and statistical research, characterised by highly specific empirical studies and scepticism towards generalising analytical statistics and "statistical explanations" (Morgan 1990: 5), was hardly conducive to providing urgently needed macro-economic explanations and policy proposals (Häuser 1994: 56). Therefore, German economists distanced themselves, to different degrees, from the programme of the Younger Historical School. The "German

Ricardians" (Janssen 2012: 38), a group of rather young economists, favoured an integration of deductive theory of the style of Anglo-American Classical Political Economy. Other German economists adhered to the holistic empirical approach of historical economics. They can therefore be regarded as representatives of a "'youngest' historical school" of economics (Schumpeter [1954] 1994: 816). However, compared to their predecessors, they endeavoured to strengthen the element of inductive theorising. During the 1920s and early 1930s, a variety of different approaches of economic research were developed. However, a new mainstream did not emerge during this period (Häuser 1994: 57-68). Since the mid-1920s, as in other countries, the work of German economists was dominated by business cycle research (Hagemann 2009: 40). Statistical studies of business cycles were driven by new research institutes, like the "Institut für Konjunkturforschung" (IfK) in Berlin and the "Abteilung für statistische Weltwirtschaftskunde und internationale Konjunkturforschung" (Astwik) at the "Königliches Institut für Seeverkehr und Weltwirtschaft" (IfW) in Kiel, which were founded in 1925 and 1926. The ambition was to engage in profound scientific business cycle research and to regularly provide political decision makers and business people with an overview of the short-run development of the economy. The practical relevance of business cycle studies made it furthermore attractive to economic journals and newspapers.

The second part of this dissertation, which is written in monographic form, investigates the business cycle reporting of the Wirtschaftsdienst between 1926 and 1930. In 1926, the economic weekly introduced a quarterly-published business cycle barometer and monthly reports on the current economic situation. The new business cycle reporting of the Wirtschaftsdienst arose as a cooperation between Kurt Singer (1886-1962), one of its chief editors, and the well-known business cycle researcher Arthur Spiethoff (1873-1957) and was based on the business cycle theory of the latter. Spiethoff belonged to those German economists who closely adhered to the tradition of historical economics. He derived his theoretical explanation of business cycles inductively on the basis of a broad empirical study of historical cycles between 1820 and the beginning of World War I. Spiethoff's theoretical work focused on the definition and investigation of "economic styles" (Wirtschaftsstile) that he considered to be bound to a specific place and time. These encompassed not only technical and material aspects of an economy but also considered its embeddedness in social and economic institutions. The theory of economic styles therefore carried on the holistic approach of German historical economics. Spiethoff identified business cycles as a characteristic element of the economic style of advanced capitalistic economies. From his empirical study he

inferred that the cyclical fluctuation of overall economic activity is typically due to disproportionalities between the production of and demand for producers' goods. He identified a small set of empirical indicators that according to him display the typical course of the model cycle. These allowed to characterise the state of the macro-economy. They built the core of the barometer of the Wirtschaftsdienst that plotted the corresponding data series in two charts. Singer emphasised that, due to its foundation on Spiethoff's theory, the barometer followed a substantial economic argumentation, which distinguished it from purely statistical barometers, like the one developed by the Harvard Committee. Spiethoff included into his business cycle explanation furthermore a psychological argument. He argued that in advanced capitalistic economies there develops a particularly strong urge for business activity that is internalised by the people. This economic spirit also follows a cyclical pattern. It is stimulated by the experience of economic prosperity and depressed in the face of economic stagnation or decline. According to Spiethoff, the occurrence of an upswing decisively depends on the development of an overall optimistic mood of the mass of business people. This sets limits to the forecasting capability of business cycle barometers. The Wirtschaftsdienst used Spiethoff's business cycle explanation as an important guideline in its reporting between 1926 and 1930, although it had to adapt some of the empirical indicators suggested by Spiethoff.

In summer 1926, Singer released an article in the Wirtschaftsdienst in which he sharply criticised the statistical business cycle observation that was published by the Berlin IfK in a newly installed quarterly issue. With this article, he initiated a dispute with Adolf Löwe (1893-1995), head of the Astwik in Kiel, about the way to conduct business cycle research and suitable theoretical explanations of cycles, which was printed in the Wirtschaftsdienst. Due to fiery attacks and personal insults on the part of Singer, the dispute escalated in autumn 1926 and broke off. Singer seemed to exaggerate in his sharp criticism and his hostile stance towards the IfK and its head, Ernst Wagemann (1884-1956). In fact, there were similarities in the practical analyses of the IfK and the Wirtschaftsdienst, which can be explained by overlaps e.g. regarding their notion of the typical course of the cycle and a decidedly empirical foundation of business cycle research. Possible explanations for Singer's harsh critique lie in the sphere of strategic considerations and personal interests. Spiethoff perceived the IfK as a competitor for influence on the institutionalisation of business cycle research in Germany and Singer sided with Spiethoff (Kulla 1996: 115-117, 122-123). Moreover, Singer had an interest in making himself a name as a business cycle researcher, since he had ambitions to reach a full professorship (ordentliche Professur) at Hamburg University. A central

reason for the escalation of the dispute lies furthermore in the substantial differences in the methodological convictions of all three involved parties. It was therefore a manifestation of the dispute about a proper conception of German economics as such after the fall of the Younger Historical School. Spiethoff and Singer favoured an empirical-inductive theory of the cycle and a holistic approach of economic investigation. Wagemann and the IfK were inspired by American empiricism and associated their work with the statistical approach developed by the Harvard Committee. The IfK refrained from theoretical explanations of business cycles and based their diagnoses and prognoses especially on the observation of statistical regularities of past cycles. Adolf Löwe was in favour of deductive theory as a starting point of business cycle research. Empirical data served him as a means to test theoretical explanations that were constructed ex ante by logical reasoning. A shared ambition of the statistical work of the researchers of the Astwik was to confirm Rosa Luxemburg's underconsumption theory of business cycles. They can thus be regarded "pioneers of econometrics in Germany" (Beckmann 2000: 14). Hence, the differentiation of statistics that was observable internationally at the beginning of the 20th century was also evident in statistical business cycle research in Germany. While Wagemann and Löwe oriented themselves towards different international developments, Singer and Spiethoff endeavoured to preserve a decidedly German historical and holistic concept of statistics.

The German strand of historical and holistic statistics did not prevail against mathematical statistics and econometrics. Since the 1940s, econometrics developed internationally into the dominant method of economic science. In the course of the differentiation of sciences, the characteristic features of German historical economics were dissociated from the branch of economics in a narrow sense and assigned to other strands of the social sciences, especially to sociology. However, some elements have survived to the present day. Today, we encounter features of German statistics, primarily its taxonomic and organising function, in the sphere of public statistics. National nomenclatura and classifications guide the generation and organisation of official data and provide politicians and public administrators as well as (economic) researchers with a structured and stable information base for their work. In the course of globalisation, a harmonisation of national classifications on the international scale became increasingly important. Since the late 1980s and early 1990s international organisations, especially the UN, engaged in the development of an international system of classifications (Statistisches Bundesamt 2008: 8). Harmonised classifications support, for example, the construction of multi-regional input-output-models, which are used in recent economic research to investigate international supply chain interdependencies. Furthermore, the notion

of psychological factors and the influence of expectations and the overall mood on aggregate economic activity, which was highlighted by Spiethoff, is still today considered an import determinant. The ifo Geschäftsklimaindex (ifo Business Climate Index), which is counted among the most important business cycle indicators in Germany, is based on a qualitative company survey, in which the participants are asked about their assessment of the recent business situation and their expectations of its short-term development. Information on the experiences and expectations of business people have proven to be particularly important for economic research, as behaviour and decision-making of economic actors do not follow stable patterns over time. Thus, econometric models with rigid behavioural assumptions often failed with their prognoses of the short-term development of the overall economy (Nerb/Sauer 2020: 2).

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II. G. F. Knapp's "historical-realistic" concept of the social and economic sciences and his "statistical mode" of inductive theorising

1 Introduction

Georg Friedrich Knapp (1842-1926) is one of the central figures of the "Younger Historical School" that dominated economics in Germany from the 1870s until World War I. The academic work of the economists belonging to that school was rooted in a long tradition of historicism in German economics. Characteristic of this tradition was a holistic view of the economy, which integrated, among others, social, political, legal and psychological aspects (Rieter 2014: 131). The focus of investigation was on institutions in which these aspects crystallise. The complex reality was predominantly analysed by comprehensive empirical studies and inductive theorising. Economists in the tradition of historicism were sceptical about abstract models and deductive theory. The observed reality was understood to be subject to constant change. Therefore, the results of study were tied to a specific historical time and economic constitution. They did not provide universal facts (Rieter 2014: 136).

The Younger Historical School was shaped in particular by the scientific programme of its leading figure, Gustav Schmoller (1838-1917). Schmoller favoured detailed empirical studies on specific branches, some of which even appear to be more reminiscent of historiographical than of economic studies (Herold 2019: 199). He understood economic science as a discipline of the humanities and cultural sciences and distinguished it from the natural sciences. Although Schmoller decidedly favoured empirical positivism, he remained distanced towards an extensive quantification of economics as well as the use of means of formal-analytical statistics, which were associated with methods of the natural sciences. Schmoller gave his research programme the attribute "historical-*ethical"* economics. On the one hand, the ethical perspective denoted a research interest, which explicitly included the study of human instincts and norms formation into the framework of economic research, whereby Schmoller used the term "ethical" in the sense of (cultural) psychology (Herold 2019: 212-214). Moreover, Schmoller's research programme itself contained decidedly normative elements. He assumed that in its development a nation would follow a path of ongoing progress and moral advancement. Schmoller furthermore claimed that national economics as a science was committed to moral ideals and aimed to support the state in his endeavours to social reform (Rieter 2014: 147-149).

Among the representatives of this school, Knapp occupies a special position. Although he stood clearly in the tradition of historicism, he distanced himself methodologically from Schmoller and partly rejected the "ethical" imprint of his research. In his obituary of Knapp, Carl Fuchs characterises Knapp as "one of the greatest German national economists, the most important representative of the 'historical-realistic' school, while he stood aloof from Schmoller's 'historical-ethical' one" (Fuchs 1926: 1-2).[2] In his work, Knapp aimed for a factual, objective, and apolitical investigation of economic phenomena and clearly distinguished between the role of a scientist and the role of a politician. He argued in favour of greater scientific rigour and used analytical patterns from mathematics and the natural sciences in his studies. In doing so, he questioned a strict separation of humanities and natural sciences. Furthermore, his understanding of economic science was closer to Max Weber's claim for a distinction between scientific investigation and value judgement than to Schmoller's normatively loaded research programme.

The paper investigates the "historical-realistic" character of Knapp's concept of economics and social sciences. It is argued that in order to understand Knapp's methodology, it is necessary to take a closer look at the early phase of his scientific work, in which he explicitly deals with quantitative-mathematical statistics (1865-1874)[3]. This provides insights into how Knapp reasoned for the relevance of numerical and exact description as well as a formal theoretical groundwork for practical statistics in economics and the social sciences. In his work on population statistics, he developed such a theoretical foundation of statistics. Gustav Schmoller and other companions of the Historical School viewed Knapp's focus on formal statistics with scepticism and promoted a reorientation of his research towards topics more in line with the institutional and socio-cultural orientation of the Younger Historical School. Although Knapp gave up his mathematical-statistical focus as a professor in Strasbourg, a "statistical mode" of investigation shapes his further work. It becomes apparent for example in his main publication on money theory, "Staatliche Theorie des Geldes" (State theory of money) (1905).

Like his colleagues of the Younger Historical School, Knapp argued that the study of the economy requires a broad empirical basis. He called for economics that takes the observation of reality as the starting point of investigation. He developed his methodological conviction

[2] All translations from German are by the author.
[3] This classification is taken from Bortkiewicz, who interprets Knapp's entry into Ernst Engel's statistical seminar as the beginning of the statistical period of his scientific work (Bortkiewicz 1922: 12).

in opposition to English Classical Political Economy that he rejected as dogmatic and abstract. Already as a student, Knapp was critical of English economics, specifically of its Ricardian version that he was taught by Friedrich Hermann in Munich. Knapp rejected the deductive approach to derive theoretical explanations from general assumptions (Gutmann 1926: 194). Knapp (1925: 327) remembered that in his student days "all university teaching […] was then based on conceptual dogmatics suitable to the so-called English common sense. This meagre doctrinal edifice was outdated, everything was longing for new content. Two types of content appeared: history and statistics". Both history and statistics shaped Knapp's scientific oeuvre considerably.

Knapp studied economics, chemistry and physics in Munich, Berlin and Göttingen. Through his family he was especially influenced by the natural sciences. His uncle, the chemist Justus von Liebig, had a lasting impact on his work. At the same time, he came into touch with the sphere of public administration, through his paternal grandfather who was a state councillor (Gutmann 1926: 193). In 1865/66, Knapp participated in the statistical seminar that Ernst Engel, head of the Prussian Royal Statistical Office, had established in Berlin in 1862 in order to train young scientists and future civil servants in methods of statistics (Knapp 1925: 324-325). Knapp regarded this as a welcome opportunity to turn away from deductive theoretical economics, which he was also taught by Karl Helferich in Göttingen, with whom he received his doctorate with a thesis on Heinrich von Thünen's "natural labour wage" in the isolated state (Knapp 1925: 320-321). In contrast to his university teachers, Engel significantly promoted work "with material" (Knapp 1925: 327) in German economics, as Knapp appreciatively noted.[4]

Afterwards, Knapp went to Leipzig where he became head of the Statistical Bureau of the Municipality of Leipzig (1867-1874) and gained a reputation as a statistician. Knapp's work in Leipzig displays the link of official statistics with a scientific engagement in statistics that Engel had encouraged. Knapp worked on the population census of 1867 or – as he specified it – "a measuring description of the people" (Knapp [1867] 1868) and "earned […] much deserved praise by the efficiency of his management of that office, amply proved by the excellence of what the Bureau published under him" (Schumpeter [1926] 1956: 296). Furthermore, Knapp taught statistics as an adjunct professor (außerordentlicher Professor) at

[4] Furthermore, the introduction of a seminar structure in which students were much more active in exchange with each other and with their teachers than was usually the case at universities was seen as a pioneering educational achievement (Knapp 1925: 326-327).

Leipzig University (1869-1874)[5] and published scientific monographies in which he contributed to the development of what he called the "mathematical theory of population-change" (Knapp 1874: 56). He can be regarded "one of the reformers of German official and strictly scientific statistics" (Gutmann 1926: 195).

With his statistical work, Knapp went beyond the empirical research programme that can be regarded a common denominator of the economists of the German Younger Historical School. He criticised the mere application of crude empiricism (Knapp 1868: 119) and demanded a systematic quantitative description of the social economy. He furthermore developed a groundwork for representing and analysing quantitative data in a precise and replicable way. For this he also made use of mathematics as a formal language. With his theoretical foundation of statistics, he aimed to enhance the scientific rigour of the use of statistics. He argued that in order to systematically explore the material of experience, precise terms and categories must be developed, the properties and interrelatedness of which must be laid out by the researcher. Based on these, even causal relationships could be derived from the empirical material under consideration. Knapp, however, emphasised that these revealed causalities must not be generalised since every object of study constitutes an individual and unique reality. Here the historical character of Knapp's economics becomes visible.

Knapp aimed to picture reality as purely as possible with all its peculiarities. At the same time, he regarded it the researcher's task to systematise the empirical observations and to make them thus explicable. The combination of realistic representation and systematisation in Knapp's work was highlighted by his contemporaries, like Gothein (1922: 5-6) and Fuchs. The latter states that Knapp's "art of representation resembles that of East Asian painting, whose peculiarity is stylised realism: perfect mastery and realistic rendering of details, but in stylised grouping and composition – which makes it art, not photography" (Fuchs 1922: 12).

Knapp's scientific work was furthermore characterised by a sober style and an omission of political statements. In this way he differed from many of his colleagues of German historical economics. Kurt Singer remarked that "[i]n that generation of eminent researchers who have created the face of German national economics, he is the only one who has not intervened with a word in the politics of the day" (Singer 1922: 2). Lujo Brentano confirmed that to Knapp "the world has always been only an object to write treatises about, without interfering

[5] The courses that Knapp gave in Leipzig can be found in the university's digitised historical lecture catalogue ("Historische Vorlesungsverzeichnisse der Universität Leipzig").

in their dealings" and marks this a "great difference" as compared to himself as well as to Gustav Schmoller (Brentano 1922: 4). Brentano remembers that it also took some effort to get Knapp to join the Verein für Socialpolitik. Although Knapp was politically interested and supporter of a state run by a conscientious and educated class of civil servants, he refrained from making political recommendations in his scientific work (Gutmann 1922: 16).

In 1874, Knapp was appointed to the position of a full professor (ordentliche Professur) at Strasbourg University and stayed there until his retirement in 1918. He worked for a time alongside Schmoller and Brentano (Braeuer 1979: n.pag.). In Strasbourg, Knapp initially devoted himself to agrarian-historical studies. His main work "Die Bauernbefreiung und der Ursprung der Landarbeiter in den älteren Teilen Preußens" (The liberation of the peasants and the origin of agricultural labour in the older parts of Prussia) (1887) was considered a "masterpiece and the standard work in the matter" (Schumpeter [1926] 1956: 296). With his work, he filled a gap in social and economic history. Whereas since Marx, developments in the industrial sector had been the focus of attention, Knapp provided an account of the processes of upheaval and tension between capitalist influences and socio-political countermovements in agriculture (Gothein 1922: 7).

Towards the end of the century, Knapp switched again to a different research topic and started to engage in monetary theory. His "Staatliche Theorie des Geldes" (1905) links a comprehensive presentation of historical currency systems with elements of legal history. Knapp's aim was to reveal the core characteristic – the essence – of money, which he finds in it having a state proclaimed value. His theory sparked great debate in Germany. Its critics accused it of having prepared the ground for expansionary monetary and fiscal policy that finally led to the great inflation of the early 1920s in Germany (Janssen 2012: 575). Knapp's state theory was also recognised internationally. In 1924, it was translated into English under the auspices of the Royal Economic Society. In the foreword, Knapp thanks, among others, John Maynard Keynes for his support with the translation (Greitens 2022: 196). At the beginning of his "Treatise on money", Keynes refers to Knapp's legal theory of money and argues that in all civilised societies money is "chartalist" – thereby using Knapp's peculiar terminology (Keynes [1930] 1935: 4-5). Schefold (2018: 7328) argues that Knapp's institutional approach as well as his rejection of the quantity theory of money, explaining price increases instead by real phenomena, served as a first step towards the theories of Keynes and his companions. In recent times, Knapp's money theory experiences a renaissance and is especially referred to by the advocates of Modern Monetary Theory.

Despite the apparent diversity of the three research foci, Knapp's historical-realistic method, the basis of which he laid in his early statistical studies, can be regarded as a unifying element that encompasses his entire work like a "fine and solid thread" (Fuchs 1922: 12). Gothein speaks of Knapp's work as having a "'mathematical elegance'; Knapp, who started from mathematics, has always preserved it in the way he developed concepts" (Gothein 1922: 5). Although the statistical period of Knapp's work, which has lasted barely nine years, was therefore much shorter than the subsequent periods (Bortkiewicz 1922: 12), it had a lasting effect on his later studies. For this reason, the discussion of Knapp's statistical work is valuable since it offers a deeper understanding of his entire work.

The paper proceeds in the following way. Part 2 presents two examples that illustrate how Knapp justified the relevance of quantification and precise description in economics and social sciences. To this end, it is first outlined how Knapp positioned himself in the contemporary debate on "moral statistics". Second, Knapp's arguments for the systematic integration of population statistics as the foundation of studies in the social sciences are traced. Part 3 examines Knapp's development of a theoretical foundation of practical statistics in the field of population and mortality studies. In this work, he lays the ground for his specific approach of organising empirical data and inductive theory formation, and implements requirements for scientific rigour. Subsequently, it is illustrated how this "statistical mode" of investigation shapes his "Staatliche Theorie des Geldes".

2 The relevance of quantification and descriptive statistics

Knapp understood economics as a social science, as the title of the collective volume "Einführung in einige Hauptgebiete der National-Ökonomie – Siebenundzwanzig Beiträge zur Sozialwissenschaft" (Introduction into some of the main fields of national economics – Twenty-seven contributions to the social science) (1925) highlights, in which articles on the three main strands of his work as well as personal memories are compiled. Anchoring his scientific work in the tradition of historicism, he rejected naturalistic and generalising explanations of socio-economic phenomena and focussed on (historical) institutions, in which social, political and legal developments crystallise. Schumpeter even called him "an economist of 'institutional' complexion" (Schumpeter [1926] 1956: 296). At the same time, in his early work on statistics, Knapp propagated a stronger integration of quantitative data and descriptive statistics into the social sciences.

This chapter provides two examples of how Knapp justified the relevance of quantification in the social sciences. In a debate on the use of statistics to investigate immoral human behaviour, Knapp demanded a systematic and precise statistical analysis of the behaviour of people living together in a society. Furthermore, he argued that population statistics provides an elementary physical basis for the investigation of societies, as it reflects the competition among human beings for material goods as well as respective distribution conflicts.

2.1 Moral statistics

Moral statistics was an attempt to depict and analyse normatively assessed human actions, such as crimes, suicides, marriages and births by methods of quantitative statistics. In the 19th century, scholars discussed about observed regularities in the recorded aggregate figures for different societies and over time. The observation of regularity had shaken up the common idea of the individuality of human action. While scholars agreed that the discovery of regularity in the great number of (im)moral actions disproved the notion of absolute arbitrariness of human action, there were contradictory positions as to which degree and how human action was actually determined. Hypotheses ranged from pure external determinism of action to the defence of a strong freedom of the will. These fundamental questions also affected the early debates on the social question (Soziale Frage) and considerations on social reform in Germany. Liberal thinkers supported the notion of a deterministic progressive path of development, which makes political interference with the social and economic conditions of the people insufficient or even harmful. In contrast, the proponents of social reform, above all the "Kathedersozialisten" around Gustav Schmoller, assumed that efforts of social policy are effective and in fact necessary in order to tackle the negative effects of the socio-economic transformation processes of the time and to support a moral development of the people. Therefore, moral statistics hit a nerve in Germany (Grimmer-Solem 2003: 154-155).

Common to research in moral statistics was a new focus on the study of the society, which was regraded an important explanatory factor of (regular) human action. Today, those studies which were conducted under the heading of moral statistics would rather fall into the field of empirical social research, sociological criminology and population science. Within the framework of a social explanation of (im)moral action, there were conflicting views about the interplay between the individual and the society.

Georg Friedrich Knapp commented on the works on moral statistics in a couple of articles published in 1871 and 1872. In the article "Die neueren Ansichten über Moralstatistik" (The newer views on moral statistics) (1871) – that is based on a speech held by him at Leipzig

University – Knapp traces the development of moral statistics as a dialectic process: the starting point builds a naturalistic and mechanical interpretation of the regularity in aggregate records of (im)moral action that misinterprets the role of quantitative statistics in the social sciences. It causes a reaction by a philosophical strand that rightly reveals the flaws of the naturalistic view but partly fails to identify an appropriate role of statistics in the study of moral action. As a fruitful further development of the latter strand, Knapp regards an attempt to develop an empirically based social ethics that integrates quantitative statistics as a realistic tool of investigation.

Knapp shows that the first strand was propagated by the so called "French school". Its leading figure, the Belgian statistician and astronomer Adolphe Quetelet (1796-1874), published broadly discussed works on moral statistics (e.g. Quetelet 1835). Therein, Quetelet who was inspired by the work of Laplace and Fourier applies analytical schemes of the natural sciences to the study of human behaviour (Knapp [1872] 1925: 52). From the observed regularities in the statistical records over time he concludes that human actions are considerably determined by *external* laws. He argues with the statistical law of large numbers. Only the large number of observations reveals the workings of these constant causes. These lie mainly outside the sphere of influence of the individual and are responsible for the constancy in the mean frequencies of recorded (im)moral actions. He shifts individual and social influences into the sphere of "'perturbational forces'" (cited in Böhme 1971: 103) that, however, do not disrupt the regularity in large numbers caused by the external laws, since they are only random errors that cancel each other out. The French school thus explains moral action "from external to internal"; it "perceives the consistency of the whole and therefore confines the individual" (Knapp [1871] 1925: 9). From his analysis, Quetelet furthermore infers anthropological claims. From his observation that groups of people with shared characteristics show similar crime figures over time, Quetelet concludes that the members of those groups share an equal penchant for crime, a natural inclination to act in an immoral way (Knapp [1872] 1925: 28). From the average observation, he deduces a human characteristic. He thus interprets the statistical mean as a real object of investigation (Desrosières 1998: 67).

In Germany, Quetelet's approach became widely known and discussed through the publication of Henry Buckle's "History of Civilization in England" (1857, 1861), in which the author adopts the analytical threads of Quetelet's "social physics" (Knapp [1871] 1925: 14) and takes Quetelet's "statistical fatalism" (Hacking 1990a: 126) to the extreme. Furthermore, in 1864, Adolph Wagner (1835-1917) published a treatise on moral statistics, in which he praises Quetelet's work and adopts his central arguments. Knapp comments critically that

soon after Buckle's misleading appraisal of Quetelet's work, "A. Wagner appeared in Germany to demonstrate to us once again the fashionable teachings of vulgar Queteletism in our mother tongue" (Knapp [1871] 1925: 5).

Wagner follows Quetelet's direction of argumentation from external to internal and refers to the statistical law of large numbers. According to Wagner, large data sets indicate the working of external laws that are, on an individual scale, obscured by the disturbing influences of individuality of action. These deviations are assumed to follow a normal distribution, though, and to neutralise each other in large observation sets. Wagner points out that even the accidental causes therefore show regular patterns and interprets this finding as support for the overall axiom of lawlike regularity (Wagner 1864: 7-8).

According to Wagner, free individual action can only exist to the extent that external law and regularity allows for:

> "The strangest thing, however, is that in this way we function as serving elements of a great mechanism […]. We […] believe that we can act completely free and self-determined, while we are on the whole only passively determined, while all our actions in aggregate are ruled by fixed, general causes and realise similar to the processes of the physical world order" (Wagner 1864: 46)[6]

The application of a naturalistic interpretation of statistical data to the analysis of human behaviour is criticised by Knapp as being naïve and outdated.[7] For example, he argues that Quetelet's (and Wagner's) inference from regularity in the statistical records to external determinacy of action is unjustified. While he agrees to the idea that the regular appearance of equally strong effects reveals the working of equally strong cause, it cannot be inferred whether these causes are external or internal in nature (Knapp [1871] 1925: 8).

Furthermore, Quetelet's anthropological assertions are invalid. Quetelet interprets the frequency with which a particular type of criminal action is observed as a probability of each individual to act that way and goes even so far to declare it a natural inclination to crime. In doing so, he disregards the fact that those acts that are uniformly categorised as crimes actually encompass the most divers actions, which are based on a multitude of different personal motives and purposes (Knapp [1872] 1925: 28-30). Therefore, "the position of the average

[6] However, Hanel (1997: 536) shows that Wagner himself later regarded his investigation of moral statistics, published in his study of 1864, to be too mechanistic and questioned the possibility to make strong claims about causal relations based on the statistical findings.

[7] Despite Knapp's decided critique of Quetelet's recourse to analogies of the natural sciences in his interpretation of the recorded data on immoral actions, Knapp – like many other German scholars – however appreciates Quetelet as a pioneer of a systematic quantitative study into the society (Knapp [1872] 1925: 23-25; Porter 1990: 357).

person in [the system of society] is untenable, and the connection between anthropology and the social sciences is therefore obsolete" (Knapp [1872] 1925: 36).

Knapp downplays the importance of the law of large numbers for the investigation of immoral behavior: "Statistics [can], as long as it deals with the recording of the actual alone, have no interest at all in the size of the numbers, to use the usual expression here" (Knapp [1872] 1925: 45). He thus rejects Quetelet and Wagner's statement that only the consideration of large numbers of observations delivers relevant insights for the study of societies. In Knapp's eyes, the appropriate number of observations exclusively depends on the research question or the object under investigation. Small numbers of observations are just as legitimate as large data sets. He, therefore, maintains that the regularity in large observation sets is simply one concrete statistical result of many possible ones: it all depends on the question posed (Knapp [1872] 1925: 46).

With this understanding of statistics as a tool for "recording" the peculiarities of social reality, he is in line with contemporary German statisticians, like Gustav Rümelin (1815-1889). The majority of German statisticians of that time integrated their studies into a holistic and organic understanding of the society (Hacking 1990b: 382-384), in which the individuals gain identity as members of a cultural community. They opposed a mechanistic view of the society as a collection of atomistic beings that are guided by natural laws, which prevailed in "western" European countries (Hacking 1990a: 129-132). Statistics served German statisticians as an instrument of mass observation and description, with which to account for the uniqueness of a society consisting of heterogenous (groups of) individuals (Porter 1990: 351, 361-362). Knapp in particular emphasised the genuine diversity of human beings. According to him, statistics cannot reveal laws of the society because such laws do not exist (Porter 2020: 186, 189).

As Knapp illustrates, German scholars in particular countered the Queteletian naturalistic interpretation of statistical data with a philosophical one. The philosopher and mathematician Moritz Wilhelm Drobisch (1802-1896) was one head of this German strand of moral statistics (Knapp [1871] 1925: 7). Already in 1849, he had commented on the publication of a work by Quetelet on moral statistics. Motivated by recent publications on the subject of moral statistics in the 1860s, he published the monography "Die moralische Statistik und die menschliche Willensfreiheit" (Moral statistics and human freedom of will) in 1867. He explicitly mentions Wagner's work, against whose postulate of a natural determinism of human action he opposes.

According to Knapp, the so called "German school" changed the direction of the argument as compared to the French school and explains "from internal to external". It "takes the individual as given and seeks reasons for the consistency of the whole" (Knapp [1871] 1925: 9). This becomes clear right at the beginning of Drobisch's work:

> "[M]oral statistics does indeed lead to determinism, but not to that external determinism, which makes man a mere machine part of the mechanism of nature, but to an internal psychological determinism, which without minimising the influence of the external world on our mind, nevertheless secures it a sufficient and steadily increasing independence from nature" (Drobisch 1867: IV-V)

Drobisch articulates a positive definition of freedom, namely moral freedom. A human being attains moral freedom when it directs its will and actions self-determined according to moral maxims (Drobisch 1867: 65-66). That means that will and action are indeed bound, however, not to external laws, but to the moral judgement that a human being forms through constant reflection on its own actions (in the social environment) and through education (Drobisch 1867: 80-97, 106). With this definition of human freedom as moral freedom in willing and acting, Drobisch overcomes the apparent contradiction between regularity and self-determinacy of action.

Drobisch admits that moral statistics has convincingly disproved the notion that human action is subject to an absolute freedom of will, which would imply arbitrariness of action. However, according to him, statistics can contribute nothing to the study of those inner motives that eventually determine human will and action:

> "The innermost psychic motives of the actions that it [moral statistics, A/N] registers almost completely eludes its investigation, and whether in the large quota of all the persons who are likewise capable of such actions, but nevertheless refrain from them, the inducements, or the opportunities are lacking, or the excitability is too low, or the strength of reasonable self-control restrains from the execution, – all this cannot be brought to a decision by statistical classifications" (Drobisch 1867: 55)

Although Knapp does not mention him, one can find similarities in Schmoller's contribution "Ueber die Resultate der Bevölkerungs- und Moral-Statistik" (On the results of population and moral statistics) (1871). According to Schmoller, the regularity of the recorded immoral actions results "from the constancy of spiritual-moral causes, from the fact that, as a rule, all the richness of the variegated individual life, given a number of constant overall conditions of spiritual life, is exhausted in a number of equal combinations, which must result in an equal or similar overall picture" (Schmoller 1871: 23).

Like Drobisch, Schmoller defines freedom as moral freedom, which denotes the ability to align one's own behavior to developed moral principles. Every human being has the disposition to reach moral freedom. While being initially guided by lower instincts by nature, through the interaction within the family and peer-group as well as through education and social institutions the individual develops more and more into a moral being. In this process, it is not passively influenced from the outside, but every external or internal stimulus stimulates an "inner reaction of the better man" (Schmoller 1871: 33). Within a cultural community, people reach similar stages of moral freedom. This explains the "constancy of spiritual-moral causes".

Like Drobisch, Schmoller emphasises that the statistical representations of those actions, which are regarded immoral, only show those cases in which a bad drive has prevailed. They leave at dark a large part of the individual negotiation processes of conflicting aspirations, the battle of lower with higher, moral motives (Schmoller 1871: 30). Therefore, Schmoller concludes, too, that "only a very small part of the spiritual and moral life of peoples allows statistical observation" (Schmoller 1871: 23). Consequently, other approaches of investigation and cognition are required. While Drobisch refers mainly to philosophical sources, Schmoller additionally regards psychological investigations of the human being as the basis of study in the social sciences.

Of his "Grundriss der Allgemeinen Volkswirtschaftsehre. Erster Teil" (Outline of the general theory of economics. First part) (1900), he devotes the first part to the study of human instincts and motives and the development of morality based on these. Next to neuro-psychological influences, Schmoller is especially concerned with the interaction between the individual and the society in moral development and furthermore emphasises the historical conditionality of human inclinations to act in a certain way. On this psychological basis he builds a study of organisations, like the family or the enterprise, and in a final part investigates the most abstract and aggregate socio-economic structures, such as markets. The focus on psychology to explain the formation of morality is a characteristic feature of Schmoller's historical-ethical concept. Schmoller uses the term "ethical" sometimes even synonymously with the term "psychological" (Herold 2019: 210-214).

Knapp agrees to the explanation of regularities in large numbers of (im)moral actions brought forward by the German strand. According to him, the claim "that people are very similar to each other with respect to the motives by which they are moved" is a "much more

obvious assumption" (Knapp [1871] 1925: 9) than explanations that refer to external, mechanistic causes. However, Knapp remarks that the German strand partly fails to assign an appropriate role to quantitative statistics in the study of moral action (Knapp [1871] 1925: 10-12).

In this regard, Knapp appreciates the moderate position of Alexander von Oettingen (1827-1905), a German theologist and statistician, who published a massive monography on moral statistics in 1868. Oettingen was a friend of Wagner but rejected his naturalistic arguments (Oettingen 1868: VII-VIII). Instead, Oettingen follows the line of argumentation characteristic of the German strand that explains regularities of (im)moral action by internal motives. However, he strives to make quantitative statistics an integral part of the study of morality and to develop a "social ethics on an empirical basis" (Oettingen 1868: title). Knapp marks Oettingen's work as a "highly fruitful conception of moral statistics" (Knapp [1871] 1925: 12).[8]

Oettingen propagates an "empirical and exact" (Oettingen 1868: 21) study of morality that focusses on the impact of the society on its development. He considers it wrong to conduct respective investigations predominantly on the basis of methods of the so-called speculative (philosophical and theological) sciences, that base their studies on such means as introspection and logical deduction. Instead, "realism and idealism" should "correct each other" (Oettingen 1868: 2). In this sense, he considers "reflecting and recounting to be related terms" (Oettingen 1868: XI).

Böhme argues that Oettingen doubts the duality between "idiographic humanties" and "nomothetic natural sciences", which was propagated in Germany and materialised in several Methodenstreits (Böhme 1971: 104). This separation between natural sciences and humanities also "transported quantitative and qualitative analysis to the ontological level […] by dismissing, as it were, the quantitative categories as the components of scientific thought that do not concern the "actual" and are not equal to the qualitative ones, for the humanities" (Böhme 1971: 104). This fits with Herold's observations regarding the use of statistics in Schmoller's work: "Schmoller favours moral statistics of the humanities, which, despite its quantitative material basis, proceeded primarily hermeneutically and did not want to dispense with a qualitative interpretation of human action" (Herold 2019: 196). Although

[8] While Knapp appreciates Oettingen's emphasis on quantitative statistics for the investigation of social morality, he however distances himself from Oettingen's theological framework of interpretation of the data (Knapp [1971] 1925: 12). Oettingen intends to reveal the society's shared responsibility for the immoral actions of its members, which in his view provides support for the theological doctrine of original sin (Porter 1990: 362).

Schmoller committed himself to scientific positivism and statistics, he however remained skeptical of quantitative and mathematical methods and instead "demarcated statistics into an extensive empirical research programme" (Herold 2019: 196).

Oettingen regards statistics as an auxiliary science (Oettingen 1868: 75) and a valuable complement to the more "speculative" approaches to the study of morality:

> "Precisely because of the inwardness of ethical studies and because the mental and volitional life of the individual does not seem to stand up to observation, indeed always threatens to elude the observer, to slip away from him, it must be a grateful aid to scientific research into the moral life of mankind if we can [grasp] the collective moral mass movement in a measurable and precisely determinable way […]" (Oettingen 1868: 59)

For Knapp ([1871] 1925: 14), moral statistics enables a realistic description of the moral constitution of a society. As we saw before, Schmoller takes as a starting point of his historical-ethical studies his moral philosophy or moral psychology – the motives of action of the single human being. Knapp shifts the focus to a statistical investigation on the macro scale of the overall society. This is closer to a modern approach of empirical social research. He argues in favour of a comprehensive collection and investigation of social statistics as a basis of a study of social ethics. According to him, this must be established as a spelled-out scientific procedure. Moral statistics needs to dispose of its anecdotal character and become a means of systematic analysis (Knapp [1871] 1925: 14). Conducted that way, moral statistics can serve as „an indispensable pillar of the social sciences". Due to the manifold sources of collected data, e.g. courts, prison administrations, the experiences of policemen, and parish registers, it contributes to a complete analysis of a society that "ensures that no phenomenon important of social life is ignored". Furthermore, it enables a precise analysis and measuring of influencing factors and their impact on human action:

> "By sifting and ordering the material, by its count and measurements, it represents the quantitative side of phenomena: it compares the influencing circumstances according to their intensity and thereby draws into the realm of measurement things that would otherwise be inaccessible" (Knapp [1871] 1925: 14)

While Knapp advocates a largely assumption-free statistical investigation, in contrast, Schmoller refers to certain presuppositions for the interpretation of the data of moral statistics. For example, he assumes that physical and spiritual causes of human behavior are incommensurable and thus necessarily incomparable and that physical causes are less relevant as compared to spiritual ones (Schmoller 1871: 19-22).

For Knapp, "[s]tatistics [provides] a realistic tool for recognising the society as a slowly evolving being of peculiar construction, affected by various influences" (Knapp [1872]

1925: 50). Especially since "everything is pushing towards the study of society" (14), the significance of statistics cannot be denied. As head of the Leipzig Statistical Bureau, Knapp engaged in practical statistics and edited the regular publications of the Bureau. The first issue, published in 1868, presents the results of the 1867 census of the city of Leipzig, which Knapp had worked on. In an introductory article, Knapp ([1867] 1868) commends such statistical studies and characterises the task of the census. He emphasizes that rather than a mere count of persons, the census provides a "measuring description of the people" (Knapp [1867] 1868). He compares this measuring description with a travelogue from Leipzig, which only seems less attractive to the broader public because it is expressed in numbers and tables instead of words. According to Knapp, it is, however, precisely the measuring element that makes statistics a scientific instrument, which "puts knowledge in the place of conjecture, measurement in the place of estimation" (Knapp [1867] 1868). He emphasises that this kind of scientific description of the people does not solely serve administrative concerns but provides observations of culture and social life. As an example, he highlights the housing situation in cities: In the early 1860s, compared to Königsberg in Berlin a much larger proportion of people lived in basement flats (Knapp [1867] 1868).

To sum up, in the 19th century Quetelet introduced a systematic investigation of the society by means of quantitative (moral) statistics. While in Western Europe, especially in France, an interpretation of the statistical data prevailed that took recourse to explanation schemes of the natural sciences, most German scholars distanced themselves from the Queteletian social physics. Knapp sharply criticised the natural science-interpretations of the statistical data on human behavior. In line with the German tradition of historicism, he understood statistics as an instrument to describe the peculiarities of societies consisting of diverse (groups of) individuals. At the same time, he however supported attempts for a more comprehensive statistical representation and analysis of the society that allows to grasp the behaviour of its members in a complete and precise way. He advocated the further development of moral statistics as a tool of systematic exploration of the social reality. Thereby, he partly distanced himself from Schmoller's historical-ethical concept of research. Even though, Schmoller also took recourse to the quantitative data of moral statistics, he however focused on their interpretation based on predetermined ideas about the moral development of the individual in the context of a progressing society.

2.2 Population statistics

Differences in the treatment of statistics in the social sciences between Knapp and Schmoller become visible also within the field of population research. Knapp disentangles different research foci that he finds summed up inappropriately under the heading of moral statistics. The investigation of human action attributed to shared norms, which he defines as the genuine subject of moral statistics, is often mixed up with an investigation of quantitative changes of the population. Knapp reveals this confusion in Quetelet's work ([1872] 1925). Furthermore, it is evident in Schmoller's 1871 article – as the title "Ueber die Resultate der Bevölkerungs- und Moral-Statistik" already indicates – where he explains the observed child mortality in part by a "moral obtuseness" of the working class and the laziness of the urban population (Schmoller 1871: 8).

Knapp distinguishes the society and the population as distinct objects of scientific investigation. The study of the society looks at the rules and customs of social life, which are fixed in social institutions. It accounts for the fact that "being together in society is even more than a coexistence of single persons" (Knapp [1872] 1925: 25). In contrast, population studies abstract from any social ties between people and focuses solely on their physical existence:

> "How necessary the existence of any institutions may be for life in the community, it is nevertheless justified, in a special consideration of society, to think them away altogether, and thus to conceive of men not yet as living in connection, but only as existing together. The concept of society then transitions into that of the population" (Knapp 1874: 53).

Like moral statistics, Knapp regards population statistics as an integral part of the social sciences. He justifies his claim by pointing out the materialistic influences on the formation of societies and in this regard appreciates Malthus's work on population statistics (1798) as the first to consider the development of the physical "body of society" (Knapp 1872: 243) in the social sciences (Knapp 1874: 54, 56). In his "Essay on the Principle of Population" (1798) Malthus formulates his well-known idea that a population grows at a higher rate than the means of subsistence accessible to it, which leads to the population constantly being pushed below the limit set by food availability (Malthus [1803] 1992: Book I, Chapter I). Knapp adopts Malthus's notion of a constant struggle for existence. According to Knapp, people in the late 1860s and early 1870s still face a struggle that materialises in the form of a competition for economic goods and effects the structure of the society.

With emphasising the notion of a struggle for existence, Knapp sets a counterpoint to the then widespread idea of overall progress. The idea of overall progress was supported by

different groups of scholars in different facets and considerably influenced by Charles Darwin's theory of evolution. Several liberal thinkers propagated the notion of a harmonious evolution and a *predetermined* path of social and economic progress (Grimmer-Solem 2003: 155-156). Knapp rejects the idea of a predetermined orderly development. In his critical stance, he is in accordance with his colleagues of the Younger Historical School. However, Schmoller and Brentano also link their work explicitly with the notion of a progressive development of societies that is not driven by external mechanisms, though, but instead by the development of the moral capabilities of the individual. The belief in cultural progress was also influenced by Auguste Comte's theory of history and constituted a characteristic element of Schmoller's historical-*ethical* research programme (Rieter 2014: 147).

Knapp shifts perspective away from the reconciliatory momentum in the progress of moral development to the socio-economic conflicts in society, which were in fact serious due to the upheavals in the course of industrialisation. In doing so, he does not deny that the investigation of moral and cultural progress is justified. Rather, he considers the study of the frictions caused by the availability and distribution of material goods as a necessary complement. In his view, population statistics serves as an important means of uncovering and analysing the struggle for existence in society. In the following, the different emphases of Knapp and Schmoller are highlighted.

The victory of spirit over matter

Schmoller has a rather optimistic view of the relationship between population development and economic welfare – a perspective that Schumpeter terms "populationist attitude" ([1954] 2006: 251). Schmoller regards population growth as a potential stimulus to economic growth and moral development:

> "The most important questions of culture and economics are linked to the question of population increase. All higher moral and economic development is conditioned by an increasingly dense population" (Schmoller 1871: 9)

For Schmoller "relative overpopulation […] which means such a density that is perceived as pressure given the existing living conditions and the economic prospects" is a "historical necessity, even a condition of progress" (1900: 186-187). Schmoller argues that population growth stimulates the improvement of production technology, which in consequence supports economic growth (Henßler/Schmid 2007: 107). Growing populations, furthermore, afford the development of more complex and sophisticated institutions, which enhance cultural and moral advancement. Whereas he admits that the involved processes of change neces-

sarily lead to "'dissonances'" between a growing population and experienced economic welfare, he is convinced that "'the diligent people […] can alleviate these dissonances to the degree it improves ethically, intellectually and technically'" (Schmoller 1901, cited in Henßler/Schmid 2007: 107).

Schmoller, indeed, recognises the existence of a "social struggle for existence" in which, above all, questions of "economic existence", namely the distribution of income and wealth, are fought out (Schmoller 1881: 24-25). He furthermore agrees with Knapp that the idea of a natural harmony postulated among others by early classical political economists is misleading and needs to be replaced by the picture of a "bellum omnia contra omnes" (Schmoller 1881: 41). However, he observes that this struggle has been changing its form in the course of history and became "milder and more human" (Schmoller 1881: 42). As the moral development of the people progresses, shared norms of a just distribution of economic production are developed that counteract the raw competition for economic goods (Schmoller 1881: 41-42).

He claims that whenever people enter economic exchange relationships, they necessarily form a "moral community" that functions as a reference group for judgements about a just distribution of economic means (Schmoller 1881: 26, 38). In the course of history, people have thereby come closer to an ideal of justice. Moral achievements have been fixed in social institutions. In this way, the battle between crude, selfish motives and moral maxims, that had to be fought along the way, does not have to begin anew in every generation. People can build on the "heritage of tested wisdom and justice" that crystallises "in the descended institutions" (Schmoller 1881: 49). Schmoller thus corrects the idea of a struggle for existence with his observation of a "struggle for the good and just" and asserts that in the course of history people indeed reach "higher forms of existence" (Schmoller 1881: 49-50) and approach the "victory of the spirit over matter" (Schmoller 1871: 36). Schmoller also incorporates population statistics into his broad empirical research programme. To him, for the purpose of understanding and shaping the socio-economic and cultural conditions of the people, a sophisticated method of population statistics is, however, of second rank (Schmoller 1900: 165). His focus is on interpreting statistical data in the service of social reform.

The struggle for existence

In contrast to Schmoller, Knapp attaches greater importance to the idea of a struggle for existence in the contemporary society. In different publications, Knapp emphasises Malthus's achievement in integrating population research into the social sciences. He appreciates

that Malthus's Essay shifted the focus of study from the idea of harmony and progress towards the struggle for material existence among humans (Knapp 1872: 242). While Knapp warns against a naïve adoption of Malthus's formula of geometrical vs. arithmetical growth to which "no more undeserved honour can be done than to take them at their word", he appreciates "the deeper meaning of the famous work 'Principles of population'" which aims "to reveal the cruel process of the struggle for existence in human society" (Knapp [1872] 1925: 20).

Knapp understands population statistics as a valuable tool for the analysis of the socio-economic and material conditions that people experience in the present. For him it is therefore a necessary complement to inquiries into the longer evolution of social and economic institutions. To make clear his position, he refers to Charles Darwin's famous work of 1859.[9] He argues that despite the different objects of investigation, Darwin's insights into zoology and the study of society in the social sciences indeed show parallels (Knapp 1872: 8234), which is not surprising since Darwin already built on Malthus. Knapp however explains that Darwin's work can be divided into two thematic foci. Next to the much-adopted idea of the "origin of species", which is concerned with their development or evolution, Darwin's work also considers the "coexistence of species". From the latter perspective the researcher investigates the "composition" of species coexisting at the same time in a certain area and is thus concerned with "society and compatibility" as well as "intercourse" with one another (Knapp 1872: 239-240).

Knapp (1872: 243) argues that national economists since Adam Smith have pursued the first approach in particular and investigated "what economic phenomena emerge in human society, whereby the population on which society is based is, as it were, presupposed". Those economists are considerably concerned with "history and psychology". Instead, Malthus shifted the focus to the circumstance of coexistence. He starts at a more fundamental point of inquiry and "adds a physical investigation to the economic considerations by asking how the population itself, as the body of society, comes about". As a consequence, researchers in the tradition of Malthus "are pointed more towards statistics". Schmoller's contributions can be subsumed under the first strand of research, as they focus on long-term evolution and assume an ongoing moral development of people. Grimmer-Solem (2003: 136-137) confirms that Schmoller, like Adam Smith, consciously integrated a moral philosophy into his economic research. In contrast, with his work on population statistics, Knapp follows the

[9] Darwin, Charles (1859) On the origin of species by means of natural selection, or the preservation of favored races in the struggle for life. London: John Murray.

second path that was laid out by Malthus. He considers the (statistical) study of population the "most elementary part of the social sciences" (Knapp 1874: 54).

In Darwin's work the coexistence of the species, which is the genuine link to population statistics, is characterised by an omnipresent struggle for existence: "The seemingly so calmly running landscape with its forests here and meadows there only represents the momentary state of an unceasing struggle" (Knapp 1872: 239). Knapp points out that, in fact, "the peace prevailing in nature is a bellum omnium contra omnes" (Knapp 1872: 240). In contrast to Schmoller who emphasises that this "bellum" has been contained by the moral development of the people, Knapp spotlights the distribution conflicts contemporary societies still face.

He argues that within the socio-economic field this battle realises in the shape of constant competition for economic goods, "which is nothing other than an effective form of the struggle for existence in human society" (Knapp 1872: 241). According to their role in production, people belong to different classes, which receive different shares of the production yield. For the distribution of production output, the power of the classes plays a particular role (Knapp 1872: 241). From these distribution struggles emerges the "economic structure of society" (Knapp 1872: 244). Knapp emphasises that, although a battle for existence is most obvious and severe in the lower ranks of society, the struggle for existence in fact pervades the whole society: "In short, in our civilised society there is a struggle to hold on to one's position in every class, and in the lowest class this struggle is even fought to the death" (Knapp 1872: 241).

Knapp does not become explicit about how far he believed in the actual operation of the Malthusian law, i.e. a direct link from aggregate economic output to the development of births and deaths, in his time. With the industrial take-off in Germany around 1840, high productivity gains were achieved, and per-capita income rose. As Kopsidis/Tilly (2020: 19) show, recent studies even reveal that in Germany the Malthusian trap had already been overcome in the late 1810s. It can be assumed that Knapp, as an expert in population statistics, was aware of these developments and did not simply transfer the Malthusian law to his own time. Moreover, it is unlikely that Knapp, who refrained from monocausal and naturalistic arguments, would consider Malthus's anthropological constants (need for food, reproductive instinct) to provide sufficient explanation for the development of birth and death rates (Grimmer-Solem 2003: 156-160). This view is supported by the fact that Knapp himself writes of

numerous "weaknesses […] also in the basic concept" (Knapp 1872: 244) of Malthus's work.

Still, Knapp regards population development and material scarcity, which Malthus had spotlighted, as a significant momentum for present societies. Schumpeter provides a possible explanation for his "anti-populationist attitude" (Schumpeter [1954] 2006: 252). Instead of aggregate numbers and the developments in the long run, those researchers that showed a less optimistic attitude rather focussed on the short and medium term as well as on specific classes of society that did not immediately experience an increase in economic welfare. While per capita income in the long run increased with an increase in population, the transformation processes of the industrial revolution also came along with high rates of (structural) unemployment and a strong volatility of aggregate economic performance (Schumpeter [1954] 2006: 252). The rise of per capita income was accompanied by an increase in income inequality (Pierenkemper 2015: 127). The negative and disruptive effects of transformation were broadly discussed under the heading of the "soziale Frage". Especially in the eastern part of Germany the process of transformation was slow. Many agricultural labourers were made redundant but could not be absorbed by the less industrialised economy in the eastern as compared to the western regions. As a consequence, unemployment was high and wages relatively low and unstable. This was mirrored by higher mortality rates in eastern Germany. Knapp who worked in Leipzig at that time, was confronted with the severe effects in the east of Germany (Grimmer-Solem 2003: 92-94). His diagnosis of a "cruel process of the struggle for existence" can probably be understood against this background.

In summary, Knapp's elaborations on moral statistics and population statistics and his distinction between the observation of human behaviour and physical co-existence of the people within a society already show his intention to develop statistics into a more sophisticated and differentiated instrument. In his scientific work, Knapp distanced himself from the philosophical notion of an ongoing progressive development of society, which regarded population pressure as a driver of progress, and which made an in-depth examination of the physical-material foundations of population development less relevant by shifting questions of the distribution of material goods into the sphere of spiritual and moral advancement. In contrast to Schmoller, Knapp refrained from making any policy recommendations. Instead, he aimed to advance population statistics as a scientific discipline as, to him, it built the most elementary part of the study of society.

3 Knapp's theoretical foundation of statistics and his "statistical mode" of inductive theorising

The preceding part showed that Knapp argued for a more comprehensive integration of quantitative statistics – in the sense of numerical description and systematic investigation of the statistical data – in the social sciences and revealed points of differentiation from Schmoller's research programme. This part takes a closer look at Knapp's own research on statistics and shows how it influenced his overall "historical-realistic" concept of economics and social sciences. Knapp's work on population statistics is an expression of his ambition to advance the scientific standards of the use of statistics. He developed a theory of population statistics that solved the problem of mortality measurement in general terms. It provided practical working statisticians with a systematic framework and a replicable procedure for their particular studies. Basic features of Knapp's work on a theory of statistics – especially its focus on the organisation of empirical evidence and specific requirements for scientific rigour – shaped his later research. Therefore, we speak of a "statistical mode" of Knapp's overall work. It is illustrated by the example of his "Staatliche Theorie des Geldes" (State theory of money).

3.1 The theory of population statistics

In the late 1860s, Knapp criticises that the use of statistics in German socio-economic research lacks a scientific basis. He observes that the term statistics is often used loosely to describe any attempt to gain insight into reality by referring to numbers, which are however neither recorded nor analysed systematically. A sorrow framework for statistical studies is missing: „Unfortunately, one finds the opinion, as if the statistician is only to grope around in the dark, to try at random and not to depend on anything else". Knapp explicitly refers to a line in Wagner's 1864 book on moral statistics. "There it says on page 9: 'the method' (of investigating human actions) 'is preferably handled in such a way that the observed facts are traced back to numerical values, the absolute numbers are transformed into relative ones, and statistical groupings and tables, averages, percentages and proportions are operated or calculated […]". Knapp criticises this understanding of statistics as a loose collection of statistical operations: "Can there be a more apt description of what may be called crudest empiricism?" (Knapp 1868: 119). Knapp strives to counter this crudest empiricism with the definition of a theoretical framework and a "rational procedure" (Knapp 1868: 119) of statistical investigation in the field of population statistics. For that purpose, he contributes to the development of a theory of statistics as a foundation of practical statistical studies. He

argues that the practical exploration of the data material must follow a clearly defined research question. Statistical theory has the task of clarify how the statistical material must be exploited in order to answer that research question (Knapp 1868: 2). Knapp elaborates on such a theory for the investigation of human mortality.

Statistical investigations of the problem of mortality were by no means a novelty when Knapp began his studies in the mid-1860s. "And yet the twenty-six-year-old created something principally new with his 1868 book 'Über die Ermittlung der Sterblichkeit aus den Aufzeichnungen der Bevölkerungsstatistik' (On the determination of mortality from the records of population statistics, A/N): namely the first strictly systematic theoretical foundation of 'mortality measurement'" (Bortkiewicz 1922: 11). With his work Knapp aimed to provide a "bridge" between the "given aim" and the "given material" of statistical mortality studies (Knapp 1868: 2). According to him, a sophisticated procedure of statistical investigation would transform the discipline from a mere "persuasive" to a "proving" one (Knapp 1869: IV). Bortkiewicz emphasises that Knapp was as a "researching statistician […] unsurpassed in terms of accuracy of execution and clarity of scientific objectives" (Bortkiewicz 1922: 11).

Knapp explains that the theoretical investigation of statistics begins prior to the mapping of the data material or the calculation of quotients (Knapp 1868: 3, 116). It investigates those categories and observation groups according to which the quantitative data are to be structured in order to properly answer the research question. For this purpose, Knapp introduces the term "totalities" ("Gesammtheiten") (Knapp: 1868: 5-6).

> "Thus, while practical statistics determines the size of certain totalities of the living and the dead […] by counting the registers or the lists in order to fill tables with numbers, theoretical statisticians […] examine nothing other than the conceptual properties of the various totalities, i.e. they concern themselves, as it were, with the meaning of the heads of the tables with regard to whether they are expedient for investigations into mortality" (Knapp 1868: 7)

In his theoretical examination of population statistics, Knapp investigates specific totalities defined by parameters such as age, time of birth and death. As the quote shows, Knapp's endeavour is to provide a proper framework for grouping and ordering statistical data. His use of statistics therefore shows some parallels with early German statistics of the 17th and 18th century, in which statistics was conceptualised as a means of organising knowledge (about the state) (Desrosières 1998: 19-20).

Furthermore, Knapp applies a "mathematical method" (Knapp 1868: 8). He uses mathematics as a formal language to represent and analyse the properties of the defined totalities as

well as their relationship to each other in an explicit and precise way. He argues that the mathematical-formal method enables a more certain and clearer analysis compared to developing the theory in natural language. The results of the theoretical work shall afterwards be translated into natural language (Knapp 1868: 8). Knapp indeed provides a comprehensive reproduction of his mathematically developed theory in words in his second academic study, published in 1869 (Knapp 1869: 1-36). In line with the concept of German historical statistics, he refrains from any use of mathematical probability theory. His aim is to uncover and describe the peculiar patterns of births and deaths observed for a specific population. He makes clear that statements about probabilities, in contrast, are the subject of insurance enterprises (Knapp 1868: 9).

In his 1868 publication, Knapp applies differential and integral calculus. For that, he assumes births to follow a continuous function of time and deaths a continuous function of age. Though he admits that those assumptions do not fully meet reality, he claims that those abstractions do not distort the results significantly. He provides a general formulation of the properties and connection between the "order of birth" ("Geburtenfolge") and the "order of death" ("Absterbeordnung") (Knapp 1868: 3, 7). To demonstrates the implications of his abstract analysis for practical purposes, he presents an exemplary table for recording the newborns and decedents. He illustrates, which categories need to be displayed in order to be able to make specific statements, e.g. to directly retrieve mortality according to age (Knapp 1868: 67-69).

In his publication of 1869 "Die Sterblichkeit in Sachsen. Nach amtlichen Quellen dargestellt" (Mortality in Saxony. Based on official sources) Knapp builds on the formal theory that he developed in his earlier study and applies it to data material for Saxony. His goal is to uncover that order of death according to age, which, if it had operated equally on every unit of born persons, would have caused the actually observed frequency and distribution of the real cases of death. He emphasises that the searched-for order of death is only an analytical conception and does not constitute an actual physical fact or even a law, as incidences of death do not occur with the assumed regularity (i.e. it does not apply to every unit of born persons the same order of death). The hypothetical order of death however functions as a valuable tool for scientific investigations, as it allows comparisons between different populations (Knapp 1869: 13, 18-19).

In his third book, "Theorie des Bevölkerungs-Wechsels. Abhandlungen zur Angewandten Mathematik" (Theory of population-change. Treatises on applied mathematics), published

in 1874, Knapp develops further his statistical theory. He is concerned with the assumption, which he made in his 1868 work, that births and deaths can properly be represented by continuous functions. He argues that for the specific case of the investigation of an "order of death" this assumption is suitable since "the question itself affords the introduction of the concept of continuity – one thinks of the effect of mortality as being evenly distributed over each unit of born people" (Knapp 1874: 5). However, when it comes to capturing the *actual* changes in population due to births and deaths conceptually, i.e. in theoretical terms, then the assumption of continuity disqualifies itself because it does not correspond with reality. For a more general "theory of population-change", Knapp investigates if those propositions that he formulated under the assumption of continuity of the functions of births and deaths still hold if the assumption of continuity is dropped.

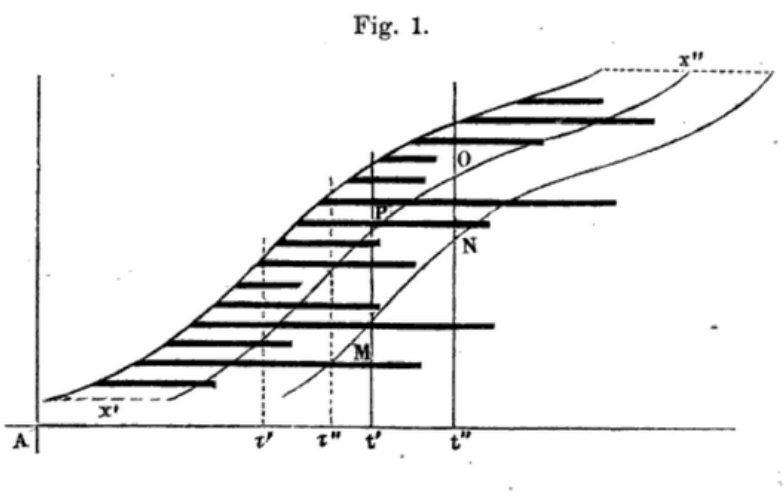

Figure 1: Geometrical analysis of population-change (Knapp 1874: 27).

Knapp (1874: 26-31) starts with presenting a geometrical analysis of population change, a method several statisticians at his time discussed. He makes use of a diagram of parallel age lines, which represent single individuals appearing, dwelling and departing from population (figure 1). Specific areas within the diagram and intersections of the age lines with added vertical lines represent the totalities of interest, e.g. the group of living beings of the same age or the group of deceased people of a certain generation. Knapp reveals that the results derived by integral calculus under the false assumption of continuous functions in fact coincide with the proper geometrical analysis (Knapp 1874: 10). This is due to the fact that – as Knapp demonstrates – the analysis of the relationship of the concerned totalities can be reformulated in such a way that the assumption of continuity becomes redundant (Knapp 1874: 25).

In his theoretical work on population statistics, Knapp created the basis for a comprehensive and systematic description and analysis of the regularities of recorded births and deaths in a particular population. With his "purely formal" method that "falls into the field of applied mathematics" (Knapp 1874: 54), he furthermore served population statistics and mortality

measurement with a substantial scientific groundwork. In doing so, Knapp went beyond a mere empirical research programme that can be regarded a common denominator of the economists of the German Historical School. While Knapp himself did not regard his formal-theoretical basic work on statistics in competition to more applied approaches and qualitative (e.g. sociological, cultural, philosophical) interpretations of the data (Knapp 1872: 240, 242), his studies on statistics faced scepticism by his colleagues Schmoller, Adolf Held and Lujo Brentano. Schmoller pushed Knapp to reorient his research. In Strasbourg, Knapp gave up his statistical focus. Herold argues that Knapp's concept of statistics resembles a modern understanding of the discipline much more than Schmoller's qualitative approach. If Knapp have had prevailed over Schmoller, German academic statistics might have had a chance to keep pace with international developments in the field (Herold 2019: 139-140).

3.2 The "State theory of money"

Although Knapp gave up the focus on statistics when he moved to Strasbourg in 1874, basic features of the method that he developed in his theoretical studies on statistics prevailed in his later work. Knapp's main publication on monetary theory, "Staatliche Theorie des Geldes" (State theory of money) (1905), published more than thirty years after his last treatise on population statistics, provides an illustrative example of how his "statistical mode" of economic research permeates his work. Knapp conducts a formal-analytical investigation of empirically observed means of payments from which he derives a general classification for the investigation of specific (historical) monetary constitutions. He implements several requirements for scientific rigour that correspond to those developed in his theory of population statistics.

In his "state theory" Knapp provides a systematisation of historical monetary constitutions in order to reveal the essence of money. He refutes the prevailing notion that the value and functioning of money depend on its being tied to a precious metal. He replaces this technical explanation of those which he calls "metallists" by a legal-historical theory of the origin and formation of monetary constitutions. The type of money as well as its nominal value are proclaimed by the state as an act of administrative law. What is essential for all historical types of money, therefore, is that they are a "creature of the legal order" (Knapp [1905] 1923: 1).[10]

[10] In this section I use my own translations based on the German-language fourth edition of Knapp's book. The English edition of 1924 contains some translations that do not reflect Knapp's analysis in all its differentiation. Furthermore, it entails abridgments, as Knapp himself regretfully noted (Greitens 2022: 196-197).

Similar to his theory of population statistics, Knapp seeks to investigate the characteristics of certain groups of observations and elaborates on how these groups are related to each other. He develops a branched systematisation or taxonomy of the different (historical) means of payment according to various criteria, such as their historical evolution, function and material composition. While the detailed categories of the lower levels of classification depict specific characteristics of individual means of payment, the categories of the upper level of the taxonomy provide insight into shared characteristics. In this way, Knapp accounts for the diversity of the means of payment, but also attempts to get to their common core. Both aspects – generality and accounting for the observed reality – are essential to Knapp's understanding of theory building. In order to develop a "general" theory of money (e.g. Knapp [1905] 1923: 20) the theorist has to go beyond a mere representation of the variety of observations:

> "Most people are satisfied with arranging the thousands of different facts on pin boxes, as scholarship does, which however is not the end of science, but only the beginning" (Knapp [1907] 1925: 258)

The theorist's task is to condense the myriads of characteristics of the various observations to a common trait, which in fact is the definition of inductive theorising. Knapp identifies money as a specific subset of all means of payment whose common characteristic is to have a state-proclaimed shape and meaning. In developing his theoretical systematisation, the researcher must at the same time be strictly oriented to the (historical) reality. This requires a close observation of the many facets of the observed (historical) means of payment, which guides the formation of theoretical terms. As we learned before, Knapp refuses a mere adoption of existing concepts from academic schools and prefers to develop his own terminology: "It is not the tradition of the school, but the shape of reality that should teach us what the essential features […] are" (Knapp [1905] 1923: 43).

According to Knapp the criterion of generality[11] requires that a theory is complete. In the case of his monetary theory that means that the developed taxonomy needs to be constructed in a way that it integrates all kinds of observed monetary constitutions. A general theory requires that "even the most difficult phenomena can be explained by them […] and that it is generalised so long, until also such incomprehensible phenomena can be put into the right

[11] As Trautwein (2003: 173) notes, the concept of generality in Knapp's theory is easy to misunderstand. Knapp does not develop a comprehensive monetary theory, as would be required from an economic science perspective. He limits his study to a mere classification and legal characterisation of money, without delivering a spelled-out value or price theory. Our paper highlights another use of the term "generality" in Knapp's work, though, namely its use to denote a formal-analytical requirement. It is in this sense that Knapp claims to have provided a general theory of money.

place and inserted into the theory" (Knapp [1908] 1925: 291). According to Knapp, a theory of money that considers only parts of the observed monetary constitutions is insufficient in various ways. First, the reliance on special cases poses the danger of misjudging the real essence of money – as in the case of the metallistic theory (Knapp [1906a] 1925: 230-231). Furthermore, an incomplete theory fails to provide explanation for parts of the historically existent monetary constitutions. Knapp claims that "[a] too narrow theory is […] always wrong, not because it does not contain anything right; but because it does not contain all that is right" (Knapp [1906a] 1925: 236).

Knapp considers the formal criteria of generality and completeness already in his theory of population statistics. He emphasises that a statistical theory of population does not focus on a specific population but offers a general framework for the investigation of all possible populations (Knapp 1869: 37). In his analysis of the living and dead he focuses on the general properties of groups defined by parameters such as of age, time of birth and death. In his 1868 treatise, he recognises that these groups constitute only a subset of all possible groups that can be defined by the respective parameters. He adds a chapter in which he specifies these – for his analysis – secondary groups ("Nebengesammtheiten" (Knapp 1868: 56)) and describes their properties and relationships.

According to Knapp, a general and complete theory of money moreover requires to be logically consistent. He argues that it is the theorist's task to find that basic idea "from which […] the legal order of the monetary system appear[s] internally consistent" (Knapp [1906a] 1925: 239). Consequently, Knapp uses logical reasoning to build his own theory. For example, he disproves the metallistic notion that the value of money necessarily depends on a real good, such as a precious metal, and can therefore only be understood in real terms, by means of a counterexample. Using a historical example from Austria, he shows that a purely paper based monetary constitution existed. It follows that it cannot be the essence of money to be tied to a real value: "[S]uch phenomena, like the pure paper money, are real; but they are only possible under the assumption of nominal value units, so the nominality of the value units is […] fixed by experience" (Knapp [1905] 1923: 13).

He furthermore argues in terms of necessary and sufficient conditions to build up his taxonomy of means of payment:

> "If we now declare: every means of payment is a commodity of exchange – this is completely mistaken, for in the course of historical development we meet with means of payment, which are by no means commodities of exchange in the proper sense of the word. It follows from this that the concept of a commodity of exchange cannot be the upper concept we are looking

> for, for not all means of payment can be subordinated to this concept. […] It is quite different with circulatory satisfaction. It is a necessary and sufficient property of every means of payment" (Knapp [1905] 1923: 2, 5)

This analytical approach and the demand for scientific rigour shows again parallels with Knapp's statistical work. In the context of population studies, Knapp criticised an unsophisticated application of statistics in the form of crude empiricism. He developed a theory of population statistics as a systematic and scientific foundation of practical statistical work. In a similar way, Knapp understands his theory of money as a means to overcome the "popular-philosophical basis" (Knapp [1908/1909] 1925: 276) of monetary studies in economics. It provides a general, rigorous, and precise systematisation that serves the researcher with a framework for the study of any kind of monetary constitution.

Knapp emphasises the formal analytical character of his work: "The theory of money cannot be represented at all without what is called formalism" (Knapp [1908/1909] 1925: 276). He draws analogies between his analysis of money and approaches in mathematics and the natural sciences. For example, he compares his systematisation of means of payment with the development of taxonomies in zoology:

> "There is a wide variety of monetary constitutions: Gold currency, silver currency – even currencies with irredeemable paper […] what do they all have in common? They must have something in common, just as a class of mammals has something in common" (Knapp [1908/09] 1925: 269)

For his taxonomy he claims that "it is quite impossible to reject the systematisation; it would be just as if lions, bears or horses were to refuse to be counted among mammals" (Knapp [1908/09] 1925: 273). This illustrates how Knapp is inspired by patterns of formal analysis from the natural sciences also when analysing monetary constitutions.

In order to be able to precisely disentangle the features of different means of payment and their relationships within his taxonomy, Knapp even develops an artificial terminology. It contains some 70 neologisms that are derived from Greek and Latin words (Trautwein 2003: 170). For example, Knapp uses the attribute "lytric" to designate phenomena that relate to means of payment. He studies different "lytric constitutions" (e.g. Knapp [1905] 1923: 10, 14, 21). Monetary constitutions are a subset of these lytric constitutions, as money is a subset of the means of payments, containing those means that share a specific characteristic – a state-proclaimed shape and meaning. In Knapp's terminology money therefore defines all "chartal" means of payment (Knapp [1905] 1923: 26). He forms this term from the Latin word "charta" to denote the character of money as an official document with a legally fixed interpretation.

This introduction of a new and complex vocabulary can be perceived as pretentious because Knapp imposes his own language on the readers and his students. Even supporters of Knapp's theory complained that his study was rather difficult to read (Trautwein 2003: 170). At the same time, however, it fits the image of Knapp as a scientist who, in his theoretical work, strove for utmost precision and clearness of expression. Gothein comments in this regard: "Knapp has always shown a delight in exact enlivenment of concepts, which expresses itself, already in that first writing [his dissertation thesis on Thünen, A/N], in the coining of new terms. In his state theory of money, as is well known, he went to the limits of the possible" (Gothein 1922: 7). Knapp recognises "with some regret" that thereby "I have surrendered the merits of a praiseworthy style of writing", which, in his eyes, is however outweighed by "the greater merit of a theoretical treatment" (Knapp [1905] 1923: VI-VII). Knapp is self-content that his theoretical systematisation of monetary constitutions provides a universal taxonomy applicable to various countries. He has the vision that his terminology would also find its way into international research: "Whether one could have formed the new expressions in German language, I do not know. It seemed to me much more important for this field of knowledge, which has nothing national about it, to create expressions that can easily pass into any language, because, as I admit, they are scholarly and not popular" (Knapp [1905] 1923: VI-VII).

Knapp furthermore highlights the necessity of objectivity on the part of the researcher. In his view, the metallists made a major mistake in building their theories on the basis of a desired constitution of money (Knapp [1907] 1925: 258). In fact, at the time the "state theory" was published, the debate on monetary theory was inextricably linked to an evaluation of its policy implications (Essen-Schmidt 1922: 14). Knapp wants to break this connection and separate the scientific investigation of money from any recommendation of a certain monetary constitution. He emphasises that the theorist's task is to consider all historically observed forms of money in his investigation. This also includes those forms, like pure paper money, which are discredited and neglected by the metallists, "because even the worst money still belongs to the theory, since it has to be money in order to be bad money" (Knapp [1905] 1923: 1). The task of the theorist is to objectively reveal the properties of the observed constitutions of money and their shared features. In doing so, he shows how certain constitutions came about and how they function, without making a value judgement or recommendation. He emphasizes that his State theory of money is therefore value-neutral in the sense of Weber's distinction between "is" and "ought":

> "May I add a comment on the criticism from which the "state theory" has suffered?

> A conflict of basic views comes to light. One is accustomed to organizing theoretical economics in such a way that it promotes the achievement of certain goals through general propositions; it is therefore at the service of the ought. On the other hand, the 'state theory' aims to describe a legal development that is before everyone's eyes and to say what its basic idea is; it is therefore at the service of what is – as one witty man put it in a letter (Max Weber)" (Knapp [1906b] 1925: 252-253)

Knapp was overall reluctant to formulate concrete policy recommendations. He was however aware that his state theory lays the ground for some provocative interpretations and knowingly accepted this risk. His monetary theory implies that the state has the possibility of unlimited money creation. Knapp does not discuss the potential problems of a too expansive monetary policy on the development of prices and does not reflect the possibility that the state abuses its power for fiscal purposes. Therefore, Fuchs's claim that Knapp's work resembles a "sober, strictly objective, entirely unbiased observation and presentation of facts" (Fuchs 1922: 12) appears to be exaggerated. Greitens explains that Knapp had a strong trust in the state to uphold the legal order and enforce economic stability. In Knapp's eyes, economic stability required a balanced national budget and a stable exchange rate[12] (Greitens 2022: 194-195). Knapp was therefore in fact against an excessive expansion of money supply. However, he refused to intervene directly in political decision-making and instead trusted that the appropriate policy would prevail (Brentano 1922: 4).

To sum up, central features of Knapp's approach to investigate historical monetary constitutions can be traced back to his work on statistics. With the development of a theoretical foundation of (population) statistics, Knapp endeavoured to provide applied studies with a systematic framework for organising empirical knowledge. In his "Staatliche Theorie des Geldes" he pursued a similar goal. His taxonomy of (historically observed) means of payments provides a framework for categorising and investigating real existing monetary constitutions. This organisational aspect was rooted in early German statistics and particularly shapes Knapp's understanding of statistics. Therefore, we spoke of a "statistical mode" of investigation in Knapp's overall work. In his monetary theory, Knapp furthermore adhered to a formal-analytical style and implemented requirements of scientific rigour, which he emphasised already in his statistical work. He endeavoured an inductively derived general and complete theory that allows to study every specific monetary constitution. He demanded consistency and introduced an invented terminology to reach utmost precision. While he

[12] When it comes to a suitable monetary constitution, Knapp concludes from his theoretical investigation that metal money has no particular advantage for domestic payments. However, on the international level, a system of currencies based on the same precious metal can facilitate the stabilization of exchange rates, for example through arbitrage mechanisms. Therefore, a metal currency is indeed attractive for a state administration (Knapp [1905] 1923: 240-243, 276-277).

stressed the objectivity of his research, his considerable trust in a benevolent and rational state let him however ignore problematic (policy) implications of his theory.

4 Conclusion

The starting point of our investigation was the claim that Georg Friedrich Knapp pursued a "historical-realistic" concept of economics and social sciences, which is characterised by his ambition for an objective, factual and apolitical empirical investigation of the economy and the society. It was argued that this ambition distinguished him from other economists of the Younger Historical School of Economics who adhered closer to Schmoller's normatively framed "historical-ethical" research programme. It was stated that Knapp laid the basis for his "historical-realistic" approach in his early work on statistics. In order to get a deeper insight into Knapp's vision of statistics we referred to his essays on moral statistics and his own research in statistical population studies. These reveal that, to Knapp, statistics was a necessary means to capture the economic and social reality of the people as purely as possible and to describe and structure the empirical evidence in a systematic and precise way, without being guided by any presuppositions.

Knapp's essays on moral statistics show that he shared a historical and holistic understanding of the society that was propagated both by German statisticians and the economists of the German Younger Historical School. Knapp rejected the atomistic and mechanical interpretation of the data of moral statistics that was pursued in Western European countries. He regarded statistics as a means of mass observation and description of the peculiarities of an observed social economy. Contrary to some of his colleagues of the Younger Historical School, Knapp demanded a more comprehensive and systematic investigation of quantitative data on immoral actions collected from manifold official sources. To him, this was necessary to arrive at a complete and precise picture of the ethical constitution of a society and to learn about the relative strength of various (societal) influencing factors on the behaviour of the people. In contrast, Schmoller questioned the significance of a broad and methodologically sophisticated statistical inquiry into human behaviour. According to him, the dominant – spiritual – motives of action were merely accessible via statistical investigations. Instead of comprehensive social statistics, he set an investigation of the psychological processes of the *single* human being as a starting point of the study of (the development of) social norms and institutions. Furthermore, Knapp defined population statistics as an elementary discipline of the social sciences, as it allowed to study the physical-material conditions of the people within a society. The study of the (regularities of) recorded births and

deaths illustrated the struggle for material existence that people experienced in their everyday lives. It was a necessary complement to those studies that focus on the moral and cultural progress of societies in the long run. Schmoller, instead, emphasised the latter, philosophical notion of ongoing progress. According to him, this led to economic distribution conflicts being more and more attenuated and replaced by shared norms of a just distribution of economic goods. This argument diminished the importance of population statistics as a means of systematic investigation of the material conditions of a society. Schmoller's focus was on interpreting statistical data in the service of social reform and long-run social development.

Knapp's own work on population statistics illustrates his ambition to enhance the scientific rigour of statistical investigations. Knapp criticised the anecdotal and unsystematic use of statistics by German economists. In his formal-mathematical theory of population statistics he developed a systematic framework for organising the recoded data on births and deaths, which enabled the researcher to answer well-defined research questions. He defined totalities of observation and characterised their properties and interrelations in general terms. With his formal treatises, Knapp went beyond a mere empirical research programme that can be regarded the common denominator of the economists of the German Historical School and pushed into spheres, which were associated with the exact sciences. His theoretical studies on statistics faced scepticism by his colleagues of the Younger Historical School. Although Knapp shifted his focus to completely different topics after 1874, central conceptual features of Knapp's later work can be traced back to his work on statistics. They constitute his "statistical mode" of investigation. This is illustrated by the example of Knapp's "Staatliche Theorie des Geldes". As with his theory of population statistics, Knapp endeavoured to develop a framework for classifying and investigating empirical knowledge. His inductively derived taxonomy of means of payments should provide a foundation for the investigation of all kinds of real existing monetary constitutions. He adhered to a formal-analytical style and requirements of scientific rigour, such as generality and completeness, which he emphasised already in his statistical work. He strictly separated the role of the researcher and the politician and refrained from giving any policy advice. While he claimed the objectivity of his research, his considerable trust in a benevolent and rational state let him however ignore problematic implications of his theory.

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III. Business cycle statistics in the German Historical School of Economics – The business cycle reporting of the "Wirtschaftsdienst" from 1926 to 1930

1 Introduction

In 1926, the Hamburg based economic weekly "Wirtschaftsdienst. Weltwirtschaftliche Nachrichten" introduced a regular statistical business cycle reporting, including written reports and a statistical barometer, which was based on the work of the renowned business cycle researcher Arthur Spiethoff. At the beginning of the 20th century, business cycle research played an important role in economics internationally. In Germany, since the mid-1920s business cycle theory and empirical business cycle research considerably determined the work of economists (Hagemann 2009: 40). The manifold disruptions brought about by World War I caused massive economic problems that led to a shift in topics discussed in German economics and supported a turn to a macro-economic perspective of investigation (Hagemann 2009: 37-38; Häuser 1994: 56). The research of the Younger Historical School of Economics, which had dominated German economics from the 1870s to World War I and which had been strongly influenced by the programme of Gustav Schmoller, had focussed on individual empirical studies and integrated sociological and cultural aspects into the study of the economy. With this approach, economists were hardly capable of providing precise explanations of the macro-economic disruptions and policy advice urgently needed to face the broad challenges of the 1920s (Häuser 1994: 56).

While before the war, mainly theoretical investigations of crises and wavelike fluctuations of overall economic activity had been carried out, in the 1920s economists focussed on statistical studies of business cycles. Business cycle statistics set lasting impulses for the development of quantitative economic research and statistics, both through the construction and discussion of methods of (mathematical) statistics and econometrics (see for example Morgan 1990) and through the further institutionalisation of quantitative economic research (for the case of Germany see for example Beckmann 2000, Kulla 1996, Tooze 2001). The foundation of influential institutes for business cycle research in the USA, like the Harvard Committee on Economic Research in 1917 and the National Bureau of Economic Research in 1920, attracted considerable international attention and supported this development. The US institutes established the image of business cycle research as a modern discipline serving a broad public interest (Janssen 2012: 336-338). This offered the "chance of positive self-

promotion" (336) of business cycle research that was also taken up in Germany. In 1925, the "Institut für Konjunkturforschung" (IfK) started operating in Berlin. It was founded by Ernst Wagemann (1884-1956), head of the "Statistisches Reichsamt", who also took charge of the new institute. His former colleague at the Statistisches Reichsamt, Adolf Löwe (1893-1995), established the "Abteilung für statistische Weltwirtschaftskunde und internationale Konjunkturforschung" (Astwik) at the "Königliches Institut für Seeverkehr und Weltwirtschaft" (IfW) in Kiel that began its work in 1926. Both institutes had a decisive impact on the development of business cycle research in Germany in the interwar era. Their work also gained international attention.[13]

One proclaimed purpose of statistical business cycle analysis was to link scientific research with political and economic practice. The researchers did not only aim to serve academic discussion but furthermore addressed decision-makers in the sphere of politics and business. This led to the construction of numerous statistical barometers, which were meant to provide these decision-makers with a lucid and easily comprehendible picture of the current economic situation. The purpose to serve business people with tailored information on the economic situation made statistical business cycle research also attractive to economic journals like the Hamburg-based "Wirtschaftsdienst. Weltwirtschaftliche Nachrichten".

The weekly was founded in 1916. Since 1923, it was published by the Hamburg "Welt-Wirtschafts-Archiv" in cooperation with the IfW in Kiel (Leveknecht 1998: 18, 22). It reported on and discussed current economic topics from Germany and broad. The first part of the weekly consisted of usually four to five articles (each comprising two to four pages), which discussed developments in specific economic branches as well as current economic, financial and monetary policies. These articles were followed by regular country reports and data tables on the world-economic situation. Kurt Singer (1886-1962), co-chief editor of the Wirtschaftsdienst[14], aimed to make the weekly a "semi-academic German analogon of the London *Economist*" (Singer 1951: 3 footnote 1). For this purpose, he even won John Maynard Keynes who gave him the exclusive right to publish the articles he released in England in the Wirtschaftsdienst (3 footnote 1).[15] Singer's aim was to make results of scien-

[13] The fact that the Astwik was supported considerably by the Rockefeller Foundation highlights its international reputation (Hagemann 2009: 40–41).
[14] From 1920 to 1923 and 1926/27, he shared the position with Paul Heile (Wirtschaftsdienst (n.Y.), retrieved from: https://www.wirtschaftsdienst.eu/historie-chefredakteure.html (last access 23 May 2025)).
[15] Between 1920 and 1932, the Wirtschaftsdienst published 51 articles written by Keynes. These have been published in Keynes, John Maynard (2016) Gesammelte Artikel im "Wirtschaftsdienst" von 1920 bis 1932, edited by Biesenbender, Kristin et al., Marburg: Metropolis-Verlag.

tific research accessible to economic and political decision makers. Accordingly, he characterised the weekly in 1926 as being "in its attitude faithful to the spirit of scientific research; in the selection of its subjects and in the form if its presentation always mindful of the fact that it wants to be held and read by the industrialist and the worker, by the merchant and the civil servant, by the banker and the capital investor" (Singer 8 January 1926: Geleitwort). Singer himself embodied the link between science and practice. Next to his position as chief editor of the Wirtschaftsdienst, he worked as a lecturer for economics at Hamburg University.

In 1926, Kurt Singer, together with the well-known German business cycle researcher Arthur Spiethoff (1873-1957), introduced a regular business cycle reporting in the Wirtschaftsdienst that was based on the research of the latter. It consisted of a quarterly published "Wirtschaftsbarometer" (Economic barometer) and reports "Zur Lage" (On the current situation)[16], which were published on a monthly basis[17]. The reports Zur Lage and the Wirtschaftsbarometer constituted complementary pillars of the business cycle reporting of the Wirtschaftsdienst form 1926 until 1930. Both types of articles made use of Arthur Spiethoff's work on business cycles as an important guideline for the analysis and interpretation of the current economic situation. In his inductively derived theory, Spiethoff identifies business cycles as a characteristic element of advanced capitalistic economies. From a comprehensive empirical study of historical cycles, he infers that the cyclical fluctuation of overall economic activity is typically due to disproportionalities between the production of and demand for producers' goods. He identifies a small number of empirical indicators, which, according to him, make it possible to precisely characterise the state of the macro-economy. These built the core indicators of the Wirtschaftsbarometer. The reports Zur Lage complemented the results of the Wirtschaftsbarometer with a more comprehensive empirical analysis of the recent economic situation as well as an extended reference to Spiethoff's theoretical arguments.

Soon after the first release of the Wirtschaftsbarometer, the authors however had troubles to interpret Spiethoff's statistical indicators as they deviated from the expected course. Setbacks in the construction of business cycle barometers were in fact not uncommon at this time. One reason was that researchers faced problems of data availability and data quality (see for example Singer 1928: 325, 1932: 4). In this regard, Germany was lacking behind

[16] Unless states otherwise, the translations from German are by the author.
[17] Since the second half of 1928, the reports were published less frequently. In 1929 and 1930, only two reports were published in each year.

when compared to the US and Great Britain. While in these countries industrial censuses were conducted on a regular basis, there was hardly any production data accessible to German official statistics in the 1920s (Tooze 2001: 129-130).[18] Furthermore, many of the statistical instruments were constructed based on observations of the pre-war cycles. The regular sequence of ups and downs of economic activity, experienced in the 19th century up to World War I, had however been severely disrupted by the war and subsequent structural crises. Due to these reasons, the researchers had difficulties to find suitable reference values for assessing the numbers observed in the 1920s. The authors at the Wirtschaftsdienst used the more extensive reports Zur Lage to provide possible explanation for the deviations of the statistical indicators from the model course of the cycle. This allowed them to stick to Spiethoff's business cycle theory, while reconsidering his statistical indicators.

So far, the Wirtschaftsbarometer has been discussed only superficially and in part inaccurately in the literature. The most comprehensive discussion to date has been provided by Bernd Kulla (1996).[19] Kulla sets the introduction of the business cycle reporting by the Wirtschaftsdienst in the context of personal motives and potential conflicts surrounding the institutionalisation of business cycle research in Germany. He traces valuable insights from archive sources such as personal correspondences. However, he remains superficial and imprecise in his characterisation of the Wirtschaftsbarometer. Furthermore, he makes little reference to the reports Zur Lage. One of the aims of our study is to classify the Wirtschaftsbarometer more precisely in conceptual terms and to reveal the reports Zur Lage as a constituent part of the business cycle reporting of the Wirtschaftsdienst.

While economists in the 1920s agreed that a lack of reliable data and the existence of structural crises aggravated the study of business cycles, there was considerable disagreement about suitable methods of statistical analysis and the construction of business cycle barometers. The Wirtschaftsdienst became the scene of a dispute about the appropriate way to select and analyse relevant data on the short-run course of overall economic activity. In summer 1926, Kurt Singer took the release of the first issue of a quarterly publication of the IfK in May 1926 as an opportunity to sharply criticise the work of the Berlin institute in an article

[18] Tooze (2001: 55-60) attributes this, among other things, to the fact that in Germany, already since the Wilhelmine era, private companies had been able to assert their interest in keeping data secret rather than disclosing it for the public interest.

[19] Moreover, Janssen (2012) and Köster (2011) refer to the statistical barometer introduced by Spiethoff and Singer and/or the dispute between Singer and Löwe on the appropriate method of business cycle research in their overviews of the history of business cycle research in Germany in the 1920s and early 1930s. Schönhärl (2009) discusses the influence of Singer's affiliation with the George circle on his work as an economist and the construction of the Wirtschaftsbarometer.

published in the Wirtschaftsdienst. With his critique, Singer initiated a dispute with Adolf Löwe in Kiel that was published in a series of Wirtschaftsdienst articles in summer and autumn 1926. It escalated due to personal insults from Singer and was broken off in November 1926.

In the dispute, different dimensions overlapped. Most obviously, the dispute reveals different approaches of data-based business cycle analysis of the involved parties. The IfK published no less than eight statistical barometers to provide a detailed overview of different branches of the economy. From the statistical patterns of past cycles, the researchers endeavoured to make claims about the current situation as well as the developments in the near future. In contrast, Spiethoff derived from his business cycle theory mainly two empirical figures that, in his view, served as indicators for the situation of the overall economy. While these, according to him, provided at any point in time a precise diagnosis of the economic situation, the prognostic capabilities were limited as psychological factors and the decisions of business people had a decisive influence on the macro-economy. Our study shows that despite these different methods, the practical analyses and results of the studies of the Wirtschaftsdienst and the IfK contain similarities that make Singer's criticism appear exaggerated. The similarities can be explained by shared ideas about the typical patterns of movement and interaction between economic factors as well as an emphasis on empirical investigation.

This suggests that, on Singer's side, personal and strategic interests were involved. Singer's initial critique of the IfK can be regarded as a targeted attack on the institute and Wagemann, whom Singer and Spiethoff regarded as an opponent in the competition for scientific recognition and influence in the field of business cycle research. Furthermore, Singer had an interest in distinguishing himself as a business cycle researcher in order to obtain a professorship at Hamburg University. The escalation of the dispute and Singer's personal insults towards Löwe, were presumably enforced by the fact that he was facing strong headwind from Löwe who called Spiethoff's theory insufficient for the explanation of business cycles and thus attacked the very basis of the analysis of the Wirtschaftsdienst.

There is yet another layer of the debate. In addition to strategic interests and personal conflicts, fundamentally different ideas about the conceptualisation of economic science as such fuelled the dispute between Singer and Löwe. It was therefore embedded a more general controversy about the reorganisation and reorientation of German economics after World War I and the breakdown of the German Historical School of Economics. Wagemann and

Löwe oriented their business cycle analyses towards different international strands of quantitative economic research – namely American empiricism and econometrics. Thereby, they partly shifted away from a concept of economics as a human and cultural science that was characteristic of the Younger Historical School and towards approaches of formal analysis and exact sciences. Spiethoff developed an empirical-inductive theory of the cycle and integrated its explanation into a holistic socio-cultural investigation of the economy. He thus adhered more closely to the tradition of German statistics and German historical economics. The different dimensions of the dispute have not been systematically disentangled in the literature so far. Especially the latter notion has not yet been sufficiently investigated. This study broadens the context of the dispute. It illustrates that the questions and conflicts about the conceptualisation of German economics in the 1920 reached into the field of business cycle statistics.

Last but not least, this study wants to contribute to an investigation of the economic journal which is published until today, now under the heading "Wirtschaftsdienst. Zeitschrift für Wirtschaftspolitik", from the perspective of the history of economic thought. Leveknecht provides a chronological outline of the development of the HWWA (1998) that also contains information on the economic journal. On behalf of the 100th anniversary of the journal in 2016, the editorial office of the Wirtschaftsdienst established a website with information about its history. It contains articles on important persons, especially the chief editors, and selected digitalised historical journal articles.[20] These contributions build a valuable starting point for further investigations of the people who shaped the Wirtschaftsdienst and the ideas that were communicated in the journal. Respective studies have been conducted for other economic journals. An example is Heinz Rieter's study of the "Deutsche Volkswirt" (1998)[21]. With around 7000 subscribers (Singer 8 January 1926: Geleitwort) and an affiliation to two institutes for academic research, the Wirtschaftsdienst was a recognised medium already in the 1920s.

[20] Complete issues of the Wirtschaftsdienst in digitalised form are available for the years 1949 onwards.
[21] Rieter, Heinz (1998) Der deutsche Volkswirt 1926 bis 1933: eine Fallstudie zur publizistischen Umsetzung wirtschaftspolitischer Konzeptionen, in: Streissler, Erich (ed.) *Studien zur Entwicklung der ökonomischen Theorie XVII*, Berlin: Duncker & Humblot, pp. 95–153.

2 The application of Spiethoff's business cycle explanation in the "Wirtschaftsbarometer" and the reports "Zur Lage"

> "Magazines and daily newspapers are taking up so-called business cycle reporting with increasing zeal. But what is still missing is a systematic approach. […] How can the selection of the phenomena to be observed be made? Obviously, the best way is on the basis of a certain conception of the character of business cycles, which makes it possible to distinguish between the significant and the insignificant. The "Wirtschaftsdienst" has decided to carry out a business cycle observation in the future on the basis of the characteristics I have indicated" (Spiethoff 8 January 1926: 3)[22]

With these words, Arthur Spiethoff introduces a new kind of business cycle reporting based on his study of economic fluctuations[23] to the readers of the Wirtschaftsdienst in an article published in the economic weekly's first issue of the year 1926. It was the result of a cooperation between Spiethoff and the weekly's chief editor Kurt Singer. Already before 1926, the Wirtschaftsdienst published weekly data on the state of the economy summed up under the heading "Konjunktur und Statistik" (Business Cycle and Statistics). It reported data on foreign exchange rates, central bank policy, money and capital markets, real production and prices, foreign trade, the labour market and bankruptcies (see for example Wirtschaftsdienst 1925 (HWWA/IfW 1925)). However, an analysis or interpretation of the presented numbers was not provided. With introducing the new business cycle observation based on Spiethoff's business cycle explanation, the business cycle reporting of the Wirtschaftsdienst gained an analytical and interpretive frame.

This chapter explores the business cycle reporting of the Wirtschaftsdienst between 1926 and 1930. It investigates how Spiethoff's theoretical and empirical arguments as well as his statistical tools enter into the weekly's analyses of the short-run course of the economy. Section 2.1 provides an exposition of Spiethoff's business cycle theory and shows how Spiethoff derives statistical indicators from his work. Section 2.2 provides some contextual information. It shows how the authors of the Wirtschaftsdienst address the interplay of structural crises and business cycles in the 1920s. Section 2.3 and 2.4 analyse in detail the quarterly published "Wirtschaftsbarometer" and the reports "Zur Lage" that were released on a monthly basis. The Wirtschaftsbarometer and the reports Zur Lage constituted two pillars of the Wirtschaftsdienst's new business cycle reporting. The reports complemented the results of the statistical barometer with a more extensive empirical analysis as well as an extended

[22] Unless states otherwise, all direct quotes are translations from German by the author.
[23] In his German publications, Spiethoff refuses the common term "Konjunktur" and instead speaks of "wirtschaftliche Wechsellagen" (see for example Spiethoff 1926: 3).

reference to Spiethoff's theoretical arguments, e.g. his emphasis on psychological influences on overall economic activity. They furthermore enabled the authors to defend and stick to Spiethoff's business cycle explanation when the data series of the Wirtschaftsbarometer diverged from their expected course. In the beginning of 1927, both types of articles merged – the graphs of the Wirtschaftsbarometer were integrated into the reports.

2.1 Spiethoff's theory and its application to statistical business cycle analysis

Arthur Spiethoff (1873-1957) was a German economist, well-known for his research on business cycles as well as in his role as co-editor of "Schmollers Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft" (Schmoller's Yearbook for Legislation, Administration and Economics). Already in 1902, Spiethoff had published "Preliminary remarks on a theory of over-production"[24]. In 1925, he provided a comprehensive exposition of his business cycle theory in an article on *"*Crises" published in the "Handwörterbuch der Staatswissenschaften" (Dictionary of Governmental Sciences).

For approaching Spiethoff's business cycle theory a rough classification is helpful. In his famous study of the various theoretical explanations of business cycles, Gottfried Haberler classifies Spiethoff's theory among the "non-monetary over-investment theories" ([1937] 1960: 72). *Over-investment* theories locate the origin of economic cycles in the sphere of the production of producers' goods which are purchased with capital. While consumers' goods industries can be affected by cyclical alternations, they provide little for their explanation (Haberler [1937] 1960: 29-31). *Non-monetary* explanations focus on the real economy and regard "monetary factors [as] passive conditions which can be taken for granted rather than impelling forces" (Haberler [1937] 1960: 73). Besides real economic factors, Spiethoff furthermore includes psychological influences in his explanation of business cycles (Haberler [1937] 1960: 79-80, 143).

Spiethoff derived his business cycle theory inductively, based on a comprehensive empirical study of historical cycles of the period from 1820 until World War I.[25] According to Spiet-

[24] Spiethoff, Arthur (1902) Vorbemerkungen zu einer Theorie der Überproduktion, in: Schmoller, Gustav (ed.) *Schmollers Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich,* 26, pp. 721-759.
[25] Beckmann (2005: 256-260) argues that Spiethoff furthermore imported central features from the business cycle theory of Michail Tugan-Baranowsky, although, Spiethoff himself emphasised the differences to his theory. (Beckmann, Ulf (2005) Der Einfluß von Michail Tugan-Baranowsky auf die deutsche Konjunkturforschung im ersten Drittel des 20. Jahrhunderts, in: Rieter et al. (eds.) *Deutsche und russische Ökonomen im Dialog. Wissenstransfer in historischer Perspektive*, Marburg: Metropolis, pp. 239–279). Kurz (2015) furthermore highlights the similarities in the business cycle explanations of Spiethoff and Joseph Schumpeter who also had a close personal relationship. According to Kurz, rather than to claim a clear direction of influence, it is however more accurate to assume that both were influenced by similar ideas of their predecessors.

hoff, business cycles consist of two main parts: "upswing" and "stagnation". An upswing implies an increase in aggregate economic activity, stagnation means a slowdown or decline of overall economic activity. The two constituent parts of the business cycle are further divided into sub-stages. For each of the main parts as well as the sub-stages, Spiethoff provides an empirical characterisation focussing on those economic determinants, which he regards as being causally linked to the cyclical movement of the economy – these constitute his model cycle (figure 3 on p. 65). According to Spiethoff, in advanced capitalistic market economies business cycles are initiated within the sphere of the production of producers' goods and basic materials. Spiethoff explains that in the course of an upswing, basic materials as well as capital equipment and durable goods are produced and utilised excessively. At some point, the capital available for productive investment, i.e. for purchasing these producers' goods and basic materials, fall short of the supply of the respective goods. This is what Spiethoff calls "capital shortage" (Spiethoff 1925: 76). The economy enters into stagnation, which Spiethoff defines as a period of sustained over-production in the sphere of producers' goods (Spiethoff 1925: 8-10). Spiethoff argues that this disproportionality originates from a specific combination of technical, psychological and institutional factors characteristic of advanced capitalistic market economies. Business cycles are, therefore, inherent to the system (Spiethoff 1925: 69-82).

According to Spiethoff, the alternation of upswing and stagnation follows a circular course (Spiethoff 1925: 37): Both upswing and stagnation enforce changes in economic determinants, like interest rates, prices and the availability of goods, that lay the ground for the respective opposite direction of movement. The upswing is characterised by an increase in productive investment, which initiates an increasing and finally excessive production of producers' goods and basic materials. It puts upward pressure on interest rates and prices and leads to a shortage of complementary means of production. Thereby, it paves the way for over-production and economic decline (Spiethoff 1925: 10-25, 38, 77). During stagnation, the production and utilisation of basic materials as well as the construction of capital equipment and durable goods decrease, prices and interest rates fall and stocks of monetary and real means of production are piled up that create the preconditions of a new economic expansion (Spiethoff 1925: 38, 71-72). To underline this circular character, in his model cycle, Spiethoff assigns the stage of "capital shortage" still to the period of upswing and defines the "first increase" as part of the period of stagnation.

Despite the overall interdependence of upswing and stagnation, Spiethoff distinguishes the two sequences of transition from upswing to stagnation and from stagnation to new economic revival explicitly from each other. According to Spiethoff, the turn from upswing to over-production of basic materials and producers' goods and finally to aggregate economic decline is inevitable. The underlying excess of the supply of capital goods over the amount of capital available for investment is primarily rooted in the characteristics of producers' goods and basic materials and the dynamics of the production side (Spiethoff 1925: 76-77).

Spiethoff explains that during an upswing, a part of the production of basic materials, like iron, is used to build up additional plants for the extraction of these same materials. An increasing amount of basic materials is produced that seeks to be utilised in the production of capital equipment and purchased with capital again. Therefore, the need for capital increases, too. Furthermore, due to a considerable time lag between a signal of increased demand and the operation of new plants, producers of basic materials have incomplete information about the actual demand for basic materials and overestimate its extent. As a consequence, the production capacities are expanded beyond effective demand. Spiethoff points out that new technologies and new materials introduced in the 19th century have enforced these dynamics since they have made production independent of organic growth processes and, therefore, allowed for large increases in production. Moreover, the capital equipment and durable goods that are produced with the basic materials have a long operating life. Spiethoff argues that, therefore, limits are set to a continuous increase of production. After several years of upswing, driven by a particular need, a market is approaching saturation with a certain type of capital goods. This trend bears the tendency towards over-production. Though, according to Spiethoff, the disproportionality between the supply of and demand for producers' goods is primarily initiated on the supply side, the demand side can aggravate a capital shortage that puts an end to the upswing. As an example, Spiethoff cites that during an upswing it can happen that new processes are introduced hastily and prove to be inefficient. This can inhibit capital formation (Spiethoff 1925: 76-77).

At the turn to stagnation the economy faces a shortage of capital available for productive investment. Spiethoff emphasises that this shortage cannot be cured by an expansion of the amount of money (or other means of payment) in circulation. In his view, a capital shortage reveals a lack of specific factors of production like labour force as well as consumption goods necessary in order to provide for the subsistence of the workers. Therefore, it reveals a shortage of real means of production, which are needed to complement the available capital equipment (Spiethoff 1925: 77-78). This underpins the *non-monetary* character of Spiet-

hoff's over-investment theory. While Spiethoff considers increased bank lending and money creation as typical symptoms and driving forces of economic upswings of an advanced stage (Spiethoff 1925: 18, 73), to him, however, money and credit expansion are neither decisive for the emergence of a new upswing nor suitable to prevent stagnation (Spiethoff 1925: 70-74, 77-78).

In contrast, credit expansion can have a decisive influence on the outbreak of economic crises. In Spiethoff's theory, economic crises are special phenomena, which do not constitute a regular part of the cycle (Spiethoff 1925: 26). That means that the transition from upswing to stagnation does not necessarily take on the character of a crisis. Crises come along with severe impacts for the economy, like a high number of bankruptcies and mass unemployment. Spiethoff argues that crises can originate from different kinds of speculation, e.g. at the stock exchange, or miscalculation, e.g. with respect to business formation, within decisive parts of the economy that exaggerate the upswing. He emphasises that each type of crisis is linked to a credit crisis: Only the availability of (excessive) credit enables speculation and miscalculation to intensify and become critical. When credit lending finally comes to a hold or even collapses it ignites the economic crisis (Spiethoff 1925: 29). Contrary to those economists who attribute a cleaning effect to economic crises, Spiethoff emphasises their destructiveness (Spiethoff 1925: 32): "The often-heard praise of the cleaning effect of the crisis ignores how the hyenas of the battlefield drain the lifeblood of thousands, and keeps secret about how much the crisis destroys without necessity". In his view, economic crises should be actively prevented. While Spiethoff warns against economic crises, he instead praises the regular course of the cycle – the alternation of upswing and stagnation – as a means to motivate people to utmost economic effort (Spiethoff 1925: 84).

While over-production and the transition from upswing to stagnation are mainly rooted in technical factors on the side of the production of producers' goods and basic materials, the transition from stagnation to economic revival decisively depends on psychological factors. Therefore, the transition to a new upswing is less certain than the occurrence of economic stagnation. According to Spiethoff, it is possible in theory that an upswing permanently fails to materialise, although this cannot be observed for the period from 1820 onwards, which he investigates (Spiethoff 1925: 38). Spiethoff argues that in free capitalistic market economies a "spirit of high capitalism" (Spiethoff 1925: 82) has evolved, which is a strong urge for enterprise and economic acquisition that has spread to large parts of the people. Like overall economic activity, this entrepreneurial urge also shows a cyclical alternation of elation and resignation, which is caused by real determinants and which itself has an influence on the

real economy. The experiences during economic stagnation fuel the fear of economic losses and undermine the entrepreneurial urge. In order for a new upswing to be initiated, not only objective profit opportunities but also acquisitiveness and entrepreneurial spirit must revive.

Regarding the objective profit opportunities, the development of the return to capital and the interest rate on the money market during the progression of stagnation is decisive. During the first period of stagnation the return to capital usually falls and productive investment declines. The interest rate has been rising since the upswing has reached its highest intensity. At the point the upswing turns to stagnation, the interest rate is therefore at a high level (Spiethoff 1925: 32). As stagnation progresses, the directions of movement turn around. The return to capital increases while the interest rate falls. Spiethoff argues that the pressure of long-lasting stagnation forces business people to search for new profit opportunities. From his study of historical business cycles, he infers that new profit opportunities mainly spring up in two ways. First, via the expansion to new markets. As shown above, due to the durability of capital goods, after some flourishing years markets are approaching saturation with a certain type of good. Through the development of new markets, sales can be increased again. Spiethoff shows that the expansion to new markets has been of decisive importance for the economic development in England. A second factor is technological development and innovation. Great inventions, especially in the field of mining and smelting, railways and electricity drove many of the upswings of the 19th and early 20th century. While the return to capital, therefore, has the tendency to rise in the progression of stagnation, in long lasting stagnation the interest rate declines. Spiethoff argues that due to the decrease in investment, idle capital pushes into the money market and puts downward pressure on the interest rate (Spiethoff 1925: 71). Furthermore, during periods of stagnation the central banks usually lower the interest rate if justifiable against the background of the balance of payment and exchange rates (Spiethoff 1925: 32-33).

The upward stimulus on the return to capital and the downward pressure on the interest rate lead to the former exceeding the latter as stagnation proceeds. According to Spiethoff, this is an important precondition of the transition to economic revival. However, he argues that the mere fact of the difference between the return to capital and the interest rate does not suffice to initiate an economic upswing. Trust and entrepreneurial spirit, which have been hit by the experience of stagnation, must be restored. To achieve that, the profitability of investment into new markets or new goods/technology needs to be demonstrated to the capital owners by brave and pioneering entrepreneurs who venture an investment and succeed. Through their success these entrepreneurs make the potential for great profits visible, they

"let a visible guiding star rise" (Spiethoff 1925: 70-71). Such guiding stars encourage productive investment and direct capital flows towards the profitable new markets or capital goods. As investment activity increases, an economic upswing sets in.

In the article published in the Wirtschaftsdienst's first issue of 1926, Spiethoff summarises his business cycle theory and explains how it can be applied to a regular statistical monitoring of the economy, which is "easy to overview and comprehend" (Spiethoff 8 January 1926: 3). This was an important quality since the economic weekly mainly addressed economic agents outside the academic field. Spiethoff argues that based on his characterisation of the typical business cycle (figure 2 on p. 64) it is possible to identify for any point in time at which stage of the cycle the economy stands. This allows statistical observations of the business cycle to function as "economic weather stations"[26] (Spiethoff 8 January 1926: 6). Next to Spiethoff's model cycle, two charts were included that plot time series data of the indicators he identified in his study for the years 1897 to 1913. These charts were designed by the editorial department of the Wirtschaftsdienst (Singer 15 January 1926: 43), however, closely following Spiethoff's empirical analysis of the historical cycles. The charts can be regarded as a first template of a Wirtschaftsbarometer that was soon to be implemented in the Wirtschaftsdienst.

According to Spiethoff, productive investment and the production of producers' goods and basic materials are the decisive factors for the emergence of business cycles. Changes in productive investment can be indicated in different ways. Since Spiethoff argues that the stock market has gained in importance as compared to bank lending in financing real investments (Spiethoff 1925: 13-14), the charts included in the article report the admission of shares of German industrial and transport corporations as the main statistical measure of capital investment. As an indicator for the production in the sphere of producers' goods, Spiethoff prioritises the domestic consumption of iron, which is accounted for by the production of iron corrected by the balance of iron exports and imports in per capita terms. He argues that due to the importance of iron for contemporary production, good data availability and a regular cyclical movement in history this figure is the most suitable (Spiethoff 1925: 18-19; 8 January 1926: 3). In his 1925 exposition of his theory, he emphasises the importance to distinguish between the production and consumption of iron, as the production of iron is less affected by the domestic cycle than its consumption. From 1875 until World War I,

[26] Lenel (2021: 139) shows that "[m]eteorologists had led the way" to a new reputation of science-based forecasting that raised hope also in economists to achieve the same in the field of business forecasting.

Germany regularly showed a surplus of iron exports over imports. During an economic upswing, the domestic consumption of iron used to rise more strongly than its production since parts of the increased consumption were provided for by reduced exports. Furthermore, while at the turn to economic stagnation the domestic consumption of iron decreased, in some cases the production of iron continued to increase (Spiethoff 1925: 20). As we have seen before, according to Spiethoff's theory only the domestic consumption of iron, i.e., the use of iron to increase production capacities of the domestic economy, initiates the dynamics that drive the cycle.

Next to these main indicators of the business cycle, Spiethoff regards the interest rate at the money market as well as stock market prices as important for the characterisation of the cycle. As an indicator for the money market the data charts include the discount rate of approved bills of exchange (Privatdiskonten). As a representative of the fluctuations at the stock market, the prices of six typical industrial shares are reported. All data are presented as index numbers with the annual average from 1897 or 1900 to 1913 of the respective series serving as the base value.

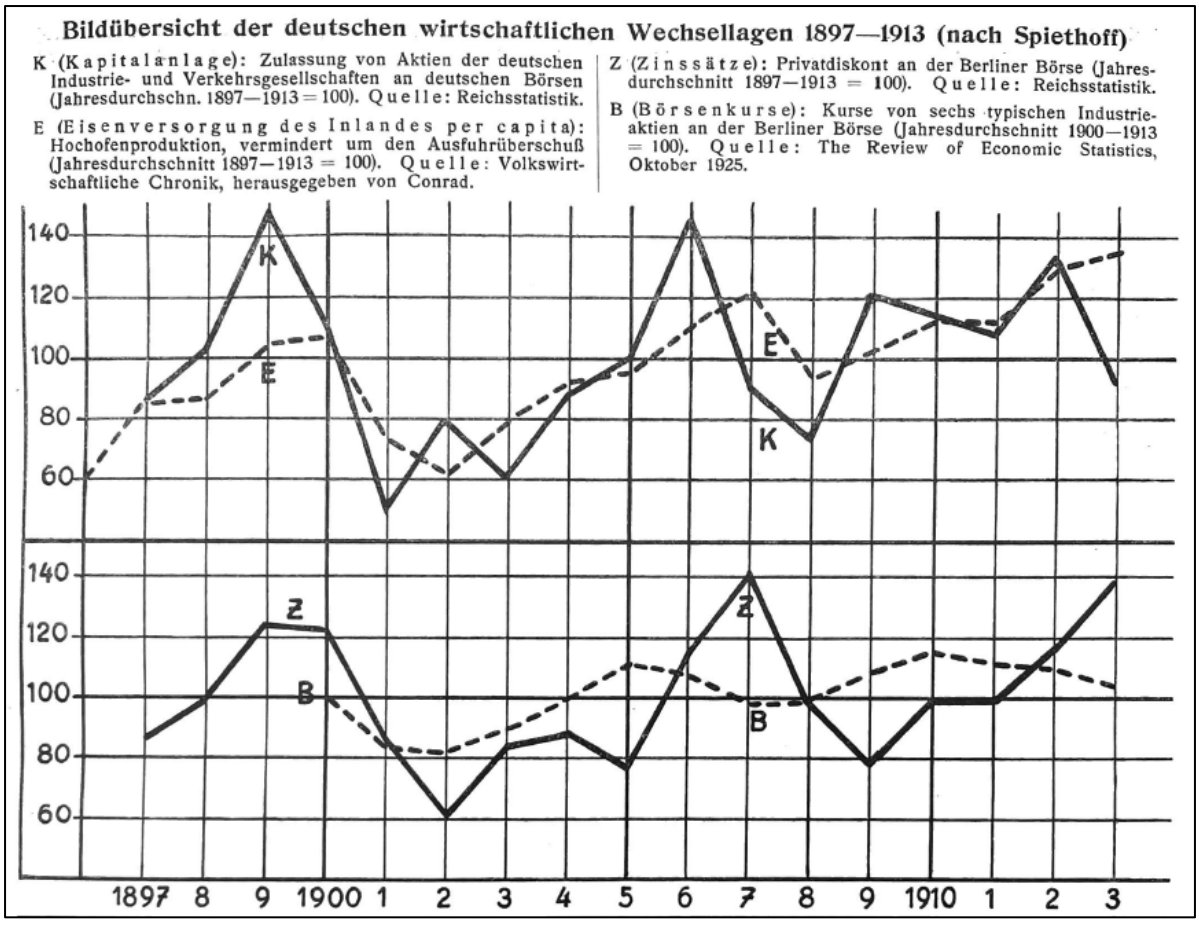

Figure 2: Graphical overview of the German business cycles from 1897 to 1913 based on Spiethoff's business cycle study (8 January 1926: 5)

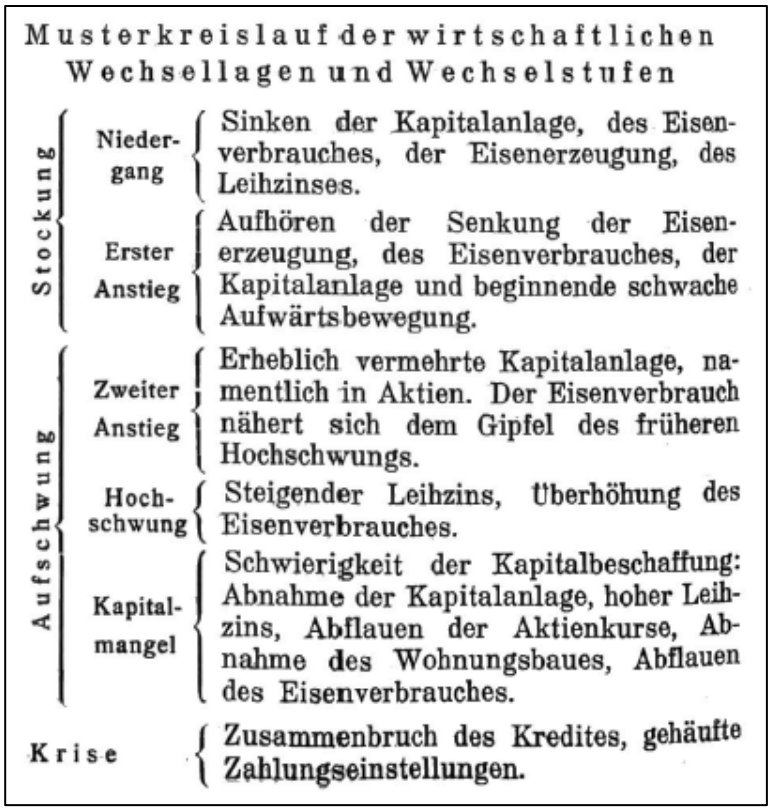

Figure 3: Spiethoff's model cycle of economic fluctuations, taken from his article on "Crises" (Spiethoff 1925: 38). The same model cycle is printed in his article in the Wirtschaftsdienst of 8 January 1926 (4).

In his model cycle (figure 3) Spiethoff assigns particular patterns of movement of these indicators to specific stages of the cycle. He argues that at the early stage of economic stagnation, which he calls "decline", capital investment and the domestic consumption and production of iron usually decrease. The interest rate, which has reached a high level as the upswing progressed, begins to fall. As stagnation advances, domestic iron consumption and production, as well as capital investment stop decreasing and begin to rise slightly. Spiethoff calls this stage of stagnation "first increase". At the time when capital investment and domestic iron consumption rise strongly and reach the peak of the previous cycle, the transition to a new economic upswing is accomplished. At its early stage, which is called "second increase", the extended amount of capital investment is mainly realised by an increase in investment in shares. As the upswing progresses, the domestic consumption of iron further intensifies and exceeds the peak of the previous cycle. Investors turn to the money market in order to finance real investments. As a consequence, the interest rate increases. At the last stage of the upswing, a "capital shortage" materialises. It becomes more and more difficult to raise capital. The investment into shares declines and the stock market prices diminish. Short-run loans provided at the money market are used to compensate for the lack of capital. Therefore, the interest rate remains at a high level. However, the capital shortage causes a decrease in the domestic consumption of iron. As a further sign of capital shortage, Spiethoff points out the decrease in housing construction.

In the article for the Wirtschaftsdienst, Spiethoff furthermore discusses the capabilities and limits of the statistical weather stations. According to Spiethoff, the most important capability of statistical monitoring is to indicate an imminent capital shortage and the corresponding

over-production of producers' goods and basic materials in the course of an upswing. As shown before, specific characteristics of basic materials and producers' goods as well as the complexity of their production and utilisation make it impossible for the producers to adjust their supply properly to effective demand. As a consequence, an upswing necessarily turns into stagnation after a certain period of time. Therefore, the statistical weather station at this stage of the cycle is capable of forecasting the economic development of the near future (Spiethoff 8 January 1926: 6).

Following the logic of Spiethoff's business cycle explanation, by providing early signals of an emerging capital shortage to the producers of basic materials and producers' goods, the statistical indicators can compensate in part for the incomplete information on the producers' side. Spiethoff argues that in free capitalistic market economies, it is impossible to guide individual actions so that over-production is completely inhibited. Therefore, the statistical reports are per se unable to prevent the occurrence of stagnation. However, they can mitigate the negative effects by warning business people against further expansion. Spiethoff argues that towards the end of the upswing "the psychological moment for successful warning has come" (Spiethoff 8 January 1926: 6). Therefore, he also provides the longest list of symptoms for the stage of "capital shortage" in his model cycle.

The emphasis on the *psychological* impact of warning is in line with Spiethoff's idea of a cyclical alternation of the entrepreneurial spirit, which can reinforce economic decline. Haberler points out that Spiethoff "lays great emphasis on psychological reaction" and that therefore for him "[t]he severity and length of the depression depends very much on whether the boom has collapsed with the great detonation of a crisis, financial panic and numerous bankruptcies, or whether it has come to an end gradually and, without thunder and lightning" (Haberler [1937] 1960: 79-80). The early announcement of a looming stagnation can, therefore, mitigate the pessimism resulting from economic decline and soften the period of stagnation.

From Spiethoff's business cycle theory also arise restrictions of the forecasting capability of statistical barometers. As seen before, in Spiethoff's understanding, the initiation of a new economic upswing depends decisively on psychological factors. Although, during stagnation economic determinants, especially the return to capital and the interest rate, typically develop in a way that is conducive to productive investment, there is no mechanism that automatically leads to an increase in business activity. First, entrepreneurial spirit and trust in a stable and profitable economic surrounding, which have been shackled by the experience of

economic decline, must revive. Business people must develop a "fiery aspiration for profit opportunities" (Spiethoff 8 January 1926: 6). Therefore, economic weather stations are per se incapable of forecasting a new economic upswing. At this stage of the cycle, the statistical reports can only inform about (promising) developments of economic variables. Business people must take the first step, the statistical weather stations can only report on economic revival when it is already taking place: "If entrepreneurs were to wait with making new investments until the economic weather station announced an upswing, it would never happen" (Spiethoff 8 January 1926: 6).

At the end of his Wirtschaftsdienst article, Spiethoff generally confines the forecasting capability of business cycle statistics for the historical situation after World War I. He explains that, in order to make any kind of statement about future developments, the observed business cycles must show a regular and steady pattern over several years. The regularity of the pre-war era, on which he bases his business cycle theory, has, however, been abolished by the war. The German economy has been severely affected by political and economic consequences of the war, like the occupation of the Ruhr territory and hyperinflation, which has overshadowed or interrupted regular business cycles. Therefore, he claims: "If we want to avoid disappointment and setback, we will do well to proceed with caution and with moderation in raising expectations" (Spiethoff 8 January 1926: 7).

2.2 Structural crises and business cycles in the German economy in the 1920s

The fact that manifold structural challenges of the German economy in the 1920s and early 1930s limited the scope for economic explanations that referred to a "normal" cycle was also reflected by the authors of the Wirtschaftsdienst`s business cycle reports. Singer wrote the first five reports Zur Lage published between January and March 1926. Therein, he focusses on the distinction between structural crises and regular cyclical fluctuations of overall business activity. In the first report, which was published in the first issue of the year 1926 and directly preceded Spiethoff's introductory article, Singer points to the "dark signs" (Singer 8 January 1926: 2) that rule the German economy at the beginning of the year 1926. After the currency stabilisation, in 1924 an economic revival set in that, however, turned into an economic decline in autumn 1925 with a disproportional increase in unemployment from one million unemployed in November 1925 to almost 2.3 million in February 1926 (Janssen 2012: 390). Singer observes unsaleable producers' goods, falling stock market prices, prohibitively high interest rates, a lack of capital formation and an increasing number of bankruptcies (Singer 8 January 1926: 2).

He argues that the contemporary crisis, although it came along with symptoms similar to those of a regular economic decline, did not emerge from a "normal cycle" (Singer 8 January 1926: 2). He explains that the German economy is still severely affected by the consequences of the war, which has caused structural disproportionalities within the economy. The concentration on war industry during World War I has given way to an immense expansion of machinery and facilities for the production of producers' goods. As a consequence, the production capacities now exceed the absorbing capacities of all European countries. On the other hand, the war has narrowed down markets and led to a severe capital shortage, as it deprived people of their wealth and savings opportunities (Singer 8 January 1926: 2).

Furthermore, Singer argues that the German economy is burdened by further specific problems, like the obligation to pay war reparations (Singer 19 February 1926: 214). His analysis is in line with Spiethoff's observation who also emphasises the severe structural problems of the German economy after the war: "For Germany, the situation is aggravated by the fact that its capitalistically broken national economy has not yet regained its balance after it was destroyed by the rapture of its old supporting world economic connections, by large land cessions, overthrow, the Ruhrkampf and currency disruption" (Spiethoff 8 January 1926: 7).

Singer concludes "that the difficulties of the German industry are not a sign of a periodic economic turnaround, but of a deep organic disease" (Singer 5 February 1926: 145). In order to cure the economy, it affords "morphological adjustments" (Singer 8 January 1926: 2). He calls for a strong economic leadership[27] and a broadly defined programme of rationalisation. He claims for "a piece of private and partially planned economy" (Singer 5 February: 145), which includes a joint coordination between companies within a branch and the formation of associations (Singer 8 January: 2; 5 February 1926: 145). The goal is to compress the producers' goods industries and to make them profitable again. The process of rationalisation and its effects continue to be a prominent topic in the reports Zur Lage when Carl Krämer takes over as author in April 1926. During the year, he interprets the high rate of

[27] In this regard, he highlights the impact of the Reichsbank on the economy (Singer 22 January 1926: 77, 79). In the current crisis, this impact materialises in an ambivalent way according to Singer. He criticises that the Reichsbank has employed a monetary policy that has been too restrictive. Its goal has been to reduce prices, more specifically the relatively high prices for manufactured goods, by means of contractionary policy (Singer 19 February 1926: 214). This should foster the international competitiveness of German companies and enable trade surpluses, which were needed in order to fulfil the Dawes agreement. According to Singer, this policy measure has, however, missed its target. It has been derived from an abstract theoretical assumption about the relationship between money stock and price level, which has proven wrong against reality (5 February 1926: 146). The Reichsbank has even worsened the situation in causing a "paralysis crisis" (Singer 19 February 1926: 214). Therefore, Singer welcomes that the Reichsbank relaxed its policy in January 1926 (Singer 19 February 1926: 214) and reduced the discount rate from 9 to 8 % (Singer 22 January 1926: 78), even if the planned effect, a stimulation of productive investment, did not occur (Singer 5 March 1926: 282).

unemployment and a change in the ratio of wage income to capital income in favour of private companies as symptoms of rationalisation and a (necessary) step towards adjusting the supply of producers' goods to capital formation (see for example Krämer 1926: 1805).

In his first report, Singer warns the readers of "an unforeseeable period of subdued economic activity" (Singer 8 January 1926: 2). In fact, Borchardt (1982: 175-176, 178-179) confirms that the years after the recovery from the economic decline of 1925/26 up to the end of the decade did not bring about a considerable revival of the economy. As pointed out above, unemployment had jumped up to unknown heights in 1925 and remained on a high level during the following years. The national output per capita did not exceed the 1913 value until 1928 and even then, only to a small extent.

The idea that structural crises of the German economy, which resulted from the war, had interrupted the regular pattern of pre-war cycles and the period of overall economic prosperity preceding World War I, was shared among economists. This did not lead to a marginalisation of business cycle studies, though. On the contrary, it brought new impulses to the analysis of the interplay of economic factors. In particular, *statistical* business cycle research was appreciated as a means to set the analysis of the current state of the economy on a more scientific basis.

This was considered important in order to provide a solid analysis to economic and political decision makers and was furthermore regarded as an advancement of the economic discipline as such (Singer 22 January 1926: 77). Singer highlights that reports on the recent economic situation often just echo the general public mood and temper. They need to become more objective, which in Singer's view affords a comprehensive empirical foundation. Already in 1925, in an article on the German economy, Singer emphasised the lack and deficiency of economic data, "which render any substantial analysis of the state of the German economy simply impossible" (Singer 20 March 1925: 429). With the reports Zur Lage, Singer aims to take a step forward. While he makes clear that the Wirtschaftsdienst cannot accomplish to consider the "dozens, hundreds or thousands of variables", which mutually influence each other, the approach is to "regularly note down some observations and comments, from which in the course of weeks and months perhaps arise a denser picture of description and evidence" (Singer 22 January 1926: 77). For this purpose, the „most important data that an economic weather station can record" (77) are presented. In accordance with Spiethoff's "economic weather station", the domestic consumption of iron as well as the issue of shares topped the list of the reported data.

Besides the dominant effects of the structural challenges, business cycle researchers however also found that the German economy slowly returned to a regular cyclical movement as the 1920s progressed. Carl Krämer states on 2 April 1926 (421) that "in these months [the economy] enters a normal economic cycle after the many pseudo cycles of the preceding years". The Berlin Institut für Konjunkturforschung went even further and claimed that after the currency stabilisation, in 1924 the German economy has shown a "clearly visible cyclical rhythm" which differs from the pre-war cycles "almost only in the shorter duration of each of its parts" (IfK May 1926: 47). While the consequences of the structural adjustments of the economy were highly present in economic debates, not least because they considerably affected the lives of the people, especially through the high rates of unemployment, the researchers also had the ambition to identify cyclical influences, which were layered by or even interwoven with the structural factors. Krämer résumés for the year 1926 that "tackling these major and long-term structural and organisational questions and their consequences […] constituted the frame of the economic cycle; they set the conditions within which the slow recovery from the crisis could take effect. Given the consequences of rationalisation, the effects of cyclical movement may have been minor; nevertheless, they were present" (Krämer 31 December 1926: 1805-1806).

Consequently, statements on current cyclical fluctuations were often formulated cautiously. With regard to the capabilities of making predictions, Spiethoff warns against sliding into "prophecy" and exhorts "to act thoughtfully and to be moderate in raising expectations" (Spiethoff 8 January 1926: 7). While the structural problems, therefore, set limits to business cycle analysis, on the other hand they also made it easier for the authors to defend their analytical tools. Krämer referred to structural influences as external causes in order to explain deviations of the recorded data from Spiethoff's model cycle. While this reference to structural factors was indeed often justified, it also made the approach of the Wirtschaftsdienst itself more difficult for others to tackle.

2.3 The "Wirtschaftsbarometer"

On 18 June 1926, the Wirtschaftsdienst published the "Wirtschaftsbarometer" for the first time. It consists of two charts (see figure 4 on p. 72 and figure 5 on p. 76) and a commentary text in which Singer[28] provides a short explanation and interpretation of the graphs. Initially, the Wirtschaftsdienst had planned to publish a first business cycle barometer already in June

[28] The article is signed with "S.", although Singer usually used the abbreviation "K.S." However, considering the context it is assumed that Singer wrote the article. This corresponds also to Kulla's interpretation (1996: 125).

1925 Kulla (1996: 123). Due to difficulties in obtaining suitable data the introduction had to be postponed, though.

Following Spiethoff's introductory article of the beginning of 1926, which contained a graphical representation of the business cycle from 1897 to 1913 (figure 2 on p. 64), in January and March 1926, Singer and Krämer published an analysis of the German economy for the year 1925, in which they discuss the data available for the post war time and also present a graphical overview for the years 1924 and 1925. Singer once again points out the generally insufficient state of development of German economic statistics (Singer 15 January 1926: 43). The two charts published on 5 March 1926 (Wirtschaftsdienst 1926: 312) resemble the finally published Wirtschaftsbarometer more closely than the overview for the pre-war cycles presented in Spiethoff's article. Nevertheless, the Wirtschaftsbarometer, which was finally published in June, again varies from the March publication. This shows that it took several attempts to construct a barometer with the available data that represents Spiethoff's main factors and properly traces the scheme of cyclical variation he has described in his theory.

Despite these initial problems, in June 1926, Singer introduces the Wirtschaftsbarometer with self-confidence. He asserts that it reveals the „causal factors" (Singer 18 June 1926: 819) determining genuine business cycles. A retrospective application of the barometer to the developments of the years 1924 and 1925 makes Singer confident about the validity of the latest charts.

This section investigates the conception of the Wirtschaftsbarometer and its application to practical business cycle analysis. In addition to the main statistical indicators highlighted by Spiethoff, the barometer comprises the categories of the Harvard "index", a barometer developed by the Harvard Committee on Economic Research. The section discusses why the authors include these additional indicators and shows how they integrate both statistical tools into their analysis. Furthermore, it elaborates on the authors' interpretation of the barometer's observations during 1926 and 1927. It argues that Spiethoff's model cycle and his over-investment explanation provide main guidance to their interpretation. In both graphs, however, the curves deviate from the expected course soon after the introduction of the barometer. The section shows how the authors explain these discrepancies.

The Spiethoff-chart

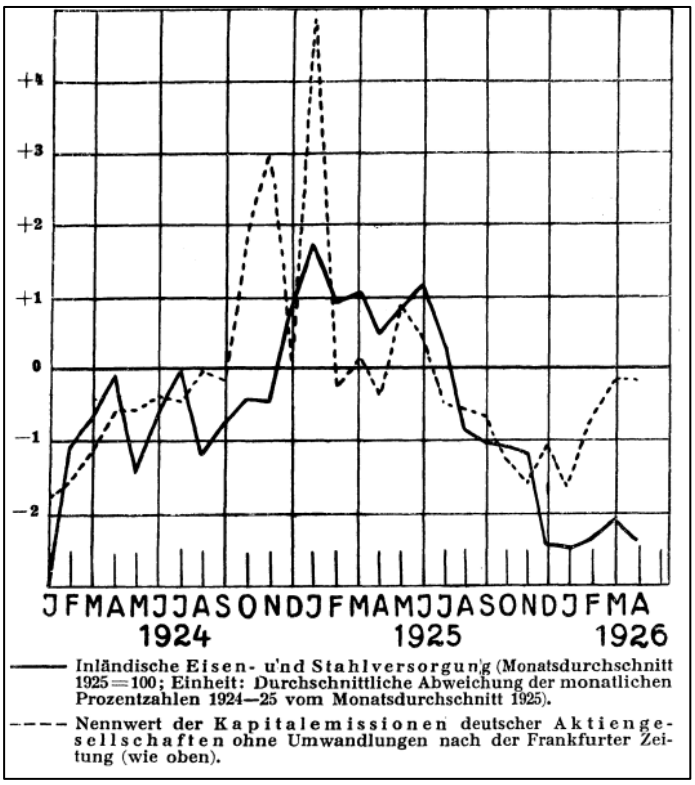

Figure 4: The first chart of the Wirtschaftsbarometer plotting Spiethoff's main indicators of the cycle (Singer 18 June 1926: 819)

The first chart (figure 4) plots time series data for the two statistical indicators that represent Spiethoff's main factors of explanation – the provision of basic materials and producers' goods, and capital investment.

Similar to the chart for the fluctuations in the pre-war period, provided in Spiethoff's article (figure 2 on p. 64), the former is indicated by the domestic consumption[29] of iron and steel. While the chart for the pre-war time only considers the amount of iron produced in blast furnaces reduced by the export surplus, the Wirtschaftsbarometer furthermore adds steel to the index. It is not made completely explicit which data the authors refer to in the publications from 1926 to 1927. However, in the graphical analysis of the year 1925, published on 5 March 1926 (312), the authors explicate that they use data on the "production of haematite, foundry pig iron and steel" to indicate the "provision with iron and steel". In late 1928, when the Spiethoff chart reappears, Krämer defines the indicator in a similar way (Krämer 9 November 1928: 1841).

Capital investment is represented by the nominal value of planned share issues of German corporations. While in the overview for the years 1897 to 1913, capital investment was indicated by the share issues of industrial and transport companies, Krämer shows that for the post war years these specific statistics are not available (Krämer 15 January 1926: 44). The data for the planned share issues are taken from the "Frankfurter Zeitung" and report the proposals of the companies' administration units to the supervisory boards. Singer argues that this indicator is even more sensitive to economic cycles than the realised emissions

[29] Krämer sometimes uses the term "provision" instead of the term "consumption". Both terms are used as synonyms. This implies that it was assumed that the net production of iron and steel was fully utilised.

(Singer 2 July 1926: 875 footnote 1). Krämer explains that realised emissions, as reported by the Statistisches Reichsamt, offer valuable information about the magnitude of share issues. However, the indicator taken from the Frankfurter Zeitung provides more recent data and gives information about the direction of development of the emissions (Krämer 15 January 1926: 44). All data are presented as index numbers. They represent the average deviation of the monthly percentage figures 1924-25 from the monthly average 1925.

Singer emphasises that the interplay between Spiethoff's main factors of explanation is "fundamental to all economic organisation of our time" (Singer 18 June 1926: 819). In his article "Bemerkungen zur Konjunkturforschung" (Remarks on business cycle research), which initiates the debate with Adolf Löwe, Singer admits that "it was quite questionable whether they [Spiethoff's explanatory factors, A/N] would also be able to contribute significantly to the brightening of German economic conditions after the end of the currency disruption". The analysis of Spiethoff's statistical indicators for the years 1924 to 1926, however, convinces him of the fact "that even in this turbulent period of adjustment to the new conditions of existence of the German economy, the rhythm of capital tension has proven its dominating power" (Singer 2 July 1926: 875). Singer concludes "that the explanatory and predictive value of the method is greater than I myself had assumed when I started the experiment" (Singer 17 September 1926: 1277). He is even confident that the Wirtschaftsdienst is able to make reliable economic forecasts within the narrow scope that Spiethoff's theory defines.

Spiethoff's statistical indicators are interpreted with reference to his model cycle (figure 3 on p. 65). An increase in both statistical indicators in the course of economic stagnation indicates a tendency towards economic revival, which can initiate a new upswing if the depressed economic spirit can be restored. During an economic upswing, the domestic consumption of iron and steel as well as the planned issue of shares intensify considerably. The period of capital shortage and the transition to stagnation are characterised by a decline in both factors. More specifically, the pre-war cycles as well as the curves for the years after the currency stabilisation show that the movement of the capital curve usually precedes that of the curve of the domestic consumption of iron and steel (Singer 18 June 1926: 819; see also figure 2 on p. 64; Krämer 12 November 1926: 1556).

Singer demonstrates that during the first months of 1926 the curve of the planned emission of shares has in fact been rising.[30] However, the increase has not been strong and the share

[30] It should be noted that the data was only available to the authors of the Wirtschaftsdienst with a delay of one and a half to two months. The publication dates of the articles therefore deviate from the dates to which the authors refer by at least this period of time.

emissions have not even reached the average of the year 1925. Since, in addition, the domestic consumption of iron and steel has remained on a very low level, Singer diagnoses that the economy still stagnates (Singer 18 June 1926: 819). His findings confirm the analysis of the previously published reports Zur Lage. With regard to the first months of 1926, Singer and Krämer claimed that the economy is caught in "stagnation" (Singer 22 January 1926: 77, 5 March 1926: 281; Krämer 2 April 1926b: 421-422, 30 April 1926: 561-562), and more specifically remains on the sub-stage of economic "decline" (Krämer 30 April 1926: 562). Therefore, an atmosphere of economic revival, which had spread among private companies and banks at the turn of the year, has been misleading (Singer 19 February 1926: 213, 5 March 1926: 281; Krämer 2 April 1926: 421). For confirmation, they point at the constantly low level of the domestic consumption of iron and steel that Krämer considers a "sensitive barometer" (Krämer 2 April 1926: 422, 4 June 1926: 733). Singer explains that, although the production of iron and steel had increased, which had contributed to the optimistic mood, the export of iron had grown even more strongly. Consequently, the extended production had not indicated a grown demand for producers' goods of the domestic industry and therefore any tendency towards economic revival (Singer 5 March 1926: 281). Here, he refers to a central argument of Spiethoff's analysis.

The Harvard-inspired chart

The second chart of the Wirtschaftsbarometer adopts the categories of the "index of general business conditions" (Persons 1919: 111), a barometer developed by the Harvard Committee on Economic Research (Singer 18 June 1926: 819). It plots three curves to indicate activities at the stock market, the commodity market and the money market. In the Wirtschaftsbarometer the stock market is represented by the stock price index reported by the Statistisches Reichsamt. As an indicator for the commodity market the sum of bills of exchange is reported. The interest rate of bank-endorsed bills serves as an indicator of the money market. The data units are the same as in the first chart (figure 5 on p. 76).

At first glance, it surprises that the Wirtschaftsdienst adopts the categories of the Harvard index, since on a methodological level the Harvard approach differs fundamentally from Spiethoff's concept of statistical business cycle analysis. The Harvard index had been built on a purely empirical basis. In order to construct the barometer, chief statistician of the Harvard Committee Warren Persons started with reviewing a large amount of economic data series retrieved from economic newspapers and publications of official statistics. He and his

team analysed more than twenty series by means of data decomposition and simple correlation analysis and selected those that showed considerable cyclical fluctuations. In a further step, those series that varied simultaneously were matched into groups. Finally, three groups of series remained, which fluctuated with a certain time delay. For each group, the data series were condensed into one synthetic series. Plotted in a diagram, they constitute the commonly known ABC-curves of the index.

Persons found that fluctuations at the stock market preceded variations of real production and commodity prices. Finally, data on the money market fluctuated with some time lag as compared to the first and second group (Persons 1919: 111-114). The researchers of the Harvard Committee used the barometer to make forecasts about future developments. Persons justified these inferences by the belief "in the existence of an 'ordinary universe' with 'normal' conditions" (Lenel 2021: 147). In such a surrounding there exist stable patterns, such as the typical sequence of movement of the three markets, which can be revealed with the help of scientific methods (Lenel 2021: 147). Singer critically remarks that the Harvard Committee applies methods that are oriented towards the natural sciences and appear rather inappropriate from an understanding of economics as a science of the humanities (Singer 15 January 1926: 43). Singer emphasises that, in contrast to a purely empiricist approach, Spiethoff provides a spelled-out theoretical explanation of business cycles. From his theory, he derives a small set of statistical indicators, which he interprets with reference to his model cycle. Singer appreciates the sophisticated terminology and the extended historical foundation of his research (Singer 15 January 1926: 43).

In the secondary literature the seeming differences of both approaches is discussed as well. Kulla (1996: 125-126) claims that the three additional figures presented in the second chart of the Wirtschaftsbarometer do not play any significant role, neither in Spiethoff's theory, nor in Singer's comments. He quotes Rudolph Gater (1931: 7)[31] who argues that adopting the Harvard categories has to be regarded "as a concession either to a different theory of the business cycle or to the empirical approach" (Kulla 1996: 126). These claims are inaccurate, though.

Spiethoff's model cycle (figure 3 on p. 65) also considers stock market prices and "the interest rate" as indicators of the state of the economy. Spiethoff counts a decline in stock market prices among the typical symptoms of the stage of capital shortage. The development

[31] Gater, Rudolf (1931) Die Konjunkturprognose des Harvard-Institutes. Eine Kritik ihrer Methoden und Ergebnisse, in: *Züricher Volkswirtschaftliche Forschungen*, vol.17, Zürich.

of the interest rate is even considered in more detail. Spiethoff argues that during an economic upswing progresses the interest rate begins to increase. A considerably high level of the interest rate signals a capital shortage. During an economic decline, the interest rate falls again. As we have seen, in the charts that provide an overview of the pre-war cycles of the German economy (figure 2 on p. 64) respective data are included as well. The data representing the categories of the Harvard index, therefore, also contribute to the analysis based on Spiethoff's conception.

In the "Wirtschaftsbarometer für das 3. Vierteljahr 1926" (Economic barometer for the third quarter of 1926), Krämer furthermore states that the second, Harvard-inspired chart shows "the […] symptoms of stagnation [here using a genuine term of Spiethoff's business cycle explanation, A/N], falling or unchanged low interest rate and rising stock market prices" (Krämer 12 November 1926: 1556). Krämer thus interprets the observations of the "Harvard categories" on the background of Spiethoff's model cycle, too.

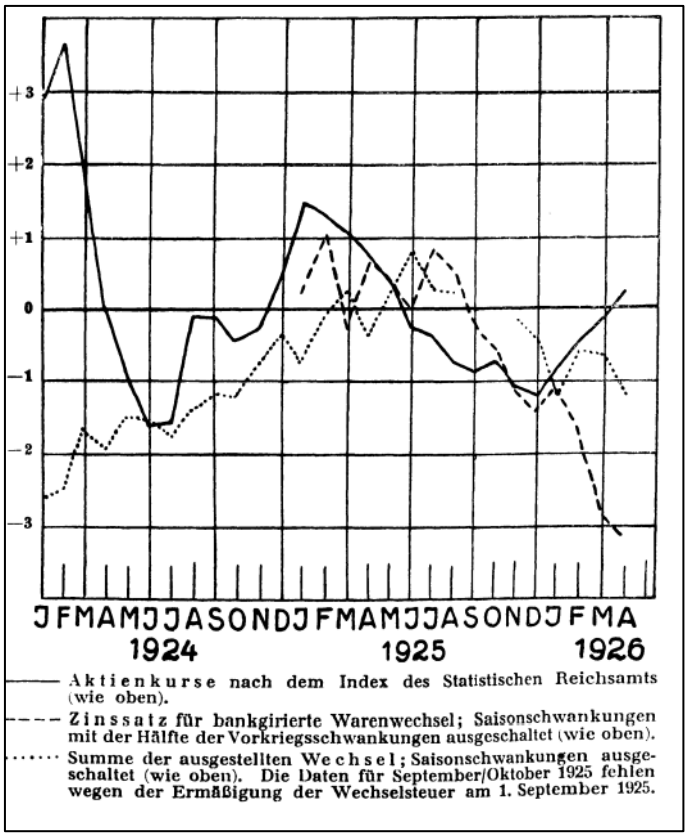

Figure 5: The second chart of the Wirtschaftsbarometer adopting the categories of the Harvard index (Singer 18 June 1926: 819)

Singer himself states that the statistical descriptions provided by the Harvard Committee, despite the methodological flaws underlying their construction, are characterised by "clarity and consistency" (Singer 15 January 1926: 43). He demonstrates the links between the Spiethoff-based chart and the pattern of economic fluctuations defined by the Harvard index. Referring to the first months of 1926, he finds that the activity at the stock market increased "pretty much in tandem with the share issue" (Singer 18 June 1926: 819). Both curves had fallen during large parts of 1925. The curve of the stock market prices began to increase in December 1925. In January, the curve of the share issues started to rise as well. Until April, the increase in both was only moderate. The curve of the share issues

could not reach the 1925 average, while the stock market prices only slightly exceeded the average in April 1926.

Moreover, Singer observes that the sum of bills of exchange, which represents the commodity market, moved similar to the curve of the domestic consumption of iron and steel. Like the former indicators of the capital market, both fell during large parts of 1925 and reached their bottom points in January 1926. The sum of bills of exchange rose slightly in February and afterward decreased again to the January level. The domestic consumption of iron and steel slightly increased until March and fell again in April. However, as Singer shows, the iron and steel consumption moved at a lower level than the bills of exchange.

In the reports Zur Lage, Krämer considers both the domestic consumption of iron and the sum of issued bills of exchange as indicators, which "best illuminate those facts that could be described as the degree of domestic business activity" (Krämer 3 September 1926: 1197). In accordance with Spiethoff's analysis, he argues that the domestic consumption of iron and steel signals the "initiation and implementation of new projects" of the German industry (Krämer 3 September 1926: 1197). Krämer regards the sum of issued bills of exchange as an indicator for the amount of concluded business transactions and, more specifically, the volume of producers' purchases (Krämer 4 June 1926: 734, 22 October 1926: 1441). While Spiethoff's model cycle does not include an indicator for turnover, like the sum of bills of exchange, Krämer uses this measure for a production-side explanation of the cycle that fits into Spiethoff's scheme. For July 1926, he observes that total turnover increases, while the amount of issued bills of exchange decreases, from which he concludes that the increase in total turnover is driven by an increase in consumption. Krämer argues that "[d]espite this favourable development of […] the overall sales activity", the fall in issued bills of exchange indicates that stagnation is not yet over (Krämer 3 September 1926: 1198).[32]

With regard to the interest rate for bank-endorsed bills of trade Singer finds that these continued to fall sharply. From January until April, it fell considerably below the 1925 average. The development of the money market is also discussed in the reports Zur Lage. The reports reveal an "abnormal liquidity on the money market" (Krämer 2 April 1926: 422) and falling interest rates. On 2 April 1926 (421-422) Krämer explains that after the critical preceding

[32] It has to be made clear, though, that the sum of issued bills of exchange, as an indicator for domestic business activity, does not distinguish whether the producers' purchases are used for the production of producers' or consumers' goods. From the perspective of Spiethoff's theory it thus less precisely focuses on the origin of the genuine business cycle. However, Krämer argues that it is necessary to also look at the figures for turnover and trade in goods, "for the symptoms of the business cycle are numerous and, even if one has given preference to one theory or another, one will not be able to disregard any of the other aids" (4 June 1926: 733-734).

months, private companies primarily use their revenues to improve their cash balances. Productive investments are seldom. Furthermore, financial investors prefer secure investments with a fixed interest rate to company shares (Krämer 30 April 1926: 561). Both observations explain a fall in the interest rate. This analysis is in accordance with Spiethoff's explanation of a decline in the interest rate during stagnation: "The fear of loss-making investment causes capital to flow into the money market and depress the interest rate" (Spiethoff 1925: 70). Singer summarises that both charts lead to the same conclusion: "The entire economy is characterised by great caution and reserve. People are tired of mirage cycles and above all want cleansing, tightening and consolidation" (Singer 18 June 1926: 819).

It is reasonable to believe that by referring directly to the Harvard index, the authors aimed to link the business cycle reporting of the Wirtschaftsdienst with the work of the Harvard Committee on Economic Research that was internationally discussed and appreciated (Lenel 2021: 143). In different articles, Singer emphasises the Harvard researchers' achievements: A profound quantitative economic analysis affords "the application and review of new statistical means of representation. The Harvard Committee on Economic Research deserves credit for taking the first and almost only step in this direction" (Singer 1928: 326). According to Singer, the researchers of the Harvard Committee developed "likewise subtle and simple statistical-technical methods" that allowed them to "form an overall picture out of the data material" (Singer 2 July 1926: 876-877). He appreciates that the Harvard index condensed the main factors of economic activity into one chart, like the Wirtschaftsdienst claimed to provide a profound picture of the state of the economy with Spiethoff's two statistical indicators. Singer emphasises that the charts published in the Wirtschaftsbarometer "represent the most important features of the state of the German economy. They differ from all related attempts in that they do not pick out mere symptoms […], but causal factors whose movement determine ups and downs of the economic cycle" (Singer 18 June 1926: 819). In his attempt to link the two, it certainly played into Singer's hands that the Wirtschaftsdienst's second chart showed "the, according to Harvard, typical sequence of peaks of the three curves for the year 1925", which Singer calls "remarkable" (Singer 18 June 1926: 819).

In short, the business cycle analysis of the Wirtschaftsdienst made use of the Harvard categories to report additional data, which are also relevant for Spiethoff's explanation of business cycles. Spiethoff's theory incorporates the idea that an increased activity at the stock market precedes a rise in production, which is followed by a tension at the money market. The authors of the Wirtschaftsdienst aimed to demonstrate that, with the Spiethoff-chart, the

Wirtschaftsdienst offered an equally simple but sophisticated statistical tool like the one developed by the Harvard researchers, which in their view even outperformed the latter, as it integrated theoretical reasoning and abstained from a mechanical view on economic processes.

The challenges of interpreting the Spiethoff-chart in 1926/1927

Despite Singer's optimistic mood at the time of the first publication of the Wirtschaftsbarometer, he and Krämer were soon confronted with challenges concerning its interpretation. During the year 1926, the two curves of the Spiethoff-chart diverge considerably and therefore deviate from Spiethoff's model cycle. In the article "Zur Wirtschaftslage im ersten Halbjahr 1926" (On the economic situation of the first half of 1926), which also includes the second publication of the Wirtschaftsbarometer, Krämer emphasises that the domestic consumption of iron and steel, although it has considerably increased since April, remains significantly below the value of the previous year (Krämer 13 August 1926: 1094). In contrast, Spiethoff's second indicator, the planed share issues by private companies, increased strongly. The third Wirtschaftsbarometer indicates that in September 1926 the share issues comprise even three and a half times the average value of 1925 (Krämer 12 November 1926: 1556). From Spiethoff's model cycle one would have expected that the curve of iron consumption would soon follow the share issues. However, Krämer explains that the capital raised by private companies is mainly used to "finally finance the production facilities purchased in the previous year by means of short-term funds" (Krämer 13 August 1926: 1094) and to improve the companies' cash balances (Krämer 31 December 1926: 1805). Consequently, it does not contribute to a decisive revival of industrial activity. This explains the low level of the domestic consumption of iron and steel (Krämer 13 August 1926: 1094).

Krämer calls the strong discrepancy between both curves "uncommon" (Krämer 12 November 1926: 1556) for Spiethoff's statistical model. However, he does not infer a general weakness of Spiethoff's barometer from this finding but considers the discrepancy an exceptional phenomenon caused by the extraordinary circumstances of the German economy: It indicates "a, due to its extent, unique process of recollection of a private working capital fund or, more suitable, the improvement of internal liquidity" (Krämer 12 November 1926: 1556). Thus, the argument of structural crises, which has been emphasised by Singer and Krämer in the reports Zur Lage, serves Krämer with an external cause for the deviation of the observed data from Spiethoff's model cycle. For Krämer, Spiethoff's statistical instrument remains largely untouched.

Towards the end of 1926, the German economy passes over to a new economic upswing (Krämer 31 December 1926: 1806), which intensifies during 1927. This is indicated by a strong increase in the domestic consumption of iron and steel. Now, however, Krämer faces considerable problems of interpreting the series presenting the planned share issues by German companies. During the first months of the year, it oscillates in zigzag line around a horizontal trend and sharply declines later in the year. In the report Zur Lage of 4 November 1927 (1693-1694), Krämer points out that, as a result, the relation of the two Spiethoff-curves reverses as compared to 1926. In his explanation, Krämer repeats the argument that during stagnation and economic depression, private companies have not transferred their yields and inflowing capital directly into productive investments but held them as means of liquidity or put them into short-term investments. In the course of the upswing, private companies primarily use these funds to realise productive investments. Furthermore, the internal capital formation is enforced by reduced costs, for example by the low prices of basic materials. Therefore, the production of producers' goods can increase during 1927, although the planned share issues stagnate or even decline. According to Krämer, the decline in share issuance and the opposite movement of the two curves is a consequence of the unusually strong liquidity creation during the year 1926.

However, Krämer furthermore observes that as the year progresses the production of producers' goods remains at a high level, although production costs rise and internal capital formation decreases. In addition, it is difficult to raise capital, at home and abroad. Krämer concludes "that the extent of the investment programme has run ahead of the capital supply". He explains that this is possible since the "gap has been filled by short-term credits" (Krämer 4 November 1927: 1694). In the reports Zur Lage, this is indicated by an increase in the sum of bills of exchange issued by the Reichsbank. These findings show that, for the year 1927, the planned share issues by German companies in general work rather poorly as an indicator of investment activity. As the year progresses this factor seems to be more and more decoupled from the expansion of the production apparatus. It is therefore not surprising that the Wirtschaftsdienst stops publishing the Wirtschaftsbarometer in mid-1927, just one year after its first release and with a total of five publications only.

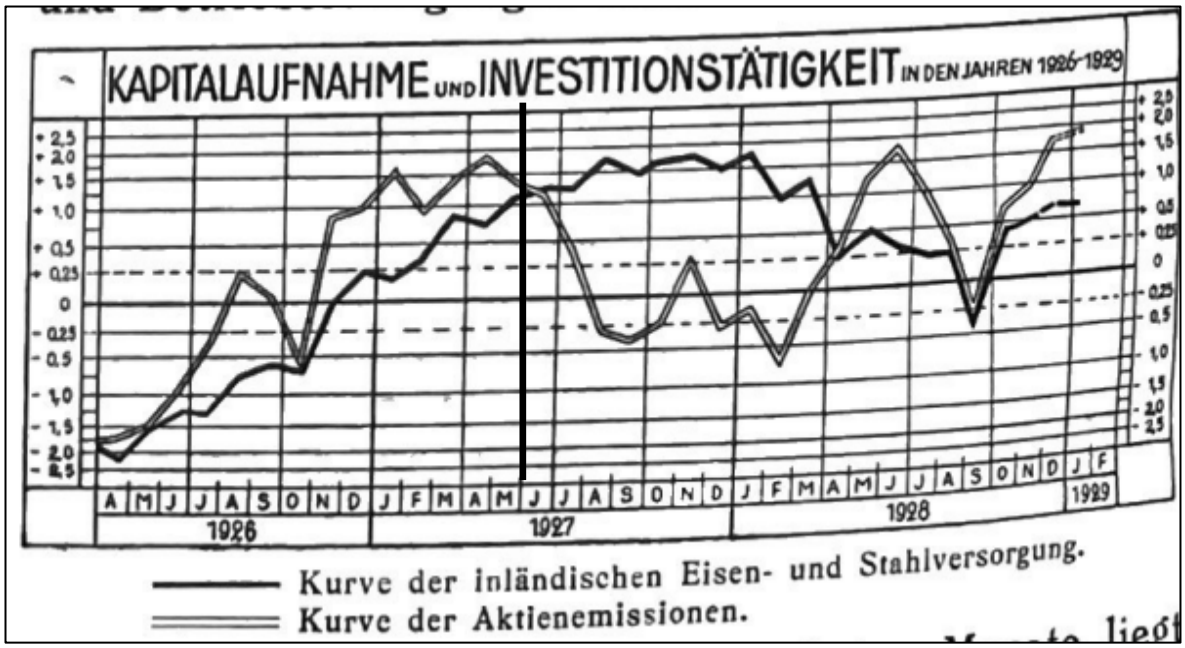

Figure 6: Chart plotting Spiethoff's main statistical indicators, similar to the first chart of the Wirtschaftsbarometer (Krämer 22 March 1929: 486). Vertical bar added. It indicates the time of the last publication of the Wirtschaftsbarometer on 3 June 1927.

However, the Spiethoff-chart reappears in a few reports Zur Lage in 1928 and 1929. The chart above (figure 6), published in March 1929, illustrates nicely the challenges Krämer faced in interpreting the curves in 1926 and 1927. First, it shows the divergence in the developments of the domestic consumption of iron and steel and the share issuance in summer 1926 that lasted, with a short interruption, until the first half of 1927. The vertical bar indicates the time of the last publication of the Wirtschaftsbarometer. As discussed in the report Zur Lage of 4 November 1927, the emission curve in 1927 first oscillates around a horizontal trend and then sharply declines. In contrast the domestic consumption of iron and steel increases further and from summer 1927 until early 1928 remains at a considerably high level. These lasting opposite directions of movement do not coincide with Spiethoff's statistical model. From late summer 1928 on, the two graphs are moving in more harmony again.

The challenges of interpreting the Harvard-inspired chart

Not only the Spiethoff-chart caused problems, but also the second chart of the Wirtschaftsbarometer, which applied the categories of the Harvard index. In his commentary text on the "Wirtschaftsbarometer für das 3. Vierteljahr 1926" (Economic barometer for the third quarter of 1926), Krämer admits difficulties in interpreting the numbers of the bills of exchange that are used as an indicator of the commodity market. Krämer expects the curve to mirror the slight increase in general turnover that he had observed by referring to other indicators, for example to the number of provided wagons of the Reichsbahn. However, "[t]he curve of the bills of exchange, which in pre-war times has proven as a useful turnover index, does not indicate this slow upward movement but fluctuates randomly" (Krämer 12 November 1926: 1556) around a horizontal trend (figure 7).

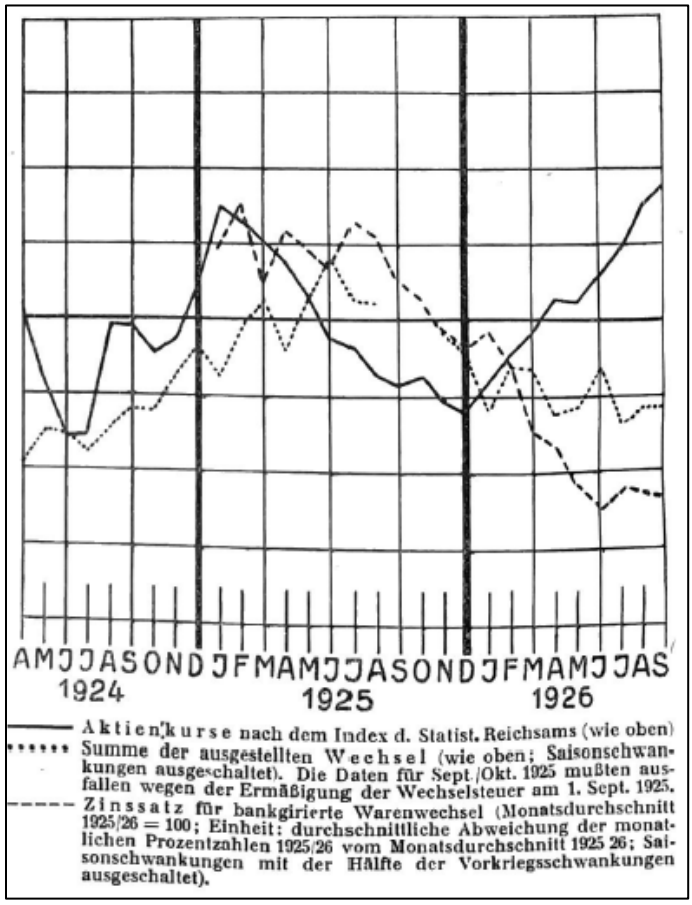

Figure 7: Second, Harvard-inspired chart of the Wirtschaftsbarometer published in November 1926 (Krämer 12 November 1926: 1556).

Among other possible explanations, Krämer takes recourse to an earlier argument: Given the assumption that bills of exchange are primarily used by producers to finance their purchases, it would be justified to conclude that while the producers still purchase little, the increase in overall turnover stems from sales of manufactured goods (for final consumption) (Krämer 12 November 1926: 1557). This would mean that the bills of exchange would not reflect sales activity in general but would provide information on producers' purchases and thus on private production activity in specific. This corresponds to Krämer's use of the data on the bills of exchange as an indicator of the cycle in his earlier analyses.

Apart from the question of what the bills of exchange actually represent, differences in the concepts of Spiethoff and Persons are revealed here. It becomes apparent that both cannot

be as easily reconciled as Singer wanted to demonstrate in the first Wirtschaftsbarometer of June 1926. Through the lens of Spiethoff's model cycle, the low level of production (especially of the producers' goods industries) that is also indicated by the bills of exchange, constitutes the decisive characteristic of the economic situation in 1926. It reveals that an overall economic revival, which is initiated in the producers' goods sphere, has not yet set in. The commodity curve of the Harvard barometer is actually defined in broader terms and is meant to mirror both purchases of producers' and consumers' goods. The Harvard barometer would thus signal an economic revival even if an increase in turnover was mainly caused by an increase in the purchases of consumers' goods. To Spiethoff, such a development would not indicate a genuine cycle, though.

Due to these severe challenges of interpreting the Wirtschaftsbarometer, in June 1927, it was eventually discontinued, just one year after its first release and with a total of five publications only. However, Kulla's claim that the "Spiethoff-barometer […] disappeared without a sound from the journal" (Kulla 1996: 126) is inaccurate. As the following section shows, the reports Zur Lage, published on a monthly basis until mid-1928 and, less frequently, until 1930, continued to prioritise Spiethoff's indicator for production activity for the diagnosis of the current economic situation and adhered to his over-investment explanation of business cycles. In addition, the graph plotting Spiethoff's main statistical indicators (figure 4 on p. 72), showed up again in the reports Zur Lage, once in 1928 and twice in 1929.[33] That means that between 1926 and 1930, Spiethoff's work on business cycles provided important analytical and interpretive guidance to the business cycle reporting of the Wirtschaftsdienst, even if parts of his statistical instruments were adjusted on the background of experience.

2.4 The reports "Zur Lage"

The reports Zur Lage have an exposed position right at the beginning of a Wirtschaftsdienst's issue. This shows that special emphasis was placed on the business cycle reports, which were published monthly since 1926. The reports contained various statistical information, including data on the capital and money markets, labour market data, data on real production and commodity prices as well as data on foreign trade. These were regularly summarised in a table at the end of the reports and discussed in continuous text, thereby referring to current economic and political developments.

[33] In addition, the Spiethoff-chart is included in the article "Die deutsche Wirtschaft im Jahre 1929" (Krämer 3 January 1930: 1-5).

Although the reports provided broader empirical information than considered in Spiethoff's economic weather station, in their analyses the authors referred to Spiethoff's statistical indicators and his model cycle as the main analytical and interpretive framework. They applied Spiethoff's non-monetary over-investment explanation of business cycles and took up his notion of psychological influences on the course of the macro-economy.

2.4.1 Production side of the cycle

Spiethoff emphasises the production of producers' goods and basic materials as the decisive sphere for the origin of business cycles. The reports Zur Lage attach special importance to Spiethoff's favoured indicator for the activity in this sphere – the domestic consumption of iron and steel – for their assessment of the current economic situation. After the discontinuation of the Wirtschaftsbarometer, the reports Zur Lage continue to adhere to Spiethoff's indicator and continue to apply Spiethoff's over-investment explanation of the cycle. To illuminate this, this section is divided into two parts. The first part elaborates on the reports Zur Lage that were published from 1926 until mid-1927, while the second part illuminates those reports released after the last publication of the Wirtschaftsbarometer. In addition to the domestic consumption of iron and steel, the authors report further data that zoom into those branches, in which the domestically consumed basic materials are used. This is illustrated in the final part of this section.

The reports published between 1926 and mid-1927

As shown before, in early 1926 Singer and Krämer call the atmosphere of economic revival, which has spread among private companies and banks at the turn of the year, misleading (Singer 19 February 1926: 213, 5 March 1926: 281; Krämer 2 April 1926: 421). In their assessment, they refer to the constantly low level of the domestic consumption of iron and steel that Krämer calls a "sensitive barometer" (Krämer 2 April 1926: 422, 4 June 1926: 733). This highlights that they make use of domestic iron and steel consumption as a *decisive* indicator for the economic situation. Correspondingly, Krämer states on 3 September 1926 (1197) that those analyses, which instead consider only symptoms like the absolute *production* of basic materials and data on turnover, "would hardly get the meaning of the present situation right". This is reasonable against the background of Spiethoff's business cycle explanation. In Spiethoff's framework, these symptoms do not constitute reliable indicators of the business cycle since they do not focus on the specific point of the production process at which the cycle originates. Krämer shows that in July and August, the absolute production of basic materials as well as different turnover variables have increased and have approached

or even exceeded the values of the same months of the year 1925. In contrast, the domestic consumption of iron and steel as well as the issued bills of exchange developed poorly. The former has increased only slightly as compared to the previous month and remained on a below-average level, while the latter has even decreased. Krämer concludes "that stagnation has by no means been overcome yet" (Krämer 3 September 1926: 1198).

At the end of October 1926, Krämer draws a brighter picture of the economic situation. He argues that at least since April 1926 "the tendency towards a slight economic recovery within the period of depression is unmistakable" (Krämer 22 October 1926: 1441). Furthermore, he notes a remarkable increase in the domestic consumption of iron and steel in August as compared to July. However, he struggles with an appropriate interpretation of the absolute numbers: He still finds that the distance of the current numbers from the peak of the last upswing at the beginning of 1925 is still "very considerable" (Krämer 22 October 1926: 1442). The Wirtschaftsbarometer published in November 1926 shows that in August the domestic consumption of iron and steel still lies below the 1925 average (Krämer 12 November 1926: 1556). According to Spiethoff's model cycle, at an early stage of a new economic upswing the domestic consumption of iron would already approach the peak of the last upswing. However, Krämer argues that it is difficult to define the absolute numbers as "normal", "low" or "high", as the data on iron consumption are only available from 1924 onwards (Krämer 22 October 1926: 1442). He concludes that it might be unjustified to call the level of domestic business activities in August, as indicated by the consumption of iron and steel, below average despite the overall strong increase since the beginning of the year. These considerations show the uncertainties which arose from a statistical instrument that was only little tested. Krämer addresses this challenge himself: "Every economic barometer, even the one theoretically best founded, must be tested for several years under approximately comparable conditions in order to allow truly unambiguous statements to be made" (Krämer 22 October 1926: 1442).

On 31 December 1926, Krämer reviews the economic development of the year. Referring to Spiethoff's model cycle he argues that during the period from January to October 1926 the German economy rested on the stage of "first increase" (Krämer 31 December 1926: 1806). This means that, although economic stagnation was still prevalent, the main indicators of the cycle began to increase. In his classification, Krämer is primarily guided by the domestic consumption of iron and steel, which increased slowly while the emission curve grew considerably faster since the beginning of the year. Krämer furthermore claims that in November, the economy passed over to the stage of "second increase" (Krämer 31 December 1926:

1806), at which the economy has accomplished the transition to economic upswing. At this stage, the domestic consumption of iron and steel approaches the peak of the previous cycle. In March 1927, the domestic consumption of iron and steel for the first time exceeds the peak of the previous upswing of January 1925. According to Krämer, this development confirms that the German economy "has ultimately overcome the period of recovery" and "is in a period of upswing, that means above the normal line". Krämer observes a "rather lively upswing" (Krämer 29 April 1927: 617) of the German economy that lasts until summer 1927 (Krämer 29 July 1927: 1117). The curve of the domestic consumption of iron and steel is considerably increasing.

The reports released after the last publication of the Wirtschaftsbarometer

The last Wirtschaftsbarometer was published on 3 June 1927 (810) and contained data up to April of the same year. As we saw, difficulties to explain the remarkable divergence of the curves of the share issues and the domestic consumption of iron and steel since mid-1927, led to the discontinuation of the Wirtschaftsbarometer. However, the reports Zur Lage continued to spotlight the main indicators of both charts. Coinciding roughly with the first publication of the Wirtschaftsbarometer in June 1926, a short paragraph had been introduced at the top of each report Zur Lage, which contained brief information about the monthly development of Spiethoff's two main indicators as well as the three variables from the Harvard-inspired chart (figure 8). This summarising paragraph was published further on in the second half of 1927 and until early 1928. In particular, the domestic consumption of iron and steel continued to be used as an indicator to assess the economic situation.

Sie stellen keine

ZUR LAGE

Der inländische Eisenverbrauch stieg im Mai weiter um etwa 5 % über den Stand der beiden Vormonate, die geplanten Aktienemissionen privater Gesellschaften sanken weiter. Die inländische Umsatztätigkeit war weiter sehr rege; die Zinssätze wiesen weiter nach oben, während die Effektenbörse nach dem Kurseinbruch in lustloser Haltung beharrte.

Die jüngsten Eingriffe

Figure 8: Example of the introductory paragraph summarising the development of the indicators exposed in the Wirtschaftsbarometer (Krämer 1 July 1927: 965).

In summer 1927, Krämer notes that several experts assert a worsening of the economic situation and expect a transition to economic decline. Krämer counters that the economic indicators for July only signal a temporary „upswing pause" (Krämer 2 September 1927: 1321). The domestic consumption of iron and steel indeed slightly decreases in July. However, according to Krämer, it has to be considered "that also in earlier months the upswing has not proceeded in straight line from month to month, but that often only from the quarterly figures a constant upward movement could be observed" (Krämer 2 September 1927: 1321). On average, the domestic iron and steel consumption shows a considerable increase during the three months from May to July as compared to the previous year. The statistics, therefore, do not indicate a decline of productive investment and overall business activity.

While Krämer admits that in August the overall economy approaches a peak level of occupation, he argues that this does not automatically lead to an immediate occurrence of a "critical or gradual decline" (Krämer 30 September 1927: 1482). Such a transition would announce itself, for example in a decrease in the domestic consumption of iron and steel, which in February 1925 provided an "unmistakable sign of an imminent turnaround of the overall economy" (Krämer 30 September 1927: 1481). The fact that in August 1927 this factor increases by roughly 10 % again as compared to the July value contradicts the hypothesis of an imminent decline.

At the turn to the year 1928 the German economy is still "unexpectedly insensitive and resistant to interferences" (Krämer 3 February 1928: 165). While the pace of the upswing has slowed down, Krämer argues that the economy did not yet pass over to economic stagnation. Only in February, the domestic consumption of iron and steel shows a remarkable decrease from a very high level and Krämer diagnoses a "weakening of the investment cycle" (Krämer 6 April 1928: 550). He concludes that the German economy has entered the phase of decline during the first months of 1928 (Krämer 27 July 1928: 1217).

The reports Zur Lage of the year 1928 are characterised by some uncertainties of interpretation again. Parts of the statistical observations, at first glance, seem to contradict Spiethoff's over-investment explanation of business cycles. Krämer finds that the turn from upswing to economic decline, that he observes in early 1928, is taking place first in the consumers' goods industries. The producers' goods industries are only affected afterwards (Krämer 2 March 1928: 334). From the perspective of Spiethoff's theory, this observation is surprising. As we know, Spiethoff argues that business cycles are initiated within the producers' goods sphere, from which they potentially pass over to the consumers' goods industries:

> "Usually the upswing starts from the group of producers' goods; production facilities and plants for long-term utilisation form the impetus and backbone. In an economic area that is thought to be closed, in capitalist times it is not easy to think of an upswing that starts from consumption goods and culminates in them. The upswing emanating from the producers' goods has its starting point and basis in an increased investment of capital, through which goods of mediate consumption [especially basic material like iron and steel, A/N] are purchased. From here, the movement is transferred to the consumers' goods" (Spiethoff 1925: 71)

Furthermore, Krämer observes that the decline in the consumers' goods industries is more severe than the one in the producers' goods industries. Among other factors, this becomes obvious in the relatively strong increase of unemployment numbers in the industries producing goods for immediate consumption, especially in the textile industry (Krämer 6 April 1928: 549-550, 4 May 1928: 725). Krämer comments:

> "This phenomenon is all the more surprising since not long ago a threat to the economy from insufficient mass purchasing power was hardly considered a possibility, but the insufficient supply of capital, whether from domestic sources or from foreign sources, was repeatedly pointed out to show that the continuation of the investment boom was in question" (Krämer 4 May 1928: 726)

An indeed, as this study demonstrates, also the analyses in the reports Zur Lage focussed on the relationship between capital supply and productive investment. As Spiethoff's quote above indicates, in his business cycle theory he does not regard income and immediate consumption as explanatory factors for the genuine economic cycle. The observation of "a threat to the economy from insufficient mass purchasing power" would instead suggest an underconsumption explanation of the economic decline that stands in opposition to Spiethoff's over-investment theory.

However, Krämer eventually clarifies that it was not a lack of purchasing power that triggered economic downturn in 1928 and that the sharp decline of the consumers' goods industries was caused by extraordinary circumstances. He argues that the decline in the consumers' goods sector does not result from the consumers' "inability to purchase" but from their "unwillingness to purchase" (Krämer 4 May 1928: 726). He explains that from mid-1926 until autumn 1927, the production of consumers' goods has increased unusually strongly in order to satisfy not only the running demand but also the demand that had built up in the critical months of 1926. Due to economic revival and rising incomes this pent-up demand could be translated into effective demand in 1927. Towards the end of 1927, this demand has eventually been largely satisfied. Due to that reason production is declining (Krämer 2 March 1928: 333, 4 May 1928: 726). Krämer argues that the relatively high intensity of the decline is, among other factors, caused by the fact that the consumers' goods industries are

still not very far advanced in rationalisation (Krämer 27 July 1928: 1217) and show "organisational backwardness" (Krämer 9 November 1928: 1841). Krämer concludes that the intense increase and decline in consumers' goods industries constitutes an "exceptional movement" (Krämer 9 November 1928: 1841) caused by factors external to the genuine business cycle.

He emphasises that the "degree of production activity and turnover of the consumers' goods industries [cannot be made] the yardstick of the general business cycle" (Krämer 9 November 1928: 1841). According to Krämer, the course of the economy still shows "the character […] of an investment cycle" (Krämer 27 July 1928: 1217) dominated by the regular movement of capital investment and production activity in the producers' goods industries. As an important indicator, he emphasises again "[t]he domestic consumption of iron and steel, which gives an approximate and, as confirmed by the experience of recent years, reliable indication of the level of investment activity" (Krämer 9 November 1928: 1841). Since the beginning of 1928, the curve showed a barely interrupted decline. With this explanation Krämer is back in line with Spiethoff's argumentation. This is confirmed by the fact, that in the last report of 1928 the Spiethoff-chart shows up again (figure 9 on p. 90).[34] Krämer uses the chart to illustrate the development of the iron and steel curve (Krämer 9 November 1928: 1841).

[34] Note the change in the indicator for capital investment. Instead of the planned share issues, retrieved from the "Frankfurter Zeitung", it now displays actual share issues, which are taken from "Wirtschaft und Statistik". The data units have also been changed (see description below the chart).

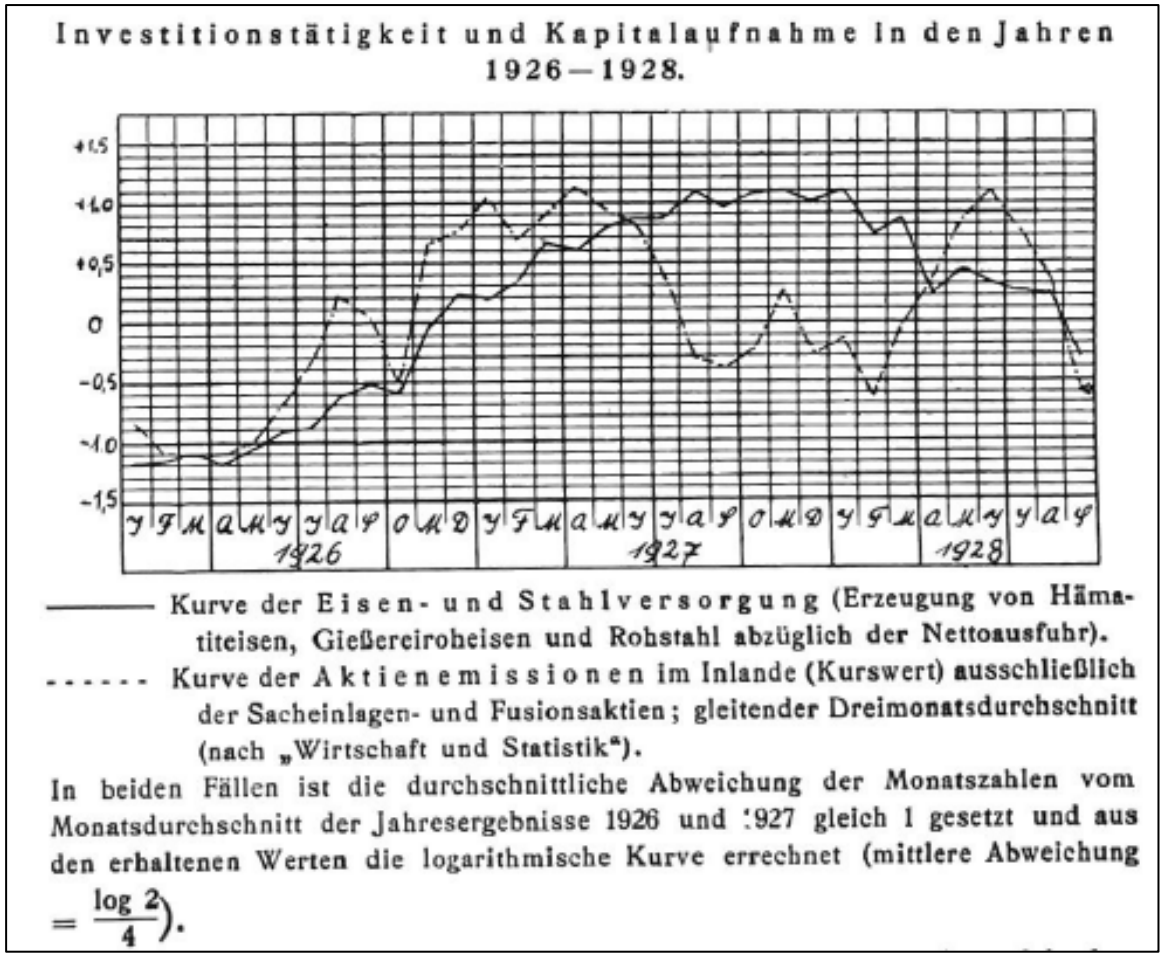

Figure 9: Chart published in the report Zur Lage of 9 November 1928 (Krämer: 1841). It plots Spiethoff's main statistical indicators, similar to the first chart of the Wirtschaftsbarometer.

In 1929 the decline of the domestic consumption of iron and steel, which lasted over large parts of 1928, discontinued. The indicator stabilised on a relatively high level. Krämer finds that, despite unfavourable conditions of capital supply the domestic consumption of iron and steel appears to be "extraordinarily resistant" (Krämer 23 August 1929: 1450). He explains that an increasing export activity contributes to the stability of the domestic production level (Krämer 3 January 1930: 2). Towards the end of 1929, Krämer, however, diagnoses the beginning of a sharp economic decline that manifests itself in 1930 through a low level and further decline of the domestic consumption of iron and steel. As compared to the first quarter of 1929, during the early months of 1930 the indicator falls by more than 25 percent (Krämer 2 May 1930: 745). Krämer blames the decline in German business activity on a wrong economic and social policy, which caused a misguided development of the German economy during the 1920s. As a consequence, he expects a long-lasting economic depression (Krämer 22 March 1929: 486).

Further data on the producers' goods sphere

Since the end of the year 1926, Krämer regularly refers to data on the machinery industry. He reports the degree to which the production capacities of the machinery industry are utilised as well as the (volume of) incoming orders. He furthermore refers to statements from the reports of the "Verein deutscher Maschinenbau-Anstalten" (Association of German machine building companies). Krämer explains that "the degree of employment in the metal working industry is of greatest importance for the assessment of the economic situation, not only because these branches employ a decisive part of the industrial labour force, but also because it indicates the extent to which the machinery of the production apparatus is being renewed and perfected, i.e. the extent to which new projects are being carried out in other branches" (Krämer 1 April 1927: 461-462). This argument fits with Spiethoff's theory, which considers the sphere of the production of producers' goods the most important for the initiation and enforcement of cyclical variations in business activity, as it indicates the expansion of overall production and technological innovation. According to Krämer, the intensified activity of the machinery industry "is a symptom of the purchasing power and willingness to buy of other industries and also of agriculture" (Krämer 19 April 1927: 617) and therefore gives an insight into the level of overall industrial activity.

The reports Zur Lage show that the domestic consumption of iron and steel and the level of activity in the machinery industry typically move in harmony. In 1927 and 1928 the reports refer to them as complementary factors that confirm each other (Krämer 1 April 1927: 461-462, 29 April 1927: 617, 1 July 1927: 965, 2 September 1927: 1321, 30 September 1927: 1481, 3 February 1928: 165, 27 July 1928: 1218). While the domestic consumption of iron and steel just records the net production of the basic materials (production reduced by the export surplus), the degree of activity in the machinery industry points more specifically to the use of these basic materials for productive purposes. That is why Krämer calls the machinery industry the branch, which is "perhaps the most sensitive to business cycles" (Krämer 3 February 1928: 165).

In order to get a deeper insight into the purpose of iron and steel consumption, Krämer furthermore considers construction activity. He distinguishes between the construction of residential buildings and buildings for industrial use. Although it requires iron and steel as basic materials, experience from pre-war years has shown that increasing residential construction activity is a typical "real symptom of stagnation" (Krämer 22 October 1926: 1442). According to Spiethoff's theory, housing construction does not directly translate into a lasting ex-

pansion of private business activity, as it does not contribute to an improvement and/or expansion of the production apparatus. If instead iron and steel is used for the construction of industrial buildings and the production of machinery it supports an overall economic upswing.

To sum up, the reports use the domestic consumption of iron and steel – Spiethoff's favoured indicator for the production side of the cycle – as the main reference point for the assessment of the situation of the overall economy. To have a more differentiated view on the use of iron and steel in the domestic economy, the reports add data from the machine building industries and on construction activity. Krämer adheres to Spiethoff's over-investment explanation of business cycles. When in 1927 and 1928 the consumers' goods industries fluctuate prior to the producers' goods industries and with greater intensity, this is explained by the catch-up processes of consumption after the structural disruptions of the economy as a consequence of the war.

2.4.2 Investment side of the cycle

As the analysis of the Wirtschaftsbarometer (section 2.3) reveals, it was particularly challenging to find a suitable indicator for capital investment. In mid-1927, the value of planned share issues by German corporations fell considerably, so that the level of the emissions on the one hand and of the domestic consumption of iron and steel on the other diverged sharply. This observation is difficult to explain against the background of Spiethoff's empirical characterisation of the cycle. However, in his introductory article for the Wirtschaftsdienst, Spiethoff already warns against an uncritical adoption of the indicators, which he has exposed as the most significant of the *pre-war* cycles, for an analysis of the developments after the war. He refers in particular to the changes in the money and capital markets and in the conditions for raising capital, which have been brought about by the war:

> "A further uncertainty for prediction is brought about by the stormy change in the constitution of the national economy. This has shaken the value of the old indicators for certain economic processes. Especially the changed condition of the capital and money markets poses new tasks. […] Germany's large foreign loans and the effects of the Dawes Agreement, for example, represent a new situation that must be reliably recorded and evaluated. It would be childish to believe that we can quickly arrive at reliable indicators for the changed circumstances. The prerequisite for this is twofold: conditions must have calmed down and reached a certain steadiness. And the indicators must be evaluated" (Spiethoff 8 January 1926: 7)

And indeed, the sphere of capital investment was influenced considerably by extraordinary influences and structural problems, which are addressed in the reports Zur Lage.

1926: The recovery of the German capital market

In 1926, the German capital market first appears to recover. On 2 April 1926 (422) Krämer argues that, while economic stagnation is still prevalent, after the sharp economic decline of the year 1925, the domestic capital market slowly builds up again and major share issues have been realised during the first months of 1926. The emitters even overestimate the receptiveness of the recreating domestic capital market. Consequently, in May 1926 the emissions decline considerably but can be restored already in June (Krämer 22 October 1926: 1441). As we saw, the share issues by private companies at first do not initiate a decisive extension of the production apparatus and a revival of industrial activity, though. This is due to the fact that the capital raised is mainly used for the redemption of short-term liabilities and to improve the companies' cash balances (Krämer 13 August 1926: 1094, 31 December 1926b: 1805). Since the domestic consumption of iron and steel remains on a relatively low level during the year, Krämer diagnoses "an abundant supply of capital, measured against the needs of the economy" (Krämer 3 December 1926: 1658).

This disparity is reinforced by the effects of rationalisation and concentration. Krämer explains that mergers of private companies allowed for a reduction of production costs, mainly through layoffs. As a consequence, the internal capital formation is supported (Krämer 31 December 1926: 1805). In line with Spiethoff's theory, in which the capital side plays a decisive role for the productive dynamics of the economy, Krämer explains: "The promotion of new capital formation at the expense of a temporary loss of consumption is one of the most important means of stabilising our economy and is particularly important when there is some guarantee that this capital will be used for the realisation of future-oriented projects [...]" (Krämer 2 July 1926: 874). He expects that, once production activity intensifies again, competition among private companies will initiate new processes of innovation. With regard to future challenges he, however, emphasises that after stabilisation will have fulfilled its purpose to stimulate capital formation, a new balance between production and consumption, capital and income, needs to be established. Krämer emphasises that, in order to achieve this, it will be essential to find a price level that ensures the profitability of private companies on the one hand and allows for a high level of employment on the other (Krämer 31 December 1926: 1805).

At the end of the year, Krämer draws an overall optimistic conclusion: "The stagnation brought about the reconstruction of a German capital power and thus the possibility of covering a large part of the domestic capital requirements from the earnings of the country's own economy" (Krämer 31 December 1926: 1805). Against this background, Krämer calls

the increase in industrial activity, which finally set in in late-1926, "a healthy upward movement" (Krämer 4 March 1927: 310).

During the first months of 1927, the domestic capital market is getting tighter. According to Krämer, this is in part due to the fact that the increasing domestic business activity now comes along with considerable capital requirements. Moreover, in February the government issues a large public bond, which further takes up the capital supply. Krämer argues that the government officials have "overestimated the absorption capacity of the German capital market". As a consequence, it is harder for private corporations to raise capital that way. Krämer even speaks of a temporary "crisis at the capital market" (Krämer 29 April 1927: 617). Overall, the average level of share issues remains on a relatively high level until August, though. However, it oscillates with considerable amplitude around a horizontal trend.

Mid-1927: The problems with foreign lending and the German balance of trade

As highlighted in the Wirtschaftsbarometer, in mid-1927 the curve of the share issues begins to decrease sharply and falls below the curve of the domestic consumption of iron and steel. Since the production activity remains constantly high, the levels of the two curves show a remarkable disparity until the beginning of 1928. According to Krämer, this can in part be explained by the "pre-accommodation with capital" (Krämer 29 July 1927: 1118) in 1926 and early 1927.

Moreover, foreign lending comes into focus. Krämer argues that the sharp decline of the emission curve also indicates the enduring tensions at the domestic capital market, which are compensated for by domestic short-term loans as well as foreign lending (Krämer 4 November 1927: 1694). With regard to the latter, he observes that while the volume of foreign bonds in 1927 is on average only slightly higher than in 1926, *short-term* foreign debt has increased considerably and reached an "alarming level" (Krämer 4 November 1927: 1693, 2 September 1927: 1332). He emphasises that the foreign loans, which allow production and consumption to be continued on a high level, "make our situation appear more favourable than it is" – in fact the upswing is bought "on tick" (Krämer 1 July 1927: 966).

Krämer argues that, also against the background of Germany's obligation to pay war reparations, it is important to improve its balance of payments and to strengthen exports. In mid-1920, the German balance of trade is however passive. Krämer explains that the foreign trade deficit is even intensified by the upswing of the domestic economy in late-1926 and 1927. While rationalisation has led to a revival of the domestic goods market since 1926, it has not brought about a reduction in the domestic price level compared to the world market level

that would be sufficient for German products to be competitive on foreign markets. Therefore, it has not allowed for an increase in exports (Krämer 1 July 1927: 966). Moreover, as the current upswing progresses the German economy runs the risk of a further upward pressure on the price level caused by a wage-price-spiral. Therefore, Krämer warns against a „baleful exaggeration of the upswing" (Krämer 29 July 1927: 1118).

Under these conditions, especially since domestic capital formation as a whole is losing importance, Spiethoff's model cycle struggles to depict the economic situation appropriately. This is in fact what Spiethoff warns against in the introductory article for the Wirtschaftsdienst (see quote on page 92). As we saw, he particularly points at the dependency of the German economy on foreign lending and the challenge to fulfil the reparation obligation, readjusted in the Dawes Agreement in 1924, which Krämer discusses in 1927. Therefore, Spiethoff makes clear that specifically with regard to the capital side of his model cycle, his economic weather station can only be applied to a limited extent in the current situation. The structural consequences of the war are predominant as compared to cyclical influences. In Spiethoff's words, the „conditions" have not yet "calmed down and reached a certain steadiness" (see quote on page 92).

Late 1927 and early 1928: The German economy's transition to decline

The difficulties of raising long-term capital continue in 1928. At the beginning of the year, Krämer points out that the domestic capital market still lies idle and foreign bonds have not come in for a couple of months (Krämer 3 February 1928: 166). Krämer expects that "[t]he still unresolved difficulties of raising capital make it likely that the financing of the upswing on its present scale will not be possible in the long run". Nevertheless, Krämer finds that the German economy is still rather „insensitive and resistant to disturbances" (Krämer 3 February 1928: 165). He points out that the data on the domestic consumption of iron and steel and the reports of the machinery industry did not show a considerable decline in productive investment so far.

Therefore, he is surprised to observe that the money market shows a high degree of liquidity since the beginning of the year. As the domestic and foreign capital markets are tightened, companies depend on short-term credits. This typically leads to a tightening of the money market (Krämer 3 February 1928: 165-166). This argument is also included in Spiethoff's model cycle, which denotes an increase in the interest rate as a characteristic of the progressing upswing (figure 3 on p. 65). According to Krämer, a possible explanation for the high degree of liquidity is the fact that the financial investors are currently avoiding long-term

investments in the stock exchange due to missing trust and incentives and instead depositing their funds at the banks. According to him „[t]he liquidity at the money market is thus to a large extent only the flipside of the undersupply of the capital market" (Krämer 3 February 1928: 166) and compatible with the observation of a continuing upswing.

However, in March 1928, he modifies his argument: He finds that the demand for financial means for productive investment has, in fact, declined gradually already since late autumn 1927. This has caused the slow easing on the capital and money markets (Krämer 2 March 1928: 334). While it is true that the economic upswing, indicated by the degree of the domestic consumption of iron and steel as well as the situation of the producers' goods industries, lasted until early-1928 (Krämer 27 July 1928: 1217-1218), this was, however, due to a delayed reaction of production. In February 1928, the domestic consumption of iron and steel finally falls considerably and heralds the transition to economic decline (Krämer 6 April 1928: 550, 27 July 1928: 1217).

Krämer characterises the observed transition to decline with reference to elements of Spiethoff's theory: „The investment boom did not come to an end directly due to the lack of available capital, instead the companies have imposed self-restraint on themselves in the purchase of capital goods before the sources of capital had been fully exhausted; only this way it was possible that the decline of production activity had not been proceeded by a critical shock" (Krämer 2 March 1928: 334). This observation fits with Spiethoff's argument that the course of the economy is influenced to a considerable degree by the decisions and actions of business people.

As we saw, Spiethoff ascribes the emergence of an over-production in the producers' goods sphere to coordination and information problems. During an upswing, the total capital fund available for the purchase of producers' goods is overestimated and the supply of producers' goods disproportionately increased. Spiethoff's concern in monitoring the business cycle with the help of his economic weather station is to warn entrepreneurs against an expansion of business activity when there is a threat of a capital shortage. Singer takes up these ideas in an article published in the proceedings of 1928 conference of the Verein für Socialpolitik on the topic of business cycle analysis. He argues that the indication of an imminent shortage of capital, if it serves as guidance for entrepreneurial decisions, can affect the economic development of the near future. He claims that this indication provides "a most useful signal. If the consideration of this signal contributes to a change of the situation (e.g. to a reduction

in the production of iron and iron products), then the diagnosis has fulfilled its actual purpose: […] economic diagnosis and therapy" (Singer 1928: 330).

Krämer underlines the same argument. An early recognition of the emerging mismatch between the production of producers' goods and the available capital stock has indeed mitigated the stagnation and even prevented a "critical shock" (Krämer 2 March 1928: 334). While Krämer does not attribute the merit of moderating the current stagnation to the Wirtschaftsdienst, his finding still underlines Spiethoff's idea of the interaction of economic factors and businessmen's decisions and illuminates the vision the weekly had for its business cycle reporting.

As a consequence of the "transition to decline" (Krämer 27 July 1928: 1217), Krämer observes an "incipient relaxation of the money and capital markets" (Krämer 9 November 1928: 1842). He argues that a reduction in consumption and a corresponding increase in savings, on the one hand, and a restraint in investment activity, on the other, fostered capital supply. With regard to the developments of the near future, he is cautious to interpret the improved capital supply as an incentive for intensified investment activity: "Whether, however, the more abundant supply of capital alone will suffice to give a new impetus to the investment activity must be doubted after the experience of 1926" (Krämer 6 April 1928: 550). Here he refers to the delayed increase of productive activity in 1926 after capital formation had already reached considerable heights. This observation fits Spiethoff's argument that economic revival is not automatically brought about by an advantageous development of certain economic factors, but furthermore depends on the confidence and optimism of business people.

1929 and 1930: The consequences of policy-induced over-consumption

At the beginning of the year 1929, Krämer fears that, instead of being on the verge of a soon economic recovery, the German economy is only „on the threshold of a prolonged depression phase" (Krämer 22 March 1929: 486). An increase in exports had softened the decline of the domestic economy in 1928. Foreign sales were however partly realised at loss-making prices. The private sector could only cope with these by further increasing the already high domestic prices. Krämer emphasises that this development cannot be permanently continued.

Furthermore, in 1929 and 1930, structural problems of the German economy become considerably visible. Krämer observes for the German economy that, although it still shows

some cyclical movements, the "normal" alternation of upswing and downswing is considerably disturbed. He attributes these disturbances above all to an increase in importance of the public sector as compared to the private economic sector and a rising interference of the economy by official authorities in the war and post-war years.[35] For Germany he observes that, as compared to the pre-war period, the share of the national income over which private companies and banks have the power of disposal has diminished considerably. Correspondingly, the share that flows to official authorities, for example as tax payments and social security contributions, and is administered by official order has increased. Moreover, official influence on wage formation processes have led to a rigid lower wage limit (Krämer 22 March 1929: 485).

Krämer claims that the increasing impact of economic and social policies restricts "[t]he automatic balancing of crisis tensions [, which] is the special feature of the free market economy" and hampers cyclical fluctuations that constitute the "life rhythm" (Krämer 22 March 1929: 485) of private economic activity under market coordination. Krämer's critical stance on the disruption of a free cyclical movement of the economy matches Spiethoff's idea of the cycle as the engine of the capitalistic economy. According to Spiethoff, the alternation of upswing and downswing – the course of the regular cycle – motivates people to utmost economic effort (Spiethoff 1925: 84).

According to Krämer, this engine is impaired above all by the fact that economic and social policy measures make it considerably more difficult for private companies to accumulate capital. High wages and tax burdens increase production costs of private companies. Especially in times of economic stagnation, these rigid costs burden private-sector earnings disproportionately. This leads to a shift between capital and income in favour of the latter (Krämer 22 March 1929: 485-486).

In an article for the Spiethoff-Festschrift published in 1933, Krämer furthermore argues that in the post-war period private and public investment activity have entered into competition with each other. Public investment projects were pushed through without taking into account the "'laws of the market'" (Krämer 1933: 127). Among other things, the issue of large public bonds led to a crowding out of private actors from raising funds at the capital market. Moreover, the amount of private savings available for private lending declined due to increased

[35] Krämer uses the term "regiminal" sector (1929: 485), which he probably adopted from Georg Friedrich Knapp's "Staatliche Theorie des Geldes" (State theory of money) (1905).

taxes (Krämer 1933: 127-128). As a consequence, the possibility of stimulating the productive forces of the economy is limited.

In a critical analysis released on the 3 January 1930, Krämer discusses the calculations and consequences of this political course:

> "The existing tendencies of wage increase and the expansion of state welfare of all kinds had been promoted by economic policy measures or omissions in such a way that the wage and tax increase, which appeared as an additional burden on production, could only be borne at all if the foreign money and capital markets had an unlimited capacity to absorb German values and if all parts of the German economy had an unlimited willingness to incur debt" (Krämer 3 January 1930: 1)

The political strategy has been based on the assumption that the absorption capacity of foreign money and capital markets would be sufficiently high, "until the sales and earnings potential of the German economy had reached […] the too high standard of living of the German people" (Krämer 3 January 1930: 1). Krämer argues that this assumption was wrong in two respects. First, the possibility of unlimited foreign lending by German companies and official units has by no means been certain. Second, the economic and social policy measures have further hampered the development of productive capacities that would be required for an increase of the "sales and earnings potential" of the German economy. Therefore, Krämer is convinced that even if foreign loans continued to be available, the crisis would only be exacerbated if these loans were used to prolong the destructive welfare policies (Krämer 3 January 1930: 5).

From Krämer's diagnosis it follows that the economic stagnation of the year 1929 was not a typical manifestation of the business cycle that emerged under the condition of free market play. It cannot be understood properly as a situation of over-production in the sense of Spiethoff's business cycle theory, since stagnation had not been caused by "speculative exaggeration of the upswing tendencies" on the part of private entrepreneurs. Instead, "only those authorities that set wages and taxes speculated, and they speculated wrongly". The result is "one of the rarely occurring crises of over-consumption" (Krämer 3 January 1930: 2): an exaggerated aggregate consumption, encouraged by economic and social policies, which exceeds the production capacities of the German economy. For confirmation, Krämer points out the differences in the development of productivity and real wages. He states that, while labour productivity has remained nearly constant, wages have increased by 15 % during the last three years (Krämer 3 January 1930: 3).

Due to the structural nature of the economic stagnation of the late 1920s, the mere application of tools of business cycle analysis appeared to be insufficient for explanation. Accordingly, in 1929 and 1930, only two reports Zur Lage were published in each year. Nevertheless, Krämer finds that Spiethoff's characterisation of the model cycle still helps to illustrate the current economic situation. Its symptoms fit the "[…] stage of potentiated capital shortage" (Krämer 3 January 1930: 4). Krämer lists the characteristics of Spiethoff's model cycle ("difficulties to raise capital, decrease in capital investment, high interest rate, decrease in stock market prices, decrease in the domestic consumption of iron") and presents the chart plotting Spiethoff's main indicators of the cycle (Krämer 3 January 1930: 2, 4-5). It shows that during the year 1929, with a short interruption, the curve of issued shares declines considerably, while the production of producers' goods for the moment still remains on a stable level. According to Krämer, this divergence indicates the disparity between capital supply and the supply of basic materials and production facilities, which seek to be purchased with capital. He argues that the policy-induced shortage of capital causes a structural depression of the economy. Krämer even expects a further economic decline that is likely to be more severe than in the normal cycle. Above all, he expects an exceptional rise in unemployment. Indeed, in spring 1930, he observes a remarkable decrease in employment (Krämer 2 May 1930: 745). In the course of the Great Depression official statistics even recorded an increase in unemployment up to 30 % (Borchardt 1982: 179).

As we saw, Krämer holds misguided economic and social policies directly responsible for the structural depression of the German economy: „One sought to sow general welfare, and reaped stagnation" (Krämer 13 June 1930: 1001). In the reports published in 1930, he furthermore discusses shortcomings of the current political debate on possible ways to combat the growing economic problems and formulates his own policy recommendations. According to him, the political decision makers lack foresight and economic rationality. Instead of strengthening the forces of the German economy, they make use of generous social policies and support wage increases as a strategic means to win voters' favour. With regard to the debate on possible means to reduce unemployment, Krämer laments that it focusses mainly on public job provision. According to Krämer, this measure is nonsensical, though, as the state cannot install new opportunities to work in the current situation, without releasing labour in another place. The state could only achieve a redistribution of labour instead of an expansion of job opportunities (Krämer 13 June 1930: 1001-1002).

In correspondence with his supply-side explanation of the structural depression, Krämer sets into focus the reduction of costs and a promotion of capital formation of private companies.

According to him, there is a need for economic leadership that aims to "restore the profitability of economic activity by reducing costs across the board" (Krämer 13 June 1930: 1001). He argues in favour of a deflationary policy, which, in his view, can only be successful as a joint effort of "financial policy, social policy, wage policy, credit policy" (Krämer 2 May 1930: 746). In this regard, he suggests concrete policy measures. As concerns wages and prices, Krämer calls for wage cuts "as the most effective means of mitigating the discrepancy between production costs and production revenues" (Krämer 3 January 1930: 5). More concrete, he demands a reduction of real wages, which requires a decrease in nominal wages that is stronger than a possible reduction in prices. According to Krämer, this is necessary in order to ensure an increase in private companies' profits. He suggests that the average real wage is reduced to about the level of the end of 1927 (Krämer 13 June 1930: 1002).[36] In addition, he calls for a reduction in taxes and levies to further relieve the burden on companies (Krämer 13 June 1930: 1001).

Moreover, Krämer calls for "utmost rationality" (13 June 1930: 1001) in fiscal policy. He considers the current fiscal policy to be "the most serious obstacle to any orderly economic management" (1002). A "complete rehabilitation of the public coffers" (Krämer 3 January 1930 5) is required. To reduce public expenditure significantly, Krämer demands:

> "Reform of unemployment insurance with the aim of reducing the burden by RM 400 million, cancellation of the unjustified subsidies for invalidity and sickness insurance in the Reich budget (RM 200 million), general reduction of civil servants' salaries and war pensions by 5 % (for the Reich estimated at RM 125 million, for other public corporations about RM 300 million), reduction of all material expenditures and grants in the Reich budget (RM

[36] Although, in the Weimar time in many industries wages were negotiated between employers' and workers' associations and fixed in collective agreements without state interference, the state was able to influence wage setting via compulsory arbitrations. The Brüning government tried to push through wage cuts in the private sector by exerting special influence on the arbitration authority. Due to strong opposition from the trade unions, the government was not able to achieve its maximum targets. However, in 1930 and 1931, the binding declarations that arose from the compulsory arbitrations caused wage reductions for a considerably number of trade union members. With the emergency decree of 8 December 1931, the government de facto abolished the foundations of self-administration and the contractual principle of the Tarifpartner. By decree, wages and salaries were reduced to the level of January 1927, which meant a further reduction of the union wages by 15 % (Bähr 1989: 296-328).
(Bähr, Johannes (1989) Staatliche Schlichtung in der Weimarer Republik. Tarifpolitik, Korporatismus und industrieller Konflikt zwischen Inflation und Deflation 1919-1932, in: Feldman, Gerald D. et al. (eds.) *Einzelveröffentlichungen der Historischen Kommission zu Berlin. Beiträge zu Inflation und Wiederaufbau in Deutschland und Europa 1914-1924*, vol. 68, Berlin: Colloquium Verlag.)

> 100 million), for the remainder further tightening of the consumption levies" (Krämer 13 June 1930: 1002)[37]

According to Krämer, the only solution of the unemployment problem is to strengthen private business activity through cost reduction and improved capital formation, thereby supporting the recovery of the powers of the German economy. He emphasises that this affords privations in the short term. Krämer argues that the policy-induced over-consumption must be replaced by strict "moderation" (Krämer 13 June 1930: 1001). Private sector investment must be given priority over consumption. Furthermore, Krämer advocates a restriction of public corporations' foreign borrowing. He welcomes the suggestion of the industrialist Paul Silverberg "to reserve access to foreign credit markets for the private sector and the Reichsbahn" (Krämer 3 January 1930: 5). Only when the comprehensive cost reductions are realised and the foundation of a solid economic power is restored, it is justified again for public agents to take in foreign loans (Krämer 13 June 1930: 1001).

Krämer's reasoning and the policy measures that he calls for are in line with Spiethoff's business cycle explanation. Spiethoff's real over-investment argumentation identifies capital investment for productive purposes as the core of the genuine cycle. Due to a structural capital shortage, which Krämer observes and which he ascribes to the economic and social policies that favour income and consumption, private companies do not have the means and incentives to revive productive investment. As a consequence, the economy is stuck in stagnation. Krämer criticises a too strong and damaging political interference into the automatic processes of the market. This fits with Spiethoff's idea that cyclical fluctuations require free capitalist market surroundings from which they also originally emerged.

The notion that Spiethoff's theory forms an intellectual basis of Krämer's diagnosis is supported by an article, in which Spiethoff reflects on the German economic stagnation since 1929. The article was first released in the Leipziger Illustrierten Zeitung on 15 October 1931. Spiethoff provides an analysis of the economic and political situation in Germany that is similar to Krämer's. Spiethoff argues that current tax and wage policies are significantly disrupting the business cycle. Like Krämer he criticises that "[t]ax and wage policies have

[37] Krämer's list indicates that financing the expenditures for the unemployment insurance imposed a particular burden on the state budget. A public unemployment insurance was introduced in Germany in 1927. An expected number of 800,000 unemployed persons to be provided for at the same time had been taken into account in financial calculation. However, by the beginning of 1930 the number of unemployed had already reached 1.9 million. The deficit of the Unemployment Insurance Fund had to be compensated by the state, which thereby ran a budget deficit (Kindleberger 1973: 139).
(Kindleberger, Charles P. (1973) The World in Depression 1929-1939, Berkley and Los Angeles: University of California Press.)

dealt a death blow to our capital power and are preventing the necessary capital regeneration". As a consequence, the typical processes underlying the alternation of upswing and stagnation do not function properly: "While stagnation is usually characterised by an increase in unemployed capital, a pressing supply of capital and low, steady falling interest rates, today we are suffering from a shortage of capital and unaffordable interest rates" (Spiethoff [1931] 1955: 142). That means that the prerequisites for a new upswing, which usually develop during stagnation, are missing.

Spiethoff highlights free market play as a necessary condition for the regular cycle and calls for a reduction of political interference with the market economy. He believes that, otherwise, it is possible that a new upswing will never occur: "This is what everyone is working towards, who plans to eliminate the free-market economy or who believe that a highly capitalist economy can be boosted by anticapitalistic policies". He claims that economic upswings have never been brought about by the implementation of policy measures but always by "creative acts of entrepreneurs" (Spiethoff [1931] 1955: 143). In Spiethoff's view, the task of politics is to ensure a smooth running of the market processes that drive the cycle:

> "What governments can and must do for the upswing, is however still something very important. It is imperative to ensure the characteristic course of stagnation, which hitherto proved to be an indispensable requirement for a new upswing: abundant capital formation and pressing capital supply" (Spiethoff [1931] 1955: 144)

To sum up, while at first the domestic capital market seemed to recover and to provide the preconditions for economic revival, from 1927 on, it is more and more decoupled from the increase in real production. Spiethoff's second indicator, the planned share issues of private companies, therefore, proves to be insufficient to properly display capital formation in Germany. Spiethoff himself warns against a naïve adoption of his indicator against the background of the extraordinary conditions of German capital formation, such as the importance of foreign lending. Krämer discusses the peculiar circumstances of the German capital and money markets and their interplay with the revival of the German economy in 1926 and 1927. At the beginning of 1928, he is surprised to observe a high degree of liquidity in the money market, although Spiethoff's model cycle assumes a rise in the interest rate in the course of an upswing. He concludes that business people have already been holding back on investments since autumn 1927, as they assumed an imminent over-production. Krämer's diagnosis fits well with Spiethoff's emphasis on the impact of decisions of business people on the overall economy. In 1929 and 1930, Krämer discusses severe structural problems of the German economy and expects a prolonged stagnation. He argues that misguided social and economic policies led to over-consumption and aggravated capital formation of private

companies. Krämer's supply-side argumentation coincides with Spiethoff's business cycle theory. Spiethoff himself provides a similar diagnosis of the economic situation in an article in 1931.

2.4.3 Impact of psychological factors on business cycles

As we saw in section 2.1, Spiethoff explains business cycles not only in terms of regular changes and the interplay of economic factors but furthermore includes the notion of an entrepreneurial drive that is also subject to cyclical fluctuations. This entrepreneurial drive is characteristic of the capitalistic economy and constitutes the "spirit of high capitalism". An economic upswing comes along with a stimulation of the entrepreneurial drive, while stagnation and economic decline result in its "dulling" and "paralysis" (Spiethoff 1925: 82).

Haberler refers to these aspects of Spiethoff's theory as "'psychological' elements" (Haberler [1937] 1960: 143). We adopt this term to denote those assessments of the economic situation by economic agents that deviate from an objective evaluation of facts and also influence their economic decisions. With classifying Spiethoff's work among the "psychological theories", Haberler highlights that Spiethoff's explanation of business cycles already contains elements, like the impact of expectations and "irrational" behaviour, which are later brought to the fore, among others in the theories of John Maynard Keynes and Arthur Cecil Pigou (Haberler [1937] 1960: 142-150).

Haberler however remains silent about the differences of Spiethoff's notion of psychological influences as compared to those included in the works of the Cambridge economists. In his theory, Spiethoff does not focus on the single economic agent and her psychological structures. He refers to the entrepreneurial spirit as a mental attitude that arises from the system of the free capitalistic market economy. It is incorporated by the members of a community in which this system has evolved, and is manifested in its economic, social and institutional design. That means that Spiethoff defines the entrepreneurial spirit as a cultural element and part of a mass psychology. In this sense, he refers to the changing mood of people as regards the economic situation as a "psychological" ("seelisch[er]") state (Spiethoff 1925: 70, 79). Schefold (1994: 221-222) highlights that, although Keynes's economic theory was influenced by the notion of culturally shaped irrational behaviour as well, he did not integrate a respective cultural-historical study into his economic work.

Haberler argues that, according to "psychological theories", optimism and pessimism can reinforce upswing and downswing tendencies. Therefore, they can explain divergences from

outcomes based on purely "'rational' economic considerations" (Haberler [1937] 1960: 147):

> "The argument that optimism or pessimism is a contributory factor in the process of expansion or contraction simmers down to the proposition that, for a number of reasons, the reaction of investment to a change in the determinant objective economic factors (interest rate, flow of money, etc.) is likely to be stronger than the analysis of the purely 'economic' theories would at first sight suggest" (Haberler [1937] 1960: 149)

In a similar manner, Spiethoff emphasises the impact of psychological factors on the course of the real economy. He argues that a kindled entrepreneurial spirit leads to "exaggerations" (Spiethoff 1925: 82) that finally result in economic losses. He characterises economic stagnation as a mental and economic setback that creates "wide distrust" in capital investment. As the experiences of stagnation have a depressing effect on the acquisitive instinct and the desire for enterprise, "they protract the situation" (Spiethoff 1925: 79). With regard to the transition from stagnation to a new upswing, Spiethoff attributes to the psychological effects an even stronger impact. He highlights that "[t]he ultimate cause of the upswing movements is something mental" (Spiethoff 1925: 70). That means that a revival of the entrepreneurial spirit constitutes a *necessary* condition for an upswing to occur at all. For that reason, Spiethoff claims that a statistical business cycle barometer, focussing on economic factors alone, cannot forecast the transition to economic upswing.

The idea that psychological moods, i.e. optimism and pessimism, support and intensify fluctuations of the real economy is also taken up in the reports Zur Lage. Krämer attributes the sharp decline that set in in 1925 in part to the reinforcing negative impact of the mood. He states that over-production in heavy manufacturing initiated a downward spiral of the overall economy, which was intensified by psychological factors. He argues that the "pessimism [resulting from over-production, A/N] the characteristic of which is to exaggerate an existing unfavourable state of affairs" has also taken hold of other industries and made entrepreneurs "overcautious and suspicious" (Krämer 2 April 1926: 421).

In the spring of 1926, Krämer observes that despite an improvement of several economic factors, especially of the situation on the capital and money markets and the internal liquidity of private companies, production does not increase. Krämer explains this, at first glance, "contradictory picture" (Krämer 30 April 1926: 561) with reference to Spiethoff's theory. He finds that:

> "The severe crisis has been overcome, the drive, the constructive idea, whose earning capacity and technical feasibility are approved enough to bring about and promote a new upswing, is still pending" (Krämer 30 April 1926: 561).

To recap what we found in section 1.1: According to Spiethoff, for the entrepreneurial drive to be kindled several factors are required. First, new profit opportunities need to emerge, with capital yields that exceed the interest rate on the money market considerably. This is what Krämer calls "earning capacity" of a "constructive idea". Furthermore, these profit opportunities need to be demonstrated to investors by the success stories of brave pioneers. Krämer refers to this argument in stating that investment opportunities need to be "*approved enough* to bring about and promote a new upswing" (italics added). In spring 1926, Krämer asserts that such a constructive idea is still pending, which means that the economy has not yet made the transition from stagnation to a new upswing.

At the end of the year 1926, however, Krämer diagnoses that in November the German economy finally accomplished the transition to economic revival. He emphasises that, towards the end of the year, first signs of a newly kindled entrepreneurial spirit arose that led to the initiation of new projects of private companies (Krämer 31 December 1926: 1806). In this context, he highlights once more the entrepreneurial bravery that is necessary to overcome the mental crisis of economic stagnation:

> "For it is not only a question of whether certain projects exist that promise a more rational utilisation of basic materials or a more appropriate supply to the consumer, but also of the courage to tackle such projects. Only then will a period of disillusionment, the stagnation, be completely overcome, when this daring again permeates" (Krämer 31 December 1926: 1806).

Singer also agrees with Spiethoff that "stagnation is aggravated by mistrust and reluctance to enterprise, recovery can be promoted by trust and confidence in enterprise" (Singer 19 February 1926: 213). In line with Spiethoff, Singer argues that for a new upswing to emerge the "spirit of doubt and mistrust" must be overcome and an "impetus for new ventures" must emerge (Singer 8 January 1926: 2).

However, Singer adds a further dimension to the explanation of the alternation of optimism and pessimism and its impact on the real cycle. Spiethoff links the resurgence of optimism to the emergence of objective profit opportunities. If successfully demonstrated to business people these allow for a change in the entrepreneurial spirit that is finally exaggerated in the course of the upswing. In contrast, Singer states that optimistic expectations do not necessarily spring up from objective data alone. In a report Zur Lage he observes for the turn to the year 1926, a "complete change of mood" (Singer 19 February 1926: 213) towards an optimistic assessment of the economic development, although the economic data do not provide a clear picture and the structural crises still burden the German economy (Singer 19

February 1926: 213-214). In this situation, the change of mood does not primarily find its basis in objective conditions.

According to Singer such optimistic sentiments, even though they are not backed in objective facts, can also influence real economic activity and, like self-fulfilling prophecies, translate into real conditions. Referring to the Cambridge economists Arthur Cecil Pigou, Singer claims that business people's "opinions and actions" can occur in a "peculiar circular concatenation". This results in an "upswing-promoting force even of those profit expectations which were not justified by the factual initial situation of the markets and the actual size of the effective impulses, as a result of the mutual generation of and at least partial justification of even initially illusory opinions" (Singer 1928: 300). For Singer it follows that „[i]t is therefore not possible to strictly separate the so-called psychological from the so-called real causes and to claim, for example, that the psychological ones could only prove lastingly effective if the anticipations were correct, i.e. founded in the knowledge of real factors" (Singer 1932: 24).

In a report Zur Lage, Singer observes that the general mood and consequently the course of the economy can even be influenced by "psycho-technical measures". If those succeed in sparking optimism, they stimulate business activity and kindle a self-reinforcing process of economic revival. Singer states that "[i]n the United States [these measures are] being used quite extensively, and it seems that the recent change of mood in Germany has not come about entirely without conscious influence" (Singer 19 February 1926: 213). However, he leaves open what such measures would look like in concrete and by which actors they would be implemented.

To sum up, Krämer and Singer adopt Spiethoff's notion of the crucial role of the mood for the explanation of business cycles. However, Singer even goes beyond Spiethoff's claim of an exaggerated reaction of the economic spirit following from changes in objective conditions. Singer's idea of psychological factors that occur independently of objective developments and have an impact on the real economy resembles those notions of "irrational" behaviour developed by the Cambridge economists.

3 "Competing" approaches of statistical business cycle analysis

On 2 July 1926, Singer publishes "Bemerkungen zur Konjunkturforschung" (Remarks on business cycle research) in the Wirtschaftsdienst. In his article, he criticises in detail the first

issue of the "Vierteljahrshefte zur Konjunkturforschung" (Quartelerly issues on business cycle research), a recurring publication of the Institut für Konjunkturforschung (IfK) in Berlin. Intellectual father and mainly responsible for the analysis in the Vierteljahrshefte was Ernst Wagemann, head of the Statistisches Reichsamt and the IfK. Singer criticises the purely empiricist methodology underlying the reports of the IfK. In his view, these focus exclusively on surface symptoms and do not reveal any deeper understanding of how business cycles come about. Singer calls the IfK's work scientifically immature and attacks Wagemann as a business cycle researcher.

Adolf Löwe responds with a comprehensive defence of the IfK's work. Löwe was a former employee of the Statistsisches Reichsamt and participated in the foundation of the IfK (Kulla 1996: 128). According to Löwe's own account, he recommended to Wagemann that the institute be modelled on the work of the Harvard researchers (Janssen 2012: 341). Löwe praises the IfK's endeavour to collect and report comprehensive data material in order to display the overall economic situation. According to him, this way, the institute engages in important groundwork that is required to eventually arrive at a consistent and complete theoretical explanation of the business cycle. In Löwe's view, Spiethoff's theory fails to provide such an explanation. He contrasts Spiethoff's over-investment explanation with a theory of under-consumption, which he favours and which the Astwik aimed to confirm with the help of statistical data.

The dispute between the two economists extends to five articles released in the Wirtschaftsdienst between July and November 1926. While, right from the start, Singer and Löwe exchange sharp criticism, the dispute even intensifies and finally culminates in personal insults. It is broken off without reconciliation. The dispute is outlined in part 3.1. When we focus on Singer's initial commentary on the IfK's work and the delineation of the Wirtschaftsdienst's approach, his criticism suggests that the (current and future) analyses of the two would diverge notably. Instead, both show similarities in the assessment of the overall economic situation, especially for the time period from 1926 to 1929. In order to get a better insight into both the similarities and differences of the reporting of the Wirtschaftsdienst and the IfK, their respective publications are compared in section 3.2. Apparent overlaps in the analyses of the two create the impression that Singer's criticism was partly overstated. Sections 3.3 and 3.4 suggest explanation for why Singer's criticism was so harsh and the dispute with Löwe finally escalated. Section 3.3 focuses on strategical interests, personal tensions and ideological quarrels that surrounded the debate. Section 3.4

explains the heated debate with the economists' fundamentally different concepts of the nature and purpose of economic science as such. The debate on appropriate methods of statistical business cycle analysis was therefore embedded in a more general controversy about the reorganisation of German economics after World War I and the breakdown of the German Historical School, in which all three involved parties took different positions.

3.1 "Remarks" on business cycle research – Singer's dispute with Löwe

July 1926: Singer's initial attack

The title "*Remarks* on business cycle research" (italics added), under which the series of articles by Singer and Löwe is published, seems almost ironic in view of the, at some points, scathing criticism that both throw at each other and the personal attacks in which the dispute finally escalates. In July 1926, Singer takes the call "for critical and positive cooperation" (Singer 2 July 1926: 875) that the IfK makes in the first publication of its Vierteljahrshefte as an occasion for a comprehensive critique of its work. His criticism focuses on two aspects. First, he criticises the methodological basis on which the IfK builds its work. According to him, it is inferior to the methodology underlying the analyses of the Wirtschaftsdienst. Second, Singer disputes the scientific maturity of the IfK's studies. In his opinion, the IfK performs poorly, even when compared to other work based on the same methodological paradigm as the Berlin institute's analyses.

Regarding the methodology, Singer distinguishes two approaches of business cycle studies: business cycles can be viewed either "as an economic problem or as a statistical problem". According to him, the authors at the Wirtschaftsdienst follow the first approach, as they are concerned with "understanding and interpreting" the empirical observations based on a theoretical argument. They "start[] from a thought that allows comprehending the experienced facts in their context of meaning" (Singer 2 July 1926: 875). Applying Spiethoff's business cycle theory, they gain "insight into the interrelationship of economic processes" (Singer 2 July 1926: 876). Singer argues that Spiethoff's theory has performed well in explaining economic fluctuations in the 19th and early 20th century up to the war. As we saw, with reference to the Wirtschaftsbarometer, he demonstrates that also for the period after the currency disruption, the theory can properly depict and explain the course of the economy (Singer 2 July 1926: 875).

In contrast, the Berlin institute follows the statistical approach that has been developed by the Harvard Committee on Economic Research (Singer 2 July 1926: 876). According to Singer, the statistical approach regards business cycle analysis as a problem subject to "counting and calculation" (Singer 2 July 1926: 875). The analysis is based purely on the empirical observation of the symptoms of business cycles. He explains that the "researchers take up numerically graspable data from experience, establish numerically orderable relationships between these data and conclude from such regular successions of two data that there is a regularity that connects the two". This is how the Harvard barometer is constructed, from which a regular sequence of fluctuations on the stock market, commodity market and money market is derived. Singer criticises that this approach is oriented towards the natural sciences. Similar to the strategy of "the astronomer, the physicist, the meteorologist", the researchers regard fluctuations of business activity as "processes of inanimate nature" (Singer 2 July 1926: 876).

While the studies of the Harvard Committee provide helpful quantitative descriptions of the course of economic fluctuations, the purely empiricist method however leads to serious problems when it comes to forecasting the economic development of the near future. Singer claims that "all conclusions by analogy from past experience are highly uncertain" (Singer 2 July 1926: 876). They disregard the fact that the course of the economy does not depend solely on objective circumstances, but on the decisions and actions of the economic agents. Therefore, it cannot simply be assumed that the sequence of movement of the three markets will continue on a regular basis.

Singer's critique of the IfK even goes further. He does not only accuse the IfK of anchoring its research in a problematic methodological paradigm but, furthermore, asserts that the work of the IfK lacks scientific maturity. In this regard, he distinguishes the analyses of the Wirtschaftsdienst and of the Harvard researchers from the work of the Berlin institute. He emphasises that the works of the former two are founded on a longer research history as well as a broader intellectual basis as compared to the latter. The Harvard Committee on Economic Research was already established in 1917 and Warren Persons outlined the "index" in the "Review of Economics and Statistics" at the end of the 1910s. Singer highlights that the Harvard Economic Service that published a weekly newsletter based on Persons's barometer since 1922 (Friedman 2009: 57-58) disposes of the expertise of "a considerable number of leading economists and statisticians" (Singer 2 July 1926: 879). He argues that the Wirtschaftsdienst's reporting, with its reference to Spiethoff's work on business cycles,

also draws on established research. Spiethoff had published "Preliminary remarks on a theory of over-production" already in 1902. According to Singer, Spiethoff's finding that business cycles are caused by changes in the relation between the supply of capital and the production of producers' goods, which are purchased with capital, is common sense among leading business cycle researchers: "The lines of reasoning of the most important foreign researchers: Mitchell, Aftalion, Cassel and above all Robertson move in a similar direction" (Singer 2 July 1926: 875).

In contrast, the work of the IfK rests on a "dangerous narrowness of […] scientific cooperation". The fact that Singer, a few sentences later, emphasises that "[t]he lead of the Institut für Konjunkturforschung in Berlin seems to have rested so far solely in the hands of the president of the Statistisches Reichsamt" is an explicit attack towards Ernst Wagemann, whose competence in the field of business cycle research he questions with his criticism. Singer concludes that "[t]he institute […] is still very much in the stage of experimentation, indeed of groping, collecting material and searching for its way" (Singer 2 July 1926: 879).

Singer pinpoints the shortcomings of the IfK's work to various aspects. For example, he criticises the fact that the IfK publishes a collection of various charts – eight in total – that encompass a large number of data series. Singer interprets this as a lack of clear insight into the interrelationships of the economy. The IfK is not capable of extracting the fundamental traits of the economy as well as the most important statistical parameters from the mass of data material. In contrast, the Harvard index consists of one chart only. Singer appreciates the attempt of the Harvard researchers to "shape[] this material into an overall picture" (Singer 2 July 1926: 877) and provide the main information on the course of the economy in short and precise form. The Wirtschaftsbarometer also claims to depict the overall economic situation with just a few indicators. Spiethoff's framework is most suitable in this regard since it allows "a maximum of articulation with a minimum of features" (Singer 2 July 1926: 878).

Furthermore, Singer comments on specific data series reported by the IfK. For example, he criticises the index of "responsive commodity prices". This index combines the prices of scrap metal, bar iron, lead, zinc, cowhides, calfskins, hemp, linen yarn, rye and wheat, which, according to the IfK, are specifically sensitive to cyclical changes of economic activity. The IfK uses this index as an indicator for the activity at the commodity markets in a chart that is modelled on the Harvard index. Singer critically asserts that "[i]t is difficult to understand what could have prompted the Institute to lump together agricultural commodities, which

depend essentially on the harvest, with the basic and semi-finished materials of industry, which are sensitive to the business cycle". From the perspective of Spiethoff's business cycle explanation this indicator is, indeed, imprecise as it distorts the view of the genuine point of origin of the cycle – the producers' goods sphere. In addition to conceptional weaknesses, Singer finds that the index of responsive commodity prices displays the course of the economy after the currency stabilisation in an imprecise way. He finds further "anomalies" (Singer 2 July 1926: 878) in other data series reported by the IfK.

Singer, however, also mentions a similarity in the model cycles applied by the Wirtschaftsdienst and the IfK. He appreciates that the IfK recognises that in the course of the typical cycle the "'production economy' peaks earlier and bottoms out earlier than the 'consumption economy'". This is in accordance with Spiethoff's argument that the genuine business cycle is initiated in the sphere of the production of basic materials and producers' goods, from which fluctuations potentially pass into the consumption goods sphere. According to Singer, however, this is not a particular merit of the work of the IfK, since this insight "belongs to the ironclad stock of business cycle research" (Singer 2 July 1926: 878).

September 1926: Exchange of blows

Löwe's response to Singer's initial critique is published in the Wirtschaftsdienst on 17 September 1926. Löwe denies the superiority of the Wirtschaftsdienst's business cycle analysis and defends the work of the IfK against Singer's critique. His argument is structured in two stages. First, Löwe disputes that the Wirtschaftsdienst's approach offers a suitable "causal-interpretative methodology" (Löwe 17 September 1926b: 1271). Second, he argues that the Wirtschaftsbarometer shows weaknesses with regard to "empirical description" (Löwe 17 September 1926b: 1274) of past and present cycles.

Löwe takes up Singer's distinction between approaching business cycles as a statistical or as an economic problem. He agrees with Singer that the economic approach, in which the researcher "select[s] [the] series of data representative of the cycle on the basis of a theoretical insight into the causal connections of the economic cycle", has a "higher scientific rank" (Löwe 17 September 1926b: 1271). Insofar, the work of the Wirtschaftsdienst would indeed be superior to the work of the IfK, if Spiethoff's business cycle theory made such insight possible. In Löwe's view, however, Spiethoff's theory fails to provide such insight, since it misses to address the main cause of cyclical fluctuations of the economy.

According to Löwe, the quintessence of Spiethoff's business cycle explanation is the idea that regular economic fluctuations are caused by "disproportionalities in the provision of real

capital on the one hand, of savings capital on the other hand" (Löwe 17 September 1926b: 1271). Löwe criticises that Spiethoff overemphasises the role of "savings capital" and neglects the importance of endogenous capital formation. According to Löwe, he therefore disregards the importance of consumption and income spending for financing capital goods production. This "radical separation between income use and capital formation" (Löwe 17 September 1926b: 1272) misjudges the way investments are financed in reality:

> "The fact that in modern economies the tradition of capital accumulation, in conjunction with credit inflation, makes a fraction of production temporarily independent of the volume and rhythm of final consumption, should indeed not lead us to misjudge the overwhelming importance of the use of income for the financing of the production of capital goods, especially since even those advance payments of savings capital must ultimately be compensated with income. That this is not an unworldly abstraction, but that rather the accumulation from the profits on the sale prices of final consumer goods is to be owed the most grandiose industrial construction of modern times, has recently been demonstrated again by Hirsch for the United States" (Löwe 17 September 1926b: 1272)

According to Löwe, the cycle materialises as a disproportionality between the producers' and consumers' goods sphere. He agrees to Spiethoff that an upswing finally leads to an over-production of producers' goods and difficulties to finance the production expansion. However, he does not agree that a shortage of savings capital constitutes the decisive cause of these difficulties. Instead, the disproportionality arises from the side of final consumption, which is determined by the developments on the labour market and of income formation:

> "[…] [I]t is not the tension between real capital and savings capital that is the ultimate cause of the turnaround, but the disruption of the harmony between the production of productive goods and the production of consumer goods, as it ultimately inevitably results from the discrepancy between accumulation and the formation of income due to the special conditions of scarcity of capitalist labour markets" (Löwe 17 September 1926b: 1273)

He explains that during an economic crisis and depression, excessively produced goods are liquidated from the commodity market. In contrast, "the simultaneously released labour force cannot be liquidated in the same way". As a consequence, the labour force becomes relatively abundant. Due to the excess supply of labour, which is further intensified by "technological uphevals" (Löwe 17 September 1926b: 1272) that lay off workers, wage increases fall short of increases in prices. The difference between wage and price increases results in extended profit potentials that lead to an increase in productive investment. According to Löwe, it is the merit of Spiethoff's theory to have confirmed the "'exogenous' stimulation of the upswing by technological innovations and spatial expansion" (Löwe 17 September 1926b: 1272-1273) as an essential supplement of the "'endogenous' factor" (Löwe 17 September 1926b: 1273) of the disparity in the development of income and profit. However,

Spiethoff's argument alone does not suffice to explain the upswing because without the relative abundance of labour, wages would rise in parallel with production and thus counteract expansion.

Due to the disparity of income and profit development, during the upswing, purchasing power is shifted from the consumption goods sphere to the producer's goods sphere. As an expression, the producers' goods prices rise stronger than the prices of consumption goods. This process is intensified and prolonged by "credit inflation" and the use of savings capital for productive investment. Finally, however, "the relative under-consumption of goods of final consumption eventually forces the liquidation of the relative over-production of productive goods" (Löwe 17 September 1926b: 1273). In this regard, foreign trade is an important means of disposing of the excessively produced goods.

From the preceding statements, it becomes clear that Löwe follows the arguments of Rosa Luxemburg's business cycle theory. Luxemburg emphasises the shortage of the domestic power of consumption caused by technological progress and an increase in fixed capital as compared to labour within capitalistic production. She concludes that capitalistic economies need external non-capitalistic territories to absorb their excessive production and realise the surplus value (Luxemburg 1913: 104-110, 318-339). That is why her theory is also referred to as a theory of imperialism. In his habilitation thesis (1926), in which he subjects prevailing business cycle theories to an "axiomatic critique" (Löwe 1926a: 169), Löwe exposes Luxemburg's business cycle explanation as the only complete and logically consistent theory of the cycle. A shared ambition of the researchers of the Astwik, which Löwe headed, was to empirically test and advance a theory of under-consumption (Beckmann 2000: 14, 153).

Löwe concludes that Spiethoff's arguments concerning the developments on the capital market "are no more useful for the causal interpretation than the other numerous surface symptoms" (Löwe 17 September 1926: 1273). He rejects Singer's claim that Spiethoff's theory is broadly accepted among economists. Instead, different strands of theories exist that appear to be irreconcilably opposed to each other. Moreover, there is no consensus with regard to the methodological standards and the role of business cycle theory in the overall system of economic analysis. According to Löwe, there is still a way to go before economists have conclusively worked out a theory with which the business cycle "can be understood from the totality of an economic system". Therefore, he can "only warmly welcome, if the German economic institute so far deliberately avoids committing itself to one of the countless theories" (Löwe 17 September 1926b: 1273). In his view, the IfK is doing important preliminary

work by collecting comprehensive data material. This is required in order to test theoretical arguments against reality: "Once we have the statistical-empirical image of the factors with which our theoretical deductions work, then the hour will have come to elevate the logically most conclusive and statistically best verified view to the prevailing opinion" (Löwe 17 September 1926b: 1274).

According to Löwe, it remains to be clarified whether the Wirtschaftsdienst or the IfK performs better in "empirical description" (Löwe 17 September 1926b: 1274). He observes that the IfK's "three markets barometer" and the second chart of the Wirtschaftsbarometer, which are both adaptations of the Harvard index, use similar data to represent both the stock market and the money market. However, according to Löwe, the index of responsive commodity prices, which the IfK publishes as the indicator of the activity on the commodity market, works better than the domestic consumption of iron and steel that is presented by the Wirtschaftsdienst in its first chart and based on Spiethoff's finding that the genuine cycle starts in the sphere of production and use of basic materials and producers' goods.

On the other hand, Löwe appreciates the Wirtschaftsdienst's focus on the share emissions by companies at the German stock exchange: "The capital investment curve complements the securities market curve by distinguishing the industrial tendencies of the market from the purely speculative ones as depicted in the curve of the stock market indices" (Löwe 17 September 1926b: 1274). This particular consideration is missing from the IfK's scheme. Löwe therefore expects the IfK to soon add this indicator to its statistical toolbox.

With reference to the fifth data series reported in the Wirtschaftsbarometer – the sum of issued trade bills as an indicator for turnover – Löwe asserts that "[i]t is not clear what explanatory value this curve should have, especially since the 'Wirtschaftsdienst' itself pointed out the particular sources of error in this series" (Löwe 17 September 1926b: 1275 footnote).

For the pre-war period as well as for the years 1924 to 1926, Löwe does not find any clear superiority of the Wirtschaftsdienst's scheme for the description of the course of the economy. On the contrary, he observes more cases in which the IfK outperforms the Wirtschaftsdienst: "The index combination of the Konjunkturinstitut proves to be more sensitive in more than one case, which is by no means surprising in view of the abundance of material used" (Löwe 17 September 1926b: 1275). In Löwe's view, with the distinguished analysis of the capital side, Spiethoff's scheme provides valuable information, which, however, is not outstanding in its explanatory value, but one of many pieces of important information.

Right below Löwe's reaction to Singer's first "Remarks", there is printed a reply by Singer. Singer, once again, addresses the methodological differences between the approaches applied by the IfK and the Wirtschaftsdienst. He points out that Löwe misunderstands the research concern of the Berlin institute and furthermore takes an undifferentiated view of the approach of the Hamburg weekly. Therefore, his defence of the work of the former as well as his criticism towards the latter are invalid.

As we have seen, Löwe praises the IfK's publications for reporting a large amount of empirical data material. According to Singer, Löwe's criticism that the Wirtschaftsdienst, in focusing on capital supply and productive investment, takes a narrow view of the overall economy, is unjustified. Singer emphasises that the business cycle analysis of the Wirtschaftsdienst takes into account several additional data:

> "Anyone who has read Spiethoff's essay in the first issue of this volume, who has followed our monthly Lage reports and who remembers the last columns of my remarks, knows that we are far away from considering two series of figures to be the general key to all economic activity" (Singer 17 September 1926: 1277)

As we have seen, Spiethoff himself indeed considers further data, for example on the capital and money market, in his model cycle. Moreover, the data table included in the articles Zur Lage report more than 30 statistics, some of which are repeatedly discussed in the written text. Referring to the IfK's publication, Singer stresses that he "did not [censure] the presentation of a great abundance of graphs, but their incongruity with text and interpretative scheme" (Singer 17 September 1926: 1277). At this point, Singer is somehow inconsistent in his critique, though. In his first remarks and also in the course of his reply to Löwe, Singer repeatedly emphasises the advantages of the Wirtschaftsbarometer as it allows an interpretation of the overall economic situation with just a few figures. He points to the "businessman who [has an interest in] figures that are as easy to remember as possible, results that are clear and concise, in a clear arrangement and with explanations that are easy to understand" (Singer 2 July 1926: 875). Singer explicitly attacks the IfK, for, in his view, it fails to integrate the empirical observations into one unifying picture. On the other hand, he prides the Wirtschaftsdienst on presenting a simple and concise barometer and advertises the Wirtschaftsbarometer referring precisely to this feature. Although the Wirtschaftsdienst's reports in fact contain a considerable amount of empirical data, Singer however explicitly boasts that he can assess the overall economic situation with just a few numbers.

Singer, moreover, asserts that Löwe misunderstands the research interest of the IfK. As we saw above, Löwe regards the IfK's publications as preliminary work for statistical testing of

theoretical business cycle explanations. This approach corresponds to Löwe's idea about the interplay of theoretical and empirical investigation, which he outlined in his habilitation thesis and matches with the programme of the researchers at the Astwik. According to Singer, Löwe's understanding of the IfK's research interest, however, diverges from the one that the IfK actually aims for: "If, however, the statistical method is understood as the mere collection of material for the purpose of verifying existing interpretations, then we are dealing with a different alternative than the one I have mentioned and which is known from Berlin (as well as from Harvard)" (Singer 17 September 1926: 1277). According to Singer, the IfK aims to measure and calculate the alternations of overall business activity in order to be able to derive interpretations directly from their statistical analysis – without any reference to a spelled-out theory. Singer has a point here. Wagemann and Löwe oriented their business cycle analyses towards different international strands of quantitative economic research. While Wagemann aligned the work of the IfK with American empiricism, as practiced by the Harvard Committee, Löwe decidedly favoured the integration of (deductive) theory, which was characteristic of econometric approaches (Morgan 1990: 1).

This is precisely where Singer sets in with his criticism: to make interpretations that are based on statistical data analysis only, without any theoretical comprehension of the interrelatedness of the factors represented by the data, (at the current state of statistical research) is a risky undertaking. The effort of the IfK to present a large amount of data material, has to be appreciated against the background of an improvement of German economic statistics. However, the mere fact of reporting a lager data collection does not ensure appropriate or even more sophisticated interpretations (Singer 17 September 1926: 1277). "From all this" Singer "conclude[s] that our system is superior to the Berlin system: it achieves the same with fewer means, I myself believe it achieves more" (Singer 17 September 1926: 1278).

For confirmation, Singer also defends Spiethoff's business cycle explanation against Löwe's critique. Löwe asserted that it ignores important determinants of cyclical alternations of the economy. Singer emphasises that Spiethoff does in fact take into account the "[endogenous] capital formation from the earnings of enterprises themselves" (Singer 17 September 1926: 1278) that Löwe highlights as a crucial source of growth and industrial expansion. He points out that there are no statistical records available for endogenous capital formation, though. As a consequence, the share emissions are currently the most appropriate indicator for general capital investment. Singer claims that he would welcome further research on the char-

acteristics of endogenous capital formation and its relation to the cycle as compared to capital formation via the capital market and money creation by banks.[38] He emphasises that Spiethoff's basic argument is not touched by such investigations though: "Whatever their result, however, Spiethoff's basic idea cannot be touched by them: only the reliability of an index is in question, not a theorem […]" (Singer 17 September 1926: 1278).

Singer denies Löwe's argument that higher profitability of enterprises presupposes wage pressure and the keeping down of wages. This only holds for a stationary economy, a type of economy that has been overcome in the capitalist age (Singer 17 September 1926: 1279). Singer calls Löwe dogmatic and politically motivated in emphasising unemployment as a necessary condition and triggering factor of business cycle movement. This argument arises from "a tendency common to all socialist writers" (Singer 17 September 1926: 1279) to overemphasise the influence of wage labour and technological progress.

With his assertion that Löwe's scientific arguments are politically coloured Singer is launching an unobjective attack on Löwe as a person. Singer repeatedly accuses Löwe's business cycle explanation of being biased by his beliefs and interests. He furthermore claims that the "under-consumption theory" that Löwe advocates, in contrast to the real over-investment explanation, has hardly any weight in the international research community. He concludes with some advice to Löwe: "Whoever sits in the summer house of airy construction does not do well to attack a fortress" (Singer 17 September 1926: 1279). While Singer claims at the beginning of his response that it is wrong "for him [Löwe, A/N] to suspect in me the intention of an attack and the mood of a rival" (Singer 17 September 1926: 1276), in the course of the article he takes this statement to absurdity.

November 1926: Break-off of the debate without reconciliation

Although Singer calls his response to Löwe in September "concluding remarks" (Singer 17 September 1926: 1276), on the 5 November 1926 the debate is continued. Löwe who "cannot leave unanswered Singer's numerous reproaches against the scientific method of my presentation of evidence […]" (Löwe 5 November 1926: 1516) reacts with a "correction". Singer, once again, responds to Löwe with a "rebuttal". In the short articles, the authors take up certain points of mutual criticism and defend themselves by affirming their own point of view. The articles show no convergence of viewpoints and both authors now explicitly refer

[38] Based on the vocabulary Georg Friedrich Knapp developed in his "Staatliche Theorie des Geldes" (State theory of money) (1905), Singer calls this last type of capital formation "lytrogenic" (1278). Singer had written his doctoral thesis "Die Motive der indischen Geldreform" (The motives of Indian monetary reform) (1910) under the supervision of Knapp.

to each other as "rival[s]" (5 November 1926: 1517). Löwe implicitly criticises Singer's "characterological inclinations".

To sum up, Singer harshly criticises the purely empiricist approach of the IfK, as it only refers to surface symptoms of business cycles. He argues that, in contrast, Spiethoff's business cycles explanation provides a substantial theoretical argument that enables the authors of the Wirtschaftsdienst to focus on those empirical figures that best indicate the overall economic situation. He furthermore asserts numerous weaknesses of the indices and barometers the IfK reports. He concludes that due to these shortcomings the statistical instruments applied by the Berlin institute do not qualify for a reliable interpretation of the economic data. In contrast, Löwe appreciates the work of the IfK for its comprehensive collection of empirical data. However, as Singer reveals, Löwe has in mind yet another approach of statistical business cycle research that makes use of empirical data as a means to statistically test theories. Therefore, Löwe's argument in defence of the IfK's methodology does not fit entirely. Besides a defence of the IfK, Löwe furthermore engages in a detailed critique of the Wirtschaftsdienst's approach. He argues that the statistical barometers of the IfK proved to be more suitable as a means of description, compared to the charts of the Wirtschaftsbarometer. Moreover, he rejects Spiethoff's theory as insufficient for the explanation of business cycles. Singer's offensive reaction and the escalation of the debate is most likely enforced by the fact that he is facing strong headwind from Löwe, whose criticism of Spiethoff's research attacks the very foundation of the business cycle analysis of the Wirtschaftsdienst.

3.2 Applied business cycle analyses of the "Wirtschaftsdienst" and the "Institut für Konjunkturforschung"

Against the background of Singer's harsh criticism of the work of the IfK, one would expect diverging results of the business cycle analyses conducted by the IfK and the Wirtschaftsdienst. For the period 1926 to the beginning of 1929, the assessment of the overall economic situation however coincides to a notable degree between the Hamburg weekly and the Berlin institute. These similarities can be explained, among other things, by shared ideas about the typical course of the business cycle. The IfK adopts from the Harvard researchers the sequence scheme of alternation of the three markets. This is expressed in the institute's "Schema des Konjunkturverlaufs" (Scheme of the business cycle) that is presented in figures 10 and 11 on pages 121 and 122. As highlighted in the discussion of the Harvard-inspired second chart of the Wirtschaftsbarometer, Spiethoff's model cycle also includes the notion that during economic revival the activity at the capital market changes first, followed

by an increase in production activity and finally by a tension of the money market that sets in towards the end of an upswing phase. Consequently, there are also parallels between the schemes applied by the Berlin institute and the Wirtschaftsdienst. As we saw, Löwe also points to similarities between the Wirtschaftsdienst's Wirtschaftsbarometer and the "barometer of the three markets" in the IfK's publication (Löwe 17 September 1926b: 1274). A difference is that, corresponding to his business cycle explanation, Spiethoff's model cycle focusses on the alternation of *specific* determinants of the capital and commodity markets, namely those that are directed towards productive investment. Contrary to Spiethoff and the authors of the Wirtschaftsdienst, the researchers of the Berlin institute do not identify a small set of explanatory factors but instead combine several data series into indices without applying a strong prioritisation to single factors.

A further parallel is that the IfK's scheme of the business cycle also includes the idea that the production of producers' goods changes prior to the production of consumers' goods (chart 2 of figure 11 on p. 122) – a central argument of Spiethoff's business cycle explanation. As we have seen, this is positively mentioned by Singer (Singer 2 July 1926: 878). Moreover, both the analyses of the IfK and the Wirtschaftsdienst were founded on a decidedly empirical foundation. While the IfK referred to the statistical patterns of past cycles, Spiethoff developed his holistic theoretical explanation of the cycle inductively on the basis of a comprehensive empirical investigation. In addition, although Singer criticises the index of responsive commodity prices, which the Berlin institute uses as a representative of the commodity market, for its unspecific nature, the index appears to display especially the production of producers' goods. In the first publication of its Vierteljahrshefte, the researchers of the IfK reveal that the movement of the index of responsive commodity prices seems to be determined in particular by the demand for capital goods, and that a close connection can be observed between the index and pig iron production (IfK May 1926: 25). This suggests that the index correlates at least to some extent with Spiethoff's indicator for production activity. This probably provides further explanation of the parallels in assessing the overall economic situation between the Berlin institute and the Hamburg weekly. Furthermore, there are empirical figures that are highlighted by both the Hamburg weekly and the Berlin institute as specifically important but yet only poorly available. An example is the recording of inventories. The Berlin institute proposes first approximations to an indicator the inclusion of which would also be fruitful for the business cycle observation of the Wirtschaftsdienst.

Schema des Konjunkturverlaufs[1]).

1. Tiefstand (Depression).

Geldkreislauf: Die Warenpreise verändern sich wenig, aber eher nach unten als nach oben; die Effektenkurse steigen, wobei die Kurse der festverzinslichen Papiere den Dividendenpapieren vorangehen; der Geldmarkt ist durchaus flüssig.

Güterkreislauf: Die Mengenbewegung erreicht einen Tiefstand, wobei die Produktionswirtschaft der Verbrauchswirtschaft vorangeht; Einfuhr und Ausfuhr stagnieren.

2. Aufschwung.

Geldkreislauf: Die Warenpreise steigen; Effektenhausse, die gegen Ende der Periode zu einer Abwärtsbewegung umschwingt; die Geldsätze erhöhen sich.

Güterkreislauf: Produktion und Verbrauch nehmen zu; ebenso Einfuhr und Ausfuhr.

3. Hochspannung.

Geldkreislauf: Starke Versteifung auf dem Geldmarkt, Finanz- und Kreditschwierigkeiten; weiteres Sinken der Effektenkurse; Stillstand oder Abbröckeln der Warenpreise bei teilweiser scharfer Verschiebung der Preisrelationen (Kapital- und Konsumgüter).

Güterkreislauf: Stillstand in der Zunahme der Mengenziffern; die Produktionswirtschaft tritt den Rückzug an, während die Verbrauchswirtschaft zunächst noch steigt; im Auslandsgeschäft treten Hemmungen auf.

4. Krisis.

Geldkreislauf: Rückgang der Warenpreise; Baisse auf dem Effektenmarkte; die äußerst verschärften Kredit- und Finanzschwierigkeiten führen zu zahlreichen Zusammenbrüchen, schließlich zur Entlastung des Geldmarktes.

Güterkreislauf: Scharfer Rückgang der Produktionswirtschaft und im Anschluß daran auch der Verbrauchswirtschaft; Rückgang der Ausfuhr und noch mehr der Einfuhr.

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[1]) a. a. O. S. 208: Das Schema, das dort gegeben wurde, ist in einigen Punkten abgeändert und überdies erweitert worden.

Figure 10: "Scheme of the business cycle" (description of changes in variables in written form) applied by the Institut für Konjunkturforschung (IfK May 1926: 16)

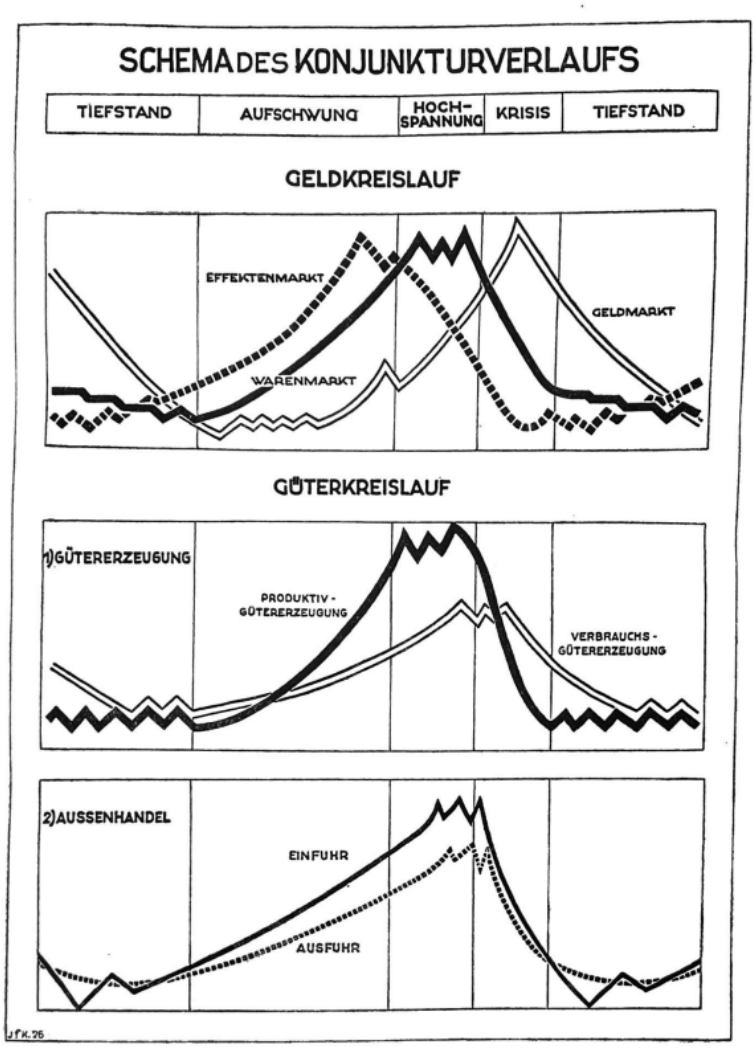

Figure 11: "Scheme of the business cycle" (graphical representation) applied by the Institut für Konjunkturforschung (IfK May 1926: 17)

The exemplary demonstration of parallels in the interpretive schemes and the concrete analyses of the Berlin institute and the Wirtschaftsdienst is not meant to state that the differences in both approaches are minor. The aim is to show that there are points of intersection in the analyses of both that would have made a constructive reference of the Wirtschaftsdienst to the practical work of the Berlin institute, instead of Singer's sharp demarcation, reasonable. This impression is reinforced by the fact that Krämer, from the time of Singer's forced resignation from the post of chief editor of the Wirtschaftsdienst in March 1928, indeed regularly integrates results from the IfK's publications into his reports.

Only in 1929 and 1930, the findings of the IfK and the Wirtschaftsdienst increasingly diverge from each other. The IfK adheres to the sequence scheme of the alternation of the three

markets and underrates the progressing economic decline. Since the institute draws its interpretations considerably from reference to previous cycles and assumes a certain degree of continuity, it struggles to recognise the upcoming economic turmoil of the Great Depression. In contrast, Krämer questions the validity of mainly business cycle related explanations and diagnoses a structural depression of the German economy. The fact that Spiethoff's business cycle theory entails the possibility of discontinuities in the alternation of business activity allows for the expectation of enduring interruptions of the regular cycle. In the following the assessment of the overall economic situation by the Wirtschaftsdienst and the IfK are compared.

1926 until early 1929: Similar assessment of the overall economic situation

The Institut für Konjunkturforschung states that after the economic crisis of the second half of 1925 and early 1926, in February 1926, the overall economic activity entered into depression. According to its schedule of the typical cycle (figure 10 on p. 121), this means that commodity prices change little, but rather downwards than upwards, stock market prices rise (starting typically around the middle of the depression phase (IfK August 1926: 50)) and the money market is quite liquid. Furthermore, the quantities of goods produced and exchanged reach a bottom point, with the producers' goods sphere preceding the consumers' goods sphere. The Berlin institute highlights in May 1926 (49) that the economic development since February resembles a "school example of this phase". Similarly, Krämer states that the German economy in the early months of the year rests in stagnation (Krämer 2 April 1926: 421). More specifically, he argues that the overall economic activity still shows a tendency of decline or at least lacks clear signs of improvement (Krämer 30 April 1926: 562). For the end of April, he then observes a notable increase of economic activity: "Up to this date the question of whether there was still a decline or whether there was already a first increase seemed difficult to decide; only since then has the tendency towards a slight economic improvement within the depression been unmistakable" (Krämer 22 October: 1441). To remember, according to Spiethoff's model cycle (figure 3 on p. 65) the phase of "first increase" is still embedded in the period of stagnation. Contrary to a significant revival of economic activity during an upswing, it means only an "incipient weak upward movement" (Spiethoff 8 January 1926: 4). According to Krämer, the transition to a "first increase" is, however, clearly visible from a marked increase in the domestic consumption of iron and steel in May (Krämer 2 July 1926: 874). Somewhat more cautiously, the publication of the Berlin institute states that in May depression had reached a bottom point, which means that at least any further worsening of the economic situation is not to be expected (IfK May 1926: 49).

For mid-August the IfK claims that the German economy has reached a second stage of depression and is approaching its end (IfK August 1926: 50, November 1926: 66). For all three markets it observes "signs of improvement" (IfK August 1926: 50). It is pointed out that for the securities market an exceptional development has been observed already since January. Since then, the activity at the securities market has shown a strong upward movement, while, according to the typical cycle, such a development would normally not set in until around the middle of the depression. However, the authors explain that this was due to a structural development, namely "the rebuilding of the securities market" (IfK November 1926: 66) after the severe crisis of 1925 and early 1926. In a similar way, Krämer explains the strong increase in share issues by German companies since the beginning of the year with the "reconstruction of the German capital power" (Krämer 31 December 1926: 1805). The authors of the Vierteljahrshefte and the Wirtschaftsdienst agree that the strong rise of activity at the stock market does not function as a proper indicator of overall economic activity during large parts of 1926. The researchers at the Berlin institute emphasise that "although many people concluded from this phenomenon that a general upswing had begun, the institute assumed that this was only a special phenomenon that fell outside the framework of the overall movement" (IfK November 1926: 66). Referring to the months of late summer 1926, Krämer furthermore points out that there is no direct link between the intensified activity at the stock market and an increase in business activity – quite the contrary: "[t]he speculation in securities is therefore first of all only a proof that the 'productive' economy is not making full use of the country's supply of capital, in other words a proof that the stagnation is continuing" (Krämer 5 November 1926: 1509).

Both the Berlin institute and the Wirtschaftsdienst agree that, during summer 1926, the economy, despite an improvement of the overall activity, does not fully recover from depression or stagnation. Both diagnose the transition to a new upswing in November 1926. The Berlin institute claims that "[a]ccording to all barometers, the German economy is at present (mid-November) at the beginning of an upswing" (IfK November 1926: 66). Krämer finds that since November "the transition from the stagnation to the 'second increase', which belongs to the upswing phase, can be regarded as complete" (Krämer 31 December 1926: 1806). The Berlin institute pinpoints its diagnosis, among other symptoms, to the fact that the securities market is booming, which "[n]ow […] is likely to have a cyclical character" (IfK November 1926: 66), an upward trend on goods prices, a continuing liquidity on the money market, the

increased production of important basic materials and an increase in transactions. Corresponding to Spiethoff's model cycle, Krämer points to a decisive increase in both the share issues and the domestic consumption of iron and steel (Krämer 31 December 1926: 1806).

At the end of February 1927, the IfK states that "the economy has revived almost across the board" (IfK February 1927: 48). However, the upswing is progressing rather "tentatively" (IfK February 1927: 49). The authors explain that the upswing has, to a considerable degree, been driven by external factors, including foreign capital inflows and the English coal strike.[39] Both have now fallen away. However, the fact that the German economy is continuing to revive despite these developments confirms to the institute that the upswing has not solely depend on external drivers but has begun to develop from within the domestic economy, too (IfK February 1927: 48). Krämer's diagnosis at the turn of the year is even more positive. He observes a "brisk upswing" (Krämer 11 February 1927: 197) and lively investment activity (Krämer 4 March 1927: 309). He claims that due to enduring contracts, the end of the English coal strike has not yet had a major impact on the German producers' goods industries (309). Referring to the February figures, however, he realises that the German export gains that resulted from the coal strike were only temporary and the German iron exports have fallen significantly in recent months. As a result, the *production* of iron and steel has fallen. Like the Berlin institute, Krämer however finds that the domestic economy is still further reviving, which he infers from a slight increase in the domestic *consumption* of iron and steel (Krämer 1 April 1927: 461). His diagnosis then corresponds closely to the result of the Berlin institute: "A further slight upward movement of all domestic business activity is unmistakable. The upward movement is by no means stormy, the present state is far from a boom: in most branches it is a slow expansion of business, especially of domestic business" (Krämer 1 April 1927: 461).[40]

In its Vierteljahrsheft published at the end of May 1927, the IfK observes an intensification of the upswing movement: "The upward movement has now continued at an accelerated pace. Economic activity has at present […] reached a degree, which has already led to certain

[39] In May 1926, in Great Britain the Trade Union Congress started a general strike that was meant to support the coal miners in their dispute with the mine owners. Before, the latter had locked off a considerable number of miners in order to enforce longer working days and lower payment. The strikers' goal was to force the government to intervene in the dispute. However, they failed to put sufficient pressure on the government and the strike ended after nine days (Encyclopaedia Britannica (2024) general strike, retrieved from: https://www.britannica.com/money/general-strike (last access: 13 February 2024); BBC (19 June 2011) What was the General Strike of 1926?, retrieved from: https://www.bbc.com/news/uk-13828537 (last access: 13 February 2024)).

[40] A direct comparison of the analyses provided in the Vierteljahrshefte and the reports Zur Lage is aggravated by the fact that the former were released on a quarterly basis while the latter were published monthly.

friction and tension phenomena, such as are characteristic of an upswing phase approaching high-tension" (IfK May 1927: 7). The barometer of the three markets indicates that the economy reached the second phase of the upswing that is characterised by an increasing activity at the goods market, a setback of the securities market and a tense money market. Like the researchers at the Berlin institute, Krämer observes an increased pace of the upswing during spring 1927: "At the end of the first quarter, business activity is in the throes of a fairly lively upswing" (Krämer 29 April 1927: 617). He highlights that, in March, the domestic consumption of iron and steel exceeded for the first time the peak of the previous upswing, which it had reached in January 1925. According to Spiethoff's model cycle, exceeding the peak level of the previous cycle is a significant sign of an advancing upswing.

At the end of August, the Institut für Konjunkturforschung even finds that the economy has entered the phase of high-tension. The authors observe a further decline in securities prices and a strong tightening on the money market that comes along with financial and credit difficulties (IfK August 1927: n.p.). While goods prices still rise, the activites in the producers' and consumers' goods spheres are approaching maximum levels. Similarly, Krämer asserts that production figures show "the picture of an economy that is almost fully utilising its production facilities and its available labour force" (Krämer 29 July 1927: 1117). The publication of the Berlin institute further states that in the producers' goods sphere, which is still ahead of the consumers' goods sphere, tensions materialise in the form of deteriorating liquidity. This is indicated by an increase in business supervision, bankruptcies and bill protests (IfK August 1927: 7).

Despite indications that the economy is reaching the zenith of the upswing, the researchers at the IfK point out that no precise statements can be made about the duration of the peak and the nature of the transition to economic decline. They note that the symptoms of tension are less severe than in the previous phase of high-tension in 1925 and appear to resemble more the characteristics of the pre-war cycles (IfK August 1927: n.p., 9). While the Berlin institute infers its interpretations from reference to the overall schedule of previous cycles, Krämer relies on Spiethoff's main indicators. He claims that the "fact that the economy has reached a certain peak does not mean that a crisis or a gradual decline must follow now" (Krämer 30 September 1927: 1482). This would be signalled by the decrease in productive investment. Since the domestic consumption of iron and steel, in August 1927, increased by ten percent as compared to the average of the months May to July, "the current level of employment can be expected to continue for at least the next few months" (Krämer 30 September 1927: 1481). Krämer is more concerned about the consequences of the upswing for

German economy's competitiveness in foreign trade: "Export promotion without curing the domestic economy, i.e. without a forced lowering of the price level, is an almost impracticable undertaking" (Krämer 2 September 1927: 1322). The Berlin institute, in contrast, expects German companies to benefit from an economic revival that has set in in other European countries recently: "For if the upswing continues to prevail on the continent, the narrowing of the domestic market in Germany can be offset to a certain extent by growing demand in the countries having an upward trend in the economy" (IfK August 1927: 8).

At the end of November 1927, the Berlin institute claims that the phase of high-tension has fully developed by now. However, no crisis-like developments are observable. Despite the tensions observable throughout the economy, i.e. a decline in new orders, the authors believe "that with cautious dispositions a turnaround could still be held off or at any rate its effects could be very much mitigated" (IfK November 1927: n.p.). Similarly, Krämer finds that the German economy has not yet passed the peak of the cycle and is "unexpectedly insensitive and resistant to disturbances". Referring to the last months of 1927 he claims that in contrast to a slight decline of the overall economy the "slowdown in the pace of new orders" was rather a sign of "a cautious disposition in the issuing of new orders", "which was to be welcomed in the interest of payment security" (Krämer 3 February 1928: 165).

According to both the Vierteljahrshefte and the reports Zur Lage, the economy finally fulfilled the transition to decline in February 1928. At the end of February, the IfK claims that the economic activity has exceeded its maximum. This is indicated by a decline in production in both the producers' and consumers' goods industries (IfK February 1928: n.p.). Krämer points out that only in February the domestic consumption of iron and steel fell considerably from a high level and expects that the "decrease in the investment activity is not a temporary phenomenon" (Krämer 6 April 1928: 550).

Krämer's report of the 6 April 1928 needs to be highlighted, since from that point on Krämer explicitly includes constructive references to the publications of the IfK into his reports. Krämer, for example, approvingly cites a publication of the IfK, in which it highlights and discusses the difficulties of separating seasonal and cyclical influences (Krämer 6 April 1928: 549). Furthermore, he agrees to the institute's statement that the drawing of bills properly represent "'the turnover in the backyard of consumption, in the entrepreneurial sphere'". To remember, this is also how Krämer in the reports Zur Lage uses the sum of bills

of exchange as a symptom for the activity in the production sphere.[41] The reason for this change in course in dealing with the Berlin institute can be found right above the article – the Wirtschaftsdienst announces that Singer's position as chief editor ended at the end of March 1928 (Krämer 6 April 1928: 549).

In the Vierteljahrsheft of the beginning of September, the researchers of the IfK point out differences of the developments in the producers' and consumers' goods sphere: "Characteristic of the present situation continues to be the divergences occurring in the cyclical movement of the producers' and consumers' goods industries; in fact, the cyclical downturn in the consumers' goods industries has occurred earlier and is also more sustained than in the producers' goods industries" (IfK September 1928: 7). As we saw in section 2.4.1, Krämer also discusses these observations. He is concerned about them specifically because they seem to contradict Spiethoff's claim that the cycle is driven by the developments in the producers' goods sphere. For the researchers of the Berlin institute, this observation must have been surprising, as well, since they also assumed the activity in the producers' goods sphere to alternate prior to the activity in the consumers' goods sphere. Both the Berlin institute and the Wirtschaftsdienst, however, point out that this observation does not mean that the activities in the consumers' goods sphere have taken the lead in determining the cycle. The developments in the consumers' goods sphere rather constitute an extraordinary phenomenon. The publication of the Berlin institute claims that "[t]he decisive reason for the stronger and earlier decline of the consumers' goods industries lies rather in the fact that from the end of 1926 until the second half of 1927 the traders [of consumers' goods, A/N], replenished the stocks liquidated during the crisis (turn of the year 1925/26) and, in addition, made even more extensive advance arrangements, especially stimulated by the rising prices of the most important basic materials" (IfK September 1928: 7). Krämer explains that from mid-1926 until autumn 1927, the production of consumers' goods has increased unusually strong in order to satisfy the demand pent up during the crisis (Krämer 2 March 1928: 333, 4 May 1928: 726). Like the Berlin institute, Krämer argues that these catching-up process even led to an "overdisposition in trade" (Krämer 9 November 1928: 1841). The quantities

[41] However, while Krämer finds that the bill drawings strongly decrease in February (549), the Berlin institute asserts a further increase of that factor, albeit at a slower pace (IfK February 1928: 39). This discrepancy in observation can probably be explained by a different definition of the factor to be observed. In previous publications the Berlin institute emphasised that the drawings of bills of exchange expanded "beyond the sphere of banks", which it interpreted as an increase in "the self-financing of the economy" (IfK November 1927: 7). It is reasonable to assume that in its publication of February 1928, the institute applied this extended definition of bill drawing while Krämer seems to focus only on bills issued by banks.

ordered by the traders exceeded consumer demand. When, towards the end of 1927, consumer demand had been largely satisfied, the production of consumers' goods fell relatively sharply.

In mid-November 1928, the Berlin institute claims that "[t]he economic downturn […] has continued, albeit at a slower pace" (IfK November 1928: n.p.). The researchers still see no sign of an economic crisis: "The constellation of the money, securities and commodities markets expresses the fact that the economic tensions were strong enough to force a decline in economic activity, but not strong enough to initiate a crisis-like economic downturn" (IfK November 1928: 8). Krämer comes to the same conclusion. He highlights the smooth proceeding of the economic decline: "Without having been accomplished by a shock or only by a visible disturbance of payment security, the cyclical decline has gone on its way; in a planned economy the retreat could not have proceeded in a more orderly manner" (Krämer 9 November 1928: 1841).

1929 and 1930: Differences in economic diagnosis and outlook

In 1929, the results presented in the Vierteljahrshefte and the reports Zur Lage begin to diverge. The IfK continues to apply a cyclical explanation to the overall economic situation and in its analysis adheres to the set of barometers that it has established. In contrast, the Wirtschaftsdienst focuses on structural problems of the German economy, which, according to Krämer, interfere with the genuine cyclical alternation of economic activity.

In the year's first report Zur Lage, published on 22 March 1929, Krämer emphasises the limited explanatory scope of purely cyclical explanations for the post-war years:

> "Almost at the same moment at which international research seemed to have succeeded in constructing the scheme of a 'normal' business cycle, the applicability of this scheme to the real course of the economy came to an end; the task of business cycle research, which it has admittedly proved itself equal to only in a few cases, has since that time consisted in clarifying the cause of this rebellion of the business cycle curves, i.e. the lack of interconnectedness of the market areas" (Krämer 22 March 1929: 485)

For confirmation, Krämer points out that in the US economy, the three market spheres of the Harvard index have shown no correlation for several years now. Real production and commodity prices have stabilised on an intermediate level and do not react to variations in stock market prices and money rates. Likewise, England's economy has not shown any cyclical alternations in recent years. While in Germany "the economy runs in a cycle-like movement, at least the connection between the individual market areas seems to be strongly disturbed"

(Krämer 22 March 1929: 485). As we saw in section 2.4.2, Krämer ascribes these disturbances of the "normal" cycle in the war and post-war years to a reduced influence of the private economic sector and market coordination and a gain in importance of the public sector as well as a rising interference of the economy by official authorities. In Germany, misguided economic and social policies led to a weakening of capital formation in favour of income formation and consumption. The policy induced over-consumption caused a capital shortage, which hinders productive investments.

In contrast, the IfK sticks to the assumption that the three market spheres in Germany will continue their typical sequence of upward and downward movement. While the publications of the institute are cautious to make precise predictions, the researchers seem to be confident about a general applicability of the three markets scheme for the German economy. The publication of the end of November 1927 claims that "[i]t is very remarkable that in the last two years there has been a clear consequential movement between the securities and goods markets. The three-markets barometer, which seems to fail in the United States […], thus has a high diagnostic and prognostic value for Germany" (IfK November 1927: 8).

The IfK continues to adhere to the sequence scheme in 1929: "In the barometer of the three markets, the change so far in the constellation of stock prices, responsive commodity prices and money rates is consistent with past experience" (IfK February 1929: 8-9). At first, the researchers diagnose a progressing economic decline. For the time being, there are no signs of a nascent improvement. While the money market is easing, it does not yet suffice to initiate an increase in the activity at the securities market, which would lay the ground for a new economic upswing (IfK February 1929: 5, 8-9). For the end of May, the researchers even observe a tightening of the money market and state that the overall economic situation "does not suggest an improvement, but rather an increase in difficulties" (IfK May 1929: n.p.).

At the end of November, the IfK notes that the economic downturn has accelerated in recent months. As a result, the economy has finally emerged from the period of high tension, which has been unexpectedly prolonged by extraordinary factors, into crisis. According to the sequence scheme of the three markets, this means that the tense markets begin to be relieved – commodity stocks must be liquidated and prices fall, the money market begins to ease, while the activity at the securities market lies idle – and the economy enters into depression. What is important is that the researchers at the IfK expect the economy to eventually revive as a consequence of these clearing processes:

> "Economic activity has now sunk to the level at which previously created tensions begin to be relieved and below which the money market, and later the capital market, tend to be relieved: The economy is about to enter, or is not very far from entering, a cyclical depression", "a phase, therefore, which in its further course tends to give room to new upward tendencies" (IfK November 1929: n.p., 9)

The report specifies that from the experience of the pre-war time and the post-war years, a relaxation of credit supply effects the capital market only when the interest rates at the money market decreased considerably already. Due to a decrease in production and prices it is, indeed, likely for the "cyclical decline of the interest rates" to be continued. The authors claim that "[i]t can therefore be assumed that a relaxation of the capital market [which comes along with improved emission opportunities, A/N] will also begin" (IfK November 1929: 11).

However, the researchers also identify inhibiting factors for the transition to a new upswing. They, surprisingly, take up an argument of Spiethoff's business cycle theory. They argue that previous business cycles have revealed that downward movements show a certain persistence, which leads to economic activity falling "beyond the equilibrium position" (IfK November 1929: 11), that means below the level that could be sustained without setbacks given the current endowment with basic economic factors (IfK November 1929: 6). The exaggeration of economic decline is caused by the psychological impact of the experiences during an economic crisis and depression. The explanation reads as if it came from Spiethoff's pen:

> "For pessimism and mistrust, which have set in during such times as a consequence of falling prices, declining sales and diminishing credit security, tend to continue to inhibit entrepreneurial enthusiasm even when a change in economic conditions is already beginning to take place again" (IfK November 1929: 11)

The reference to psychological effects on the course of cycle surprises, as the IfK before hardly takes a look at the decisions of economic actors and their motives. The researchers derive their results primarily from regularly observable empirical symptoms and analogies from the statistical patterns of previous cycles.

At the end of February 1930, the researchers of the IfK state that the economic crisis is transitioning into depression and point out developments of the three markets that are characteristic of this transition phase. Furthermore, they are concerned about the strong increase in unemployment that exceeds by far a typical seasonal effect. However, they argue that the reduction in production activity, which caused the high rates of unemployment, also supports the easing on the credit markets, which, when it reaches a certain level, has a stimulating effect on the activity at the securities market (IfK February 1930: 9-10). Although they are

aware of specific external barriers, like unsolved questions concerning the German reparation payments and, for the time being, cannot observe any symptoms of an upswing, the adherence to the three-markets scheme makes them somewhat optimistic – in February 1930 – about the future economic development: "Economic depressions eventually lead to a period of lively industrial activity" (IfK February 1930: 10).[42]

In the report Zur Lage of 2 May 1930, Krämer explicitly criticises the application of the sequence scheme of the three markets for an analysis of the economic situation:

> "[…] should it not be time, after the complete failure of this barometer in the post-war period, to abandon the outdated notion on which the Harvard barometer was based and which made an upswing probable at a certain low level of cost of credit, and to move on to a somewhat less formalistic approach?" (Krämer 2 May 1930: 746)

Krämer emphasises once again that the three-market scheme developed by the Harvard researchers cannot explain the current economic developments, as it does not correspond to the empirical observations in the post-war period. Furthermore, he criticises the formalistic nature of the approach of the Berlin institute. Thus, he confirms Singer's criticism that the scheme of the three markets only looks at the surface of the economic processes without comprehending the underlying cause-effect relationships. According to Krämer, in the concrete situation, this approach causes an uncritical adherence to the chosen model framework and a lack of flexibility in the economic analysis.

However, Krämer also notes "more fruitful lines of thought" (2 May 1930: 746) in the Berlin institute's work, such as the emphasis on the importance of entrepreneurs' long-term investment activity for the business cycle. So far, however, the institute has paid too little attention to this factor. It is precisely at this point – the supply of and demand for capital – that the analysis of the current economic state must start. This analysis then also reveals the structural shortage of capital that is hampering the German economy. To overcome this capital shortage, Krämer calls for a coherent economic policy plan that aims to reverse the inflationary trends brought about by expansionary fiscal and social policies. In contrast, the IfK proposes a stimulus of overall economic activity through public investments. The researchers, however, notice that due to heavy investment activity during the boom, there is hardly any scope for expansionary fiscal policy in the current time (IfK February 1930: 11).

[42] Corresponding to its analyses, the Berlin institute presented an optimistic forecast of the short-term economic development to Chancellor Brüning when he came to power in March 1930. The government prepared its budget on the basis of the institute's prediction. When the forecast turned out to be wrong, Brüning and the head of the Institut für Konjunkturforschung, Wagemann, broke off (Janssen 2012: 403 footnote 810; Tooze 2001: 158ff.).

In summary, the assessment of the macro-economic situation provided in the Vierteljahrsheft as well as in the reports Zur Lage (and the Wirtschaftsbarometer) coincide considerably for the period 1926 to the beginning of 1929. Both describe a similar time course of the cycle and coincide in their interpretations of specific events, like the high activity at the stock market in 1926 and the intense variations in the consumers' goods sphere in 1927 and 1928. In 1929 and 1930, the analyses diverge more strongly. The IfK sticks to a cyclical explanation of the current situation. While the researchers observe an economic depression in 1930, they expect a soon recovery of the overall economy. In contrast, Krämer diagnoses a long-lasting structural crisis.

3.3 Strategic interests and personal tensions

Singer voiced his initial criticism of the IfK's work in summer 1926, which means that he only referred to the first publication of the Vierteljahrshefte. However, despite the compatibilities in the analyses from 1926 until 1929, Singer remained hostile towards the IfK and Wagemann in the following years. For example, he critically comments on the work of Wagemann and the IfK in publications in 1928 and 1932. Only when Singer was withdrawn from the position as chief editor, Krämer began to integrate results from the IfK's publications into the reports Zur Lage. This indicates that under Singer's regime a constructive reference to the work of the IfK was not possible. These observations suggest that Singer's sharp criticism was not solely a factual assessment, but that further factors, like strategic interests and personal tensions, were at play.

One strategic motivation originated from Spiethoff's endeavour to consolidate his influence as one of the leading German business cycle researchers and to assert his own method in the competitive field of German economics. Singer who cooperated with Spiethoff on business cycle reporting, took Spiethoff's side in this endeavour. Against this background, his harsh criticism of Wagemann and the IfK can be understood as a targeted attack towards a perceived competitor. In the 1920s, Spiethoff was a famous business cycle theorist in Germany and the article on "Crises" (1925) made him known even beyond the German borders (Kurz 2015: 149). As Kulla (1996: 115-117) shows, despite his reputation as an expert on business cycles, Spiethoff failed to gain influence on the institutionalisation of business cycle research in Germany. When, in 1924, he learned about the plan to build up an Institut für Konjunkturforschung, he proposed that the institute be affiliated to the University of Bonn where he taught as a professor. However, Spiethoff could not find sufficient support for his idea. The Institut für Konjunkturforschung was finally founded by Ernst Wagemann and

affiliated to the Statistisches Reichsamt that Wagemann headed. With another endeavour, Spiethoff was more successful. He had planned to implement a regular statistical monitoring of the economy based on his business cycle theory, the results of which he wanted to make available to a wider public. For that purpose, the Wirtschaftsdienst seemed suitable to him. Spiethoff suggested his plan to Singer in January 1925, a short time after he failed to gain influence on the foundation of the Institut für Konjunkturforschung. Spiethoff regarded the cooperation with Singer as an opportunity to put his own theory into competition with the IfK's work.[43] Singer accepted Spiethoff's proposal (Kulla 1996: 122-123).

From the viewpoint of a chief editor of an economic newspaper such an offer must have been attractive. At that time more and more journals and newspapers engaged in business cycle reporting. Against this background, Singer probably regarded Spiethoff's proposal as a chance to keep up to competitors and to raise attention of the readers. A cooperation with a well-known business cycle researcher must have seemed particularly attractive to Singer, because the link thus created between current economic research and the interests of economic actors was conducive to the semi-academic character of the economic weekly. Furthermore, Singer agreed with Spiethoff's business cycle explanation. In his essay "Von den Prinzipien der Konjunktur-Theorie" (On the principles of business cycle theory) (1932), Singer provides an explanation of economic fluctuations that is close to Spiethoff's real over-investment theory of the cycle. Like Spiethoff, Singer characterises business cycles, observable in advanced capitalistic economies, as investment cycles that are initiated within the producers' goods sphere. While the alternation of upswing and stagnation determines the characteristic course of short-run economic development under the specific constitution of the capitalistic economy, economic crises are extraordinary phenomena that do not necessarily occur at the end of the upswing (Singer 1932: 20). The cycle describes regular alternations in capital investment and the production of producers' goods. These are linked to but not systematically or causally connected with monetary phenomena (Singer 1932: 28).

Moreover, Singer's professional prospects at Hamburg University, where he worked as a lecturer in economics, were entangled with the topic of business cycle research. In fact, he had an interest in making himself a name as a business cycle researcher. From 1920 to 1925,

[43] In fact, in the early days of the institute, Wagemann endeavoured to establish cooperation with experts from various universities and also negotiated with Spiethoff about a possible cooperation. However, the efforts to reach an agreement finally failed at the end of 1926. The fact that Spiethoff learned about the inaugural meeting of the institute only from the newspaper led to a tense atmosphere from the start. Furthermore, Spiethoff criticised Wagemann's idea to decentralise scientific work on business cycles to various universities, which he considered an arbitrary procedure (Kulla 1996: 117-121).

Singer was employed as a private lecturer and from winter term 1924/25 on as an adjunct professor (außerordentlicher Professor) with one-year lectureships (Hamburger Professorinnen- und Professorenkatalog n. y.; Schefold/Schönhärl 2012: 49-50). In summer 1925, the Commercial College in Königsberg offered Singer the chair for economics (Nicolaysen 2002: 67). Bernhard Harms, the founder of the Institut für Seeverkehr und Weltwirtschaft (Institute for Maritime Trade and World Economy) in Kiel had supported this call (Schefold/Schönhärl 2012: 56). Already some years earlier, in 1918, Harms had offered Singer a position in Kiel as a lecturer for monetary theory (Schefold/Schönhärl 2012: 50). Singer had rejected in the hope to get the chance to complement his work at the Wirtschaftsdienst with an official chair at Hamburg University (Nicolaysen 2002: 65).

This desire was still present in 1925. The minutes of the faculty council meetings and correspondences stored in the Staatsarchiv Hamburg (Hamburg state archive) show the efforts of the "Rechts- und Staatswissenschaftliche Fakultät"[44] of Hamburg University to realise a professorship for Singer in Hamburg. Singer informed the council of the faculty that he seriously considered to accept the chair in Königsberg (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)), but signified to the head of the faculty council, Fritz Terhalle, that he would prefer to stay in Hamburg if he had a full professorship (ordentliche Professur) at Hamburg University in prospect (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17). Within a following faculty meeting, the members of the faculty council expressed their appreciation of Singer's achievements in giving the Wirtschaftsdienst a scientific design. They wished to keep Singer in Hamburg, which seemed to require supporting his ambitions to gain a professorship at Hamburg University. Therefore, the faculty council decided to request an additional full professorship from the higher education authority to offer it to Singer (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)). In July 1925, Terhalle applied at the higher education authority for a new professorship for "wirtschaftliche Konjunkturlehre" ("business cycle studies") (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17).

This was due to strategic reasons since the faculty council thought that to initiate a professorship for business cycle research for Singer was most likely to be successful. First, the faculty council attested Singer a specific qualification for the topic of business cycle research and argued that this kind of professorship would build a reasonable link to his work at the

[44] From 1919 until 1954, the subject of Nationalökonomie was affiliated to the Rechts- und Staatswissenschaftliche Fakultät. In winter term 1954/55, economic science was spun off to the newly established Wirtschafts- und Sozialwissenschaftliche Fakultät (Universität Hamburg (1969), Universität Hamburg 1919-1969, p. 121).

Wirtschaftsdienst (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)). In winter term 1924/25, Singer also had given his first seminar on business cycles at Hamburg University (Vorlesungsverzeichnis der Rechts- und Staatswissenschaftlichen Fakultät der Hamburger Universität, Wintersemester 1919/20-Sommersemester 1931). Second, the international importance of business cycle research provided the faculty with a good argument for introducing a new professorship. In his letter to the higher education authority, Terhalle emphasised the need to enforce the subject of business cycle studies at German universities in order to close up to foreign universities, and especially those in the US, where business cycle research built an important link between academic research and economic practice (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17). As we saw, the Harvard Committee on Economic Research had been operating since 1917 (Friedman 2009: 61, 57-58). Terhalle, furthermore, highlighted a particular need for *Hamburg* University to engage in the study of business cycle research (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17). This is reasonable given the special importance of international trade for the city and the influential role of Hamburg merchants. These would benefit from tailored information on the (world) economy provided by business cycle analysis. Singer, encouraged in his hopes to gain a full professorship in Hamburg, rejected the offer from Königsberg (Schefold/Schönhärl 2012: 56).

However, the higher education authority postponed the decision about the professorship for business cycle research (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)). The fact that Singer's refusal of the chair in Königsberg displeased Bernhard Harms had probably contributed to this decision. To set up a new chair for Singer in Hamburg would have meant to embarrass Harms publicly (Schefold/Schönhärl 2012: 56). The faculty council did not yet give up, though. In March 1926, Terhalle sent a second request for a professorship for business cycle studies to the higher education authority (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17). In the meeting of the faculty council in February the fact that Kiel had lately introduced a professorship for business cycle research had been highlighted. Against this background, a corresponding chair in Hamburg became more urgent, if Hamburg was not to fall behind (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)). The professorship was held by Adolf

Löwe, head of the Astwik.[45] Above that, further universities were engaged in a cooperation with Wagemann and the IfK (Kulla 1996: 118).

In January 1926, the Wirtschaftsdienst printed Spiethoff's article in which he announces the new type of business cycle reporting provided by the economic weekly. At the same time, the first report Zur Lage was published. During the first months, Singer wrote the monthly articles and, furthermore, commented on the initial publication of the Wirtschaftsbarometer in June 1926. It seems reasonable to suppose that Singer used the business cycle reporting of the Wirtschaftsdienst as a platform to promote himself as a business cycle researcher and thus increase his chance of a professorship while the decision of the higher education authority was still pending.

In the end, it was, however, the escalating debate with Löwe that proved to be his undoing. Because of his argument with Löwe, Singer's relationship with Bernhard Harms worsened further. Since the institute in Kiel was co-publisher of the Wirtschaftsdienst (Leveknecht 1998: 22), it had an influence on its staff policy and as a consequence of the debate, Singer was dismissed as chief editor (Kulla 1996: 129-130). He departed from this position at the end of March 1928 (Wirtschaftsdienst 6 April 1928: 549). In retrospect, it is difficult to understand why Singer escalated the debate with Löwe, thus risking his professional success. He probably underrated what was at stake for him. He seemed to have felt overly provoked by Löwe's reaction, in which Löwe dismisses Spiethoff's theory as insufficient for the explanation of business cycles and thus attacks the basis of the analysis of the Wirtschaftsdienst.

In the meantime, the faculty council's efforts to implement a new full professorship for Singer remained unsuccessful, too. In July 1926, the higher education authority announced that for the time being it did not intend to pursue the faculty's plans any further. After some debates, the faculty council decided that Singer, against the background of his dismissal at the Wirtschaftsdienst, should at least be awarded an honorary professorship at Hamburg University (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1926-1927)). However, in July 1927 the higher education authority rejected this attempt, too. The aggravated tensions between Harms and Singer probably again influenced this decision. In March 1927, in a letter to the banker and supporter of Singer Max Warburg, the Hamburg

[45] When Löwe became professor in Kiel in 1926, he had been giving lectures on international trade, business cycles and statistics at Kiel University for three semesters already, next to his main occupation at the "Statistisches Reichsamt" (Federal Statistical Office) in Berlin. After these three semesters, Harms had offered Löwe to habilitate him and award him with a Titularprofessur if he came to Kiel to build the agency for business cycle statistics there (Beckmann 2000: 44-46).

senator Paul de Chapeurouge spoke out against an honorary professorship for Singer, since Harms and his colleagues in Kiel could perceive the decision as a critique (Staatsarchiv Hamburg, 361-5 II Hochschulwesen II, A i 5/17). In the end, Singer was only awarded with a one-year lectureship for "Weltwirtschaftslehre" (global economic studies) (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1927-1928)).

Interestingly, after the Rechts- und Staatswissenschaftliche Fakultät had failed twice to enforce an ordinary chair for business cycle research at Hamburg University, the commercial advisory board of the HWWA addressed the higher education authority with a similar request. In May 1927, it demanded the formation of an additional professorship, for "beschreibende Volkswirtschaftslehre" (descriptive economics) (Staatsarchiv Hamburg 361-5 II Hochschulwesen II, A i 5/21), at the university, charged with the systematic investigation of the economic data collected and stored at the HWWA. The commercial advisory board argued that Hamburg business people had an urgent need for information retrieved from a comprehensive analysis of the collected data. Furthermore, it claimed that it was a pressing task of Hamburg University to contribute to the development of appropriate methods of statistical investigation of the economy. Many new methods have had emerged under the heading of "Konjunkturforschung" recently, which needed to be assessed by investigating the empirical data. The commercial advisory board claimed that there was the danger of a "new doctrinarism" within the field of business cycle theories (Staatsarchiv Hamburg 361-5 II Hochschulwesen II, A i 5/21).

The request of the commercial advisory board might have been a last attempt to provide Singer with a full professorship in Hamburg. One indication for this notion is the fact that the leader of the commercial advisory board, Max Warburg, had promoted Singer already before. Warburg had arranged that Singer in 1917 joined the editorial team of the Wirtschaftsdienst (Kulla 1996: 122) and in 1918, Warburg had written to Werner von Melle to promote Singer as a lecturer for the planned university in Hamburg (Nicolaysen 2002: 65). Furthermore, a protocol of a faculty meeting in December 1925 states that, after the first rejection of the faculty's plans to introduce a professorship for business cycle research, Max Warburg pledged the faculty council to approach the higher education authority with this plan anew (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)). In fact, after Singer's argument with Löwe, Warburg took Harm's side. He proposed to the head of the HWWA, Franz Stuhlmann, to remove Singer from the editorial board at the Wirtschaftsdienst and to continue to employ him as an associate only. However, Warburg appreciated Singer's intellectual qualities and thought that Singer would be better suited for

a scientific occupation. With von Wrochem, Stuhlmann and de Chapeaurouge Warburg discussed about possibilities to expand Singer's scientific engagement (Nicolaysen 2002: 71-72). The professorship for "beschreibende Volkswirtschaftslehre" might have been viewed as a solution to this question. However, the chair was not introduced and Singer, as shown above, was not even awarded with an honorary professorship.

The request of the commercial advisory board is interesting in a further regard. It indicates an institutional rivalry, which also showed through in the faculty council's justification for the application for an additional professorship. The commercial advisory board criticises the contemporary approaches of business cycle research. In Germany, the IfK in Berlin and the Astwik in Kiel were important institutions on that field. The board argues that the institute in Berlin is not suitable to serve the *specific* needs of Hamburg business people for information on international trade. According to their request at the higher education authority, it existed a vacancy for the applied analysis and empirical investigation of the data on the overall economy, like those stored at the HWWA. These would provide especially the Hanseatic merchants with valuable support. In fact, one year before, Adolf Löwe had built the department for business-cycle statistics in Kiel. Löwe, who supported the *Imperialismustheorie* of Rosa Luxemburg, consequently pursued an international focus of business cycle investigation; and the Institut für Weltwirtschaft und Seeverkehr (IfW) identified itself as an organisation that linked academic research with economic praxis (Beckmann 2000: 23-24, 451). That means that Kiel at least conceptionally fulfilled the requirements that the commercial advisory board of the HWWA now demanded of comprehensive and applied economic statistics. It seems reasonable to assume that the advisory board's actual intention was to sharpen Hamburg's profile as a center of contemporary economic sciences and praxis orientation, in order not to rank behind Kiel (as Sieveking had warned already in 1926 (Staatsarchiv Hamburg, 364-13 Juristische Fakultät Abl. 2000/08 Nr. 102 (1925-1926)).

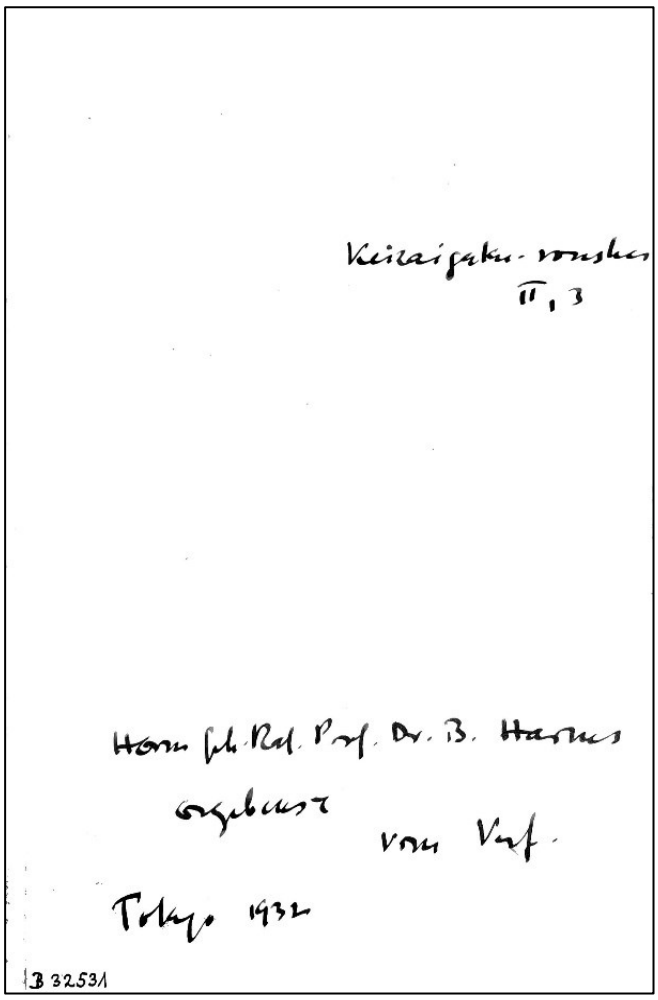

Figure 12: Handwritten note by Kurt Singer at the frontpage of his treatise:
"Herrn Geh. Rat Prof. Dr. B. Harms
Ergebenst vom Verf.
Tokyo 1932"
"To Mr Privy Councillor Prof. Dr. B. Harms
Sincerly from the author
Tokyo 1932"

Singer gave his last seminar in Hamburg in summer term 1931 (Vorlesungsverzeichnis der Rechts- und Staatswissenschaftlichen Fakultät der Hamburger Universität, Wintersemester 1919/20-Sommersemester 1931). The same year, he was invited to Imperial University in Tokyo to become guest professor of "Theoretische Nationalökonomie" (economic theory). Singer accepted the offer and left Hamburg (Schefold/Schönhärl 2012: 56).

In the following years, Singer published a few more scientific articles on questions of business cycle research, in which he further on promoted Spiethoff's theory and the business cycle reporting conducted at the Wirtschaftsdienst (see Singer 1928, 1932, 1933). In his essay "Von den Prinzipien der Konjunktur-Theorie" (1932) Singer again ties in with the debate about the appropriate methods of business cycle analysis, which he had led with Adolf Löwe in the Wirtschaftsdienst in 1926. He makes some pointed remarks against Wagemann and Löwe[46],

[46] An example: With the rise of business cycle studies in the 1920s, there arose the question whether the explanation of cyclical movements of the economy was compatible with the framework of the static system or whether new "dynamic" principles needed to be introduced. Singer comments disparagingly that "no complicated methodological dissertations are needed to show that [with static theory] the problem of business cycles cannot be mastered" (Singer 1932: 6). This comment can be understood as an attack on Adolf Löwe who devotes his habilitation thesis to a comprehensive proof of the incompatibility of business cycle explanation with the axioms of static theory. He takes Luxemburg's theory as a proof that the problem of business cycles can theoretically be solved only within a dynamic system of the economy (Löwe 1926a: 189-190, 193). With his methodological discussion of business cycle theory, Löwe became the "spiritus rector" of the debate about the conceptualisation of businsess cycle theory and was referred to internationally (Hagemann, Harald (2022: 21) Wie ist Konjunkturtheorie überhaupt möglich? Zur (In-)Kompatibilität von zyklischen Schwankungen und Gleichgewichtstheorie, in: Spahn, Peter (ed.) *Entwicklung der Konjunkturforschung im frühen 20. Jahrhundert. Studien zur Entwicklung der ökonomischen Theorie XL*, Berlin: Ducker & Humblot, pp. 15–43).

however being more subtle in his critique than in the debate printed in the Wirtschaftsdienst. As a handwritten note in a printed copy of his treatise (figure 12 on p. 140) available at the library for economic literature, ZBW[47], shows, Singer even sent his text to Bernhard Harms in Kiel who had contributed to his dismissal as chief editor of the Wirtschaftsdienst. It seems that the debate on the appropriate way to conduct business cycle analysis and its consequences bothered Singer even after he had moved to Japan.

3.4 A controversy on the conceptualisation of German economics

Not only strategic interests and personal conflicts fuelled the debate between Löwe und Singer. Furthermore, different ideas about the conceptualisation of economic science as such clashed. In this regard, the dispute can be considered a manifestation of the controversy about the reorganisation and reorientation of German economics after World War I and the breakdown of the German Historical School that extended into the field of business cycle research and statistics. The different methodological attempts to investigate and explain economic cycles can be distinguished by their underlying idea of the nature and interplay of theoretical and empirical research in economics as well as in terms of how economists positioned themselves in relation to the tradition of German historical economics.

In the 19th century, German economics was established as a discipline of the humanities (Häuser 1994: 47). It was defined as a "'science of man'" (Häuser 1994: 47-48) that is concerned with investigating the "economy as [a part of] life" (Janssen 2012: 50). German economists integrated a social and cultural perspective into the study of the economy and rejected any kind of naturalistic explanations of economic processes. The research programme of the Younger Historical School of Economics was shaped by its leader, Gustav Schmoller. He took a holistic view of the economy that considered social, political, legal and psychological aspects (Rieter 2014: 131) and set a specific focus on the investigation of institutions. In order to account for the complexity and historical contingency of economic phenomena, the economists of the historical tradition favoured empirical research and inductive theorising (Rieter 2014: 136). Moreover, Schmoller's research programme had an ethical imprint and contained normative elements. It integrated the optimistic idea that in its development a na-

[47] The library was part of the Königliches Institut für Seeverkehr und Weltwirtschaft and is today affiliated with Kiel University. For information about the development of the ZBW see the three-volume history of the library released on occasion of its 100th birthday in 2019, available at: https://www.zbw.eu/de/ueber-uns/profil-der-zbw/geschichte (last access: 30 June 2025).

tion follows a path of ongoing progress and moral advancement. Schmoller furthermore believed that shared normative goals could be derived through scientific investigation (Rieter 2014: 147, 152).

The economists of the Younger Historical School demarcated their work from the "exact science" or "natural science" approach of economics assigned to the Anglo-American mainstream, which was also established in further European countries, especially in Austria and Sweden. The economists of this strand were accused of isolating economic factors from their interrelatedness with human and social relations and of taking a mechanistic view of economic processes (Häuser 1994: 48). The first "Methodenstreit" between Schmoller and the Austrian economist Carl Menger developed into a proxy war between the advocates of empirical, observational and historicising research, on the one side, and the proponents of deductive-theoretical, abstract and rational analysis, on the other (Rieter 2014: 150-151).

Schmoller's death in 1917 and the fall of the Deutsche Reich marks the end of the Historical School of his imprint. Due to the fact that German economics was concerned with sociological and cultural questions, it was considerably hit by the cultural crisis in Germany following the breakdown of the Kaiserreich. Since Schmoller was regarded as a representative of the Wilhelmine state, its collapse also deprived Schmoller's work of legitimacy. German economists distanced themselves from the programme of the Younger Historical School. In the 1920s, they tended to move away from the definition of economics as part of the humanities and towards the exact sciences. However, they did not completely detach themselves from the heritage of the Younger Historical School but carried on some of their elements. During the 1920s and early 1930s, a variety of different approaches were developed, without establishing a new mainstream in German economics, though (Häuser 1994: 51, 55, 57-66, 68).

With regard to Singer's discussion of business cycle research and his critique towards the "competitors" of the Wirtschaftsdienst's analysis, three approaches to conceptualise economics that were developed in the interwar time are of interest to us. They correspond to the methodological standpoints of Spiethoff and Singer, Wagemann, and Löwe. A closer look at these approaches offers further insight into the work of the Hamburg weekly as well as the research institutes in Berlin and Kiel and provides additional explanation for Singer and Löwe's fiery debate.

One approach was pursued by those economists, who can be regarded as the closest descendants of German historicism and whom Joseph Schumpeter therefore calls representatives of

a "'youngest' historical school" of economics (Schumpeter [1954] 1994: 816). Arthur Spiethoff is considered one of the central economists of this strand. While Singer's scientific work was shaped by various different influences, for example by his affiliation with the Stephan George circle, he also associated his work with the tradition of the German Historical School. With regard to the opposition of humanities and natural sciences, the economists of the historical tradition, including Singer, associated themselves with the former and criticised the turn of German economics towards the latter (Janssen 2012: 72-73). In their research, they regarded economic phenomena as embedded in a specific social and cultural context and were thus able to explain the influence of "irrational" behaviour on the economy. In contrast to Schmoller's programme that focussed on individual empirical studies and was cautious about making theoretical statements, the economist of the youngest historical school, however, more strongly endeavoured to build inductive theories based on their empirical studies. At the same time, their economic investigation adhered to a holistic and historical perspective. Spiethoff's business cycle theory is an example of such an inductive theory.

Although these economists rejected a rapprochement with the natural sciences, they strove to objectify and scientify German economics. They distanced themselves from the ethical imprint of Schmoller's programme of economic research. Max Weber and Werner Sombart already made respective claims to disentangle normative and positive elements of economic investigation in the "Werturteilsstreit" that was fought out at the beginning of the 20th century in the "Verein für Socialpolitik" (Rieter 2014: 152-153). Singer was an exception in this regard. In line with an epistemology propagated by the George circle, he advocated economics as a normative science, which encompassed (the formation of) value judgements and the investigation of metaphysical principles. Nevertheless, he also favoured precise and sophisticated analyses, which, to him, built the foundation of a comprehensive understanding of the economy (Schönhärl 2009: 179-180).

Besides those economists who remained closely connected to the tradition of German economics as a discipline of the humanities, there were others who distanced themselves more strongly from this perspective. One of those is Ernst Wagemann who, as head of the Statistisches Reichsamt and the Institut für Konjunkturforschung, considerably shaped German official statistics during the 1920s and early 1930s. Wagemann represented an "empirical-realistic" (Janssen 2012: 84) strand of economics and was enthusiastic about the flourishing "American empiricism" (Tooze 2001: 109). In fact, Wagemann remained strongly commit-

ted to the empirical and inductive method of the historical tradition (Janssen 2012: 85). However, he distanced himself from the definition of economics as a science of human life with its sociological, cultural and institutional dimensions. According to Tooze (2001: 32), he rather found the role models for his statistical method in the natural sciences. The scientific templates of chemists and physicists had a hegemonic position in research in the USA. Warren Persons of the Harvard Committee on Economic Research aligned his work to a certain degree with these role models and Wagemann associated the IfK's method of cycle analysis with the work of the Harvard researchers. Janssen's observation that, contrary to many of his colleagues of the Historical school, Wagemann made use of quantification and mathematical procedures without concerns, illustrates his orientation towards the exact sciences (Janssen 2012: 85).

Tooze argues that Wagemann rejected the idea that economists offer "moral leadership". Instead, the aim of economic investigation was to provide a "specific expertise for making economic policy". Wagemann's vision was to reconstruct German economics "as an empirical policy-oriented discipline" (Tooze 2001: 32). He built up a network with close contacts to politics and the private economy and managed to establish economic statistics, and in particular business cycle statistics, as an integral part of political and entrepreneurial decision-making (Tooze 2001: 170). In German economic science and academia, however, he had influential enemies, like Arthur Spiethoff, and failed with his plans to transform the economics discipline as a whole (Tooze 2001: 109-110).

A third approach to be considered here was propagated by a group of comparably young German economists who were called the "German Ricardians". The German Ricardians, with whom Löwe and other economists who later worked at the Astwik in Kiel associated themselves, most clearly demarcated themselves from the historical tradition of German economics. Like their namesake, David Ricardo, they advocated deductive theorising that was characteristic of the Anglo-American tradition of classical economics. Therefore, Löwe called the group the "theoretical club" (Janssen 2012: 38). These economists defined as the goal of economic research to discover general "laws" of the economy, from which explanations of specific economic problems could be deduced. They aimed to develop clear and exact theories that were logically coherent (Janssen 2012: 38-39).

To Löwe, deductive theorising took precedence over empirical research. However, he also considered the pitfall of a purely rational theory, namely its strong abstraction from reality (Janssen 2012: 57). In order to account for reality, the researchers of the Astwik, under the

leadership of Löwe, aimed to develop an empirically backed theory of the business cycle. Empirical data were consulted to investigate how closely the deductively derived cause-effect relationships between economic factors corresponded to reality (Löwe 1926a: 166-167).

The different methodological concepts of economics are mirrored in the statistical business cycle analyses of the Wirtschaftsdienst, the IfK and the Astwik. Singer comments on these concepts in the context of business cycle research in different publications. His discussion illuminates the link between concrete methods of business cycle analysis and the broader question of the conceptualisation of economics. Beyond his debate with Adolf Löwe in the Wirtschaftsdienst, he elaborates on methodological questions in an article published in the conference proceedings of the 1928 meeting of the Verein für Socialpolitik, to which, as Janssen (2012: 374) points out, Singer was the only representative of the Historical School to contribute. Furthermore, he discusses the interplay of theoretical and empirical investigation of business cycles in his essay "Von den Prinzipien der Konjunktur-Theorie" (On the principles of business cycle theory) (1932). In the following, Singer's discussion of the different methodological concepts is exposed. First, Spiethoff's justification of a historical and observational theory of the business cycle is outlined. It is shown that Singer agrees to Spiethoff's methodology to a large extent. Furthermore, those elements in which Singer's methodological conviction deviates from Spiethoff are revealed. Afterwards, Singer's comments on the empiricist methodology applied by Wagemann as well as the theoretical deductive approach of Löwe are exposed and discussed.

3.4.1 Spiethoff and Singer: Historical theory and statistical indicators

Arthur Spiethoff engaged in a comprehensive examination of methodological questions only in the 1930s (Janssen 2012: 80). In 1932, he published an article in "Schmollers Jahrbuch", in which he outlines his methodological conception of economics as a "historical" and "observational" theory that structures historical types of the economy along the lines of "economic styles" (Spiethoff [1932] 1971: 126-127). Even though they had not yet been explicitly formulated in the 1920s, the basic features of Spiethoff's methodology can already be clearly seen in his business cycle study published in his 1925 article. This is confirmed by Spiethoff himself in the foreword of the 1955 release of a reprint of his article on "Crises", which he published together with Edgar Salin, now in the form of a monography. Spiethoff calls his business cycle theory an "'explanatory description'" that "makes use of two types of theory, the historical and the observational theory" (Spiethoff [1954] 1955: 16).

According to Spiethoff, all types of economies contain some universal basic phenomena that are not bound to place or time (Spiethoff [1932] 1971: 124-125). However, the majority of economic phenomena are subject to historical change and therefore cannot be regarded as universal. These can only be theoretically grasped, if the differences of people's economic lives resulting from historical change are accounted for by defining different "model examples". The task of the economist "arises of setting up as many model examples of economic life as possible so that they reflect in their totality the diversity of social economic organisation". Due to historical contingency of economic phenomena, Spiethoff defines economics as a "historical science": "it can only make valid statements for a certain historical time". The distinct "model examples" of economic life, which Spiethoff calls "economic styles" however show general traits. Therefore, their analysis and explanation can be considered "generally valid" for a certain economic style. That is where the theoretical element of economic investigation comes in. Spiethoff summarises that economic science means "historical theory" (Spiethoff [1932] 1971: 126).

In order to capture reality, the historical theory must have a realistic or observational character. Spiethoff's goal is to arrive at a holistic "picture of reality" (Spiethoff [1932] 1971: 131). Therefore, the starting point of investigation is the observation of the actual (historical) economic conditions. Spiethoff emphasises that it is necessary that only those phenomena are considered "that are found in reality (not assumed)" and that "all those that the screening of reality presents to me as essential (not leaving out essential ones, because I only want to examine certain essential ones in their effect)" are considered (Spiethoff [1932] 1971: 132-133). In this respect, he distinguishes the observational theory from "pure theory". Spiethoff explains that pure theory picks out certain phenomena and isolates them from all disturbing influences of concomitant phenomena. That means that the researcher abstracts from the complex reality and creates "consciously an unreal, purely mental construct". While, according to Spiethoff, pure theory can serve a historical and observational theory as a "heuristic device", it is never sufficient for the study of the economy (Spiethoff [1932] 1971: 127). The aim of investigation must be a theory that is complete in the sense that it considers all essential traits of reality, even though that makes it difficult to formulate a uniform theoretical argument. Spiethoff does not fail to recognise that also in the realm of observational theory the demarcation of the historical and spatial units, for which a certain economic style is proclaimed, is influenced by the individual assessment of the researcher. Therefore, he compares the work of the economist with a "painting" in contrast to a "photography" (Spiethoff [1932] 1971: 133). However, the researcher is guided solely by the observed reality. The

economic styles thus found are "imaginary buildings recreating specific realities" (Spiethoff [1932] 1971: 128).

Spiethoff's economic styles capture economic reality in a holistic sense. They do not only include economic determinants in a narrower sense, but furthermore consider spiritual, social and institutional factors. Spiethoff defines five categories characterising an economic style: 1. "economic spirit", 2. "natural and technical foundations", 3. "social constitution", 4. "economic constitution", 5. typical "course of the economy" (Spiethoff [1932] 1971: 146-148). According to him, business cycles constitute the typical course of economic activity for the style of the high capitalistic market economy that characterises economic reality since the mid-19th century[48]. Next to technical determinants, the change in economic spirit has a decisive influence on the cycle since it exaggerates upswing and downswing movements of overall business activity. As we saw, with considering the idea of an "economic spirit", Spiethoff incorporates the idea of psychological factors into economic analysis. The course of the economy is considerably determined by the people's "irrational" decisions and actions.

Regarding the interplay of theory and empiricism, it became clear that for Spiethoff all theoretical economic knowledge has its staring point in the experience and observation of reality. The aim of historical and observational theory is on the one hand to highlight the diversity of economic life and on the other hand to explain the interdependencies of the technical, social, institutional etc. elements of economic life that characterise a certain economic style. According to Spiethoff, theory must always refer back to the complex reality: "Reality must be embraced as a whole, and every train of thought of linkage and of explaining causes must proceed within the network of this reality context" (Spiethoff [1932] 1971: 151). For inferring a general explanation of business cycles form his empirical study of past cycles, Spiethoff does not make use of statistical tools, like time series decomposition. He describes the typical behaviour of several empirical variables in the course of a business cycle in written text, however, adding a considerable amount of precise numerical information. He condenses his observations of the most relevant factors of business cycles into his scheme of a model cycle. He provides explanation for this model cycle by referring to those aspects that he later defines as the categories of economic styles. With his understanding of quantitative statistics as a means of mass observation rather than an analytical method, Spiethoff adheres to the tradition of German statistics and the use of statistics by the German Historical School

[48] According to Spiethoff, regular business cycles can be observed in capitalistic economies since the 1820s, for the German economy only since the 1840s (Spiethoff 1925: 47-48; 1926: 3).

of Economics (Porter 2020: 177-190). The indicators of the Wirtschaftsbarometer are directly taken from Spiethoff's inductive study. It can therefore be characterised as an approach of statistical business cycle observation that preserves essential features of German statistics and historical economics.

Singer agrees to Spiethoff's historical and holistic explanation of business cycles. He regards business cycles as "objects of historical-social experience" and characteristic of the "system of high capitalistic economy" (Singer 1932: 18). Like Spiethoff, Singer is critical of pure theory, which, as he observes in 1932, has taken over the lead in German economic theory (Singer 1932: 5-6). He advocates economic research that considers the historical contingency of different types of economies:

> "Forever, however, research must refrain from understanding as necessary the occurrence of a specific form of economic life, such as economic alternations. As theory, it has to demonstrate its possibility, as history, to trace its occurrence in concrete situations back to its reasons, as politics, to interpret the preconditions, means and limits of its shaping" (Singer 1928: 335)

According to Singer, any attempt to interpret economic phenomena and their interrelations as universal would inappropriately cross the line into the exact sciences (Singer 1928: 335).

Many economists of the time regarded business cycle theory as the top layer of a general and comprehensive theory of the economy. It could only be formulated conclusively once all theoretical and empirical questions of economic analysis had been clarified. Many, including Singer, believed that such an overall and sufficient economic theory was still pending (Singer 1932: 5-6). Still, in his 1932 monography, Singer calls Spiethoff's business cycle study provided in his 1925 article as the most suitable empirical characterisation of the economic cycle within the specific historical setting of advanced capitalism that has been developed so far (Singer 1932: 36, footnote 21). Singer defines business cycles as "an irregular alternation, in terms of duration and intensity, of years of greater and lesser desire for enterprise, in the wake of increasing and decreasing objective profit chances" (Singer 1932: 19-20), which is in fact a summary of Spiethoff's business cycle theory.

Similar to Spiethoff's analysis of the economic style of the capitalistic market economy, Singer argues that the entrepreneurial spirit, in conjunction with social and technological conditions of the economy, can enforce economic alternations, which therefore become long and distinct business cycles:

> "The most important of these conditions lie in the state of mind of the entrepreneur, to whom the prevailing economic order entrusts the care for the shaping of economic life, and in that of the urban masses […]. The entrepreneurs, by their peculiar combination of speculative

> and calculative spirit, widen the intertemporal scope; their will to unconditional expansion, which is given by the conditions of the competitive economy itself, brings the principle of productive anticipation[49] to more lasting effect than ever before. The practically unlimited unrest in the demand of the masses provides the elasticity ratios necessary for this, at least for industrial products, and the peculiarity of capital-intensive technology leads to strong cumulative amplifications of any upswing impulses" (Singer 1932: 29)

In line with Spiethoff, Singer claims that "the genesis of the mood of upswing is to a high degree an irrational factor" (Singer 1932: 30). He agrees that the revival of optimism is pivotal to the initiation of a new upswing.

Beyond these similarities in the understanding of economic science and the interplay of empiricism and theory, which are expressed by the example of business cycle research, Singer however also deviates from Spiethoff and other representatives of the Youngest Historical School of Economics in his epistemology. He applies a specific cultural philosophy, with which he aligns himself with the intellectual work of the Geroge circle and its vison of a "new science". In his cultural interpretation of observed phenomena, he follows a Lebensphilosophie, which seeks to make these phenomena understandable through participation and experience. From this perspective, rational and reasonable explanations are insufficient in order to arrive at an actual understanding of the observed reality. They need to be complemented by reference to metaphysical elements (Schönhärl 2009: 168-176).

With regard to his notion of "understanding", Singer repeatedly uses the term "Sinn" ("meaning") of observed phenomena, which he intends to comprehend. He also uses the term in his economic writings. Regarding the goal of business cycle theory, he claims:

> "The theory fulfils its task when it shows how, in a particular economic constitution, particularly shaped processes arise […] and what *meaning* the occurrence of such forms of movement has in each particular form of economy" (Singer 1932: 19, italics added)

With regard to the business cycle analysis of the Wirtschaftsdienst, Singer points out that

> "the researcher starts from a thought that allows the experienced facts to be grasped in their *meaningful* context" (Singer 1926: 875, italics added).

The Wirtschaftsbarometer is also conceptualised on this basis:

> "Here we do not select data from the available material that show a strong phenomenal uniformity, but we start from characteristic facts of economic life at the stage of high capitalism that can be understood in their *context of meaning*" (Singer 1928: 330, italics added)

[49] With the "principle of productive anticipation" Singer intends to capture the cumulative and accelerating effects that lead to dynamics of expansion (or contraction) of the economy in total (Singer 1932: 23).

As Schönhärl (2009: 168-172) shows, in order to understand the meaning of economic observations, Singer performed a semiotic approach. He perceived single economic phenomena as elements of an integral whole. To him, real observations were materialisations and therefore signs of an overall social practice or culture. The interpretation of these signs thus allowed him to reconstruct the bigger picture of the socially and culturally embedded economy. Singer was influenced in his semiotics, among others, by the German sociologist Georg Simmel, whose method he appreciatively characterises as "'a truly symbolic philosophy'" (Singer[50] quoted in Schönhärl 2009: 169). Especially in his student days, Singer was an admirer of Simmel (Schönhärl 2009: 169).

Most strongly, however, Singer's semiotics are rooted in his affiliation with the intellectual circle around the German poet Stephan George. The "Georgeans", which encompassed intellectuals from various disciplines, as for example historians, philosophers and economists, suffered from the experience of disorientation and bewailed the loss of strong national values in the course of the multi-facetted turmoil that resulted from World War I. They regarded the individualisation and democratisation processes of the Weimar years as a coarsening of culture and society. George was perceived as some kind of prophet who gave order and meaning to their lives (Schönhärl 2009: 1-8). Like Häuser (1994: 51, 55), Schönhärl points out that economists in particular had a need for orientation due to the simultaneous hit by the cultural crisis and the loss of importance of the Historical School of Economics. The George circle implemented a specific interpretation of the society that was stabilised by the use of shared semantics, which functioned as structuring elements of the scientific work of its members. Thus, methodological guidelines were defined by the circle, which served as orientation for economists and which their own discipline failed to provide (Schönhärl 2009: 6-7).

Singer integrated a specific "metaphysical aspect" to his semiotic interpretation that was "genuinely Georgean" and positioned him as a scientist clearly in the Georgean camp: He perceived the phenomena observable in the concrete historical context "as the expression of a creative force that stands above this temporal bond" (Schönhärl 2009: 173). He thus confirmed the "Gestalttheorie" of the Georgean Friedrich Gundolf. He furthermore took over elements of the epistemology of Edith Landmann, another member of the George circle. From her work he adopted the idea of the existence of specific single items or phenomena, which bear within themselves the core of the overall structure or matter. If those specific

[50] Singer, Kurt (1907) Anmerkung zu Simmels ‚Religion', in: Neue Rundschau 18, pp. 1145-1146, 1146.

items were identified, they would suffice to understand the entire context (Schönhärl 2009: 172-174).

Schönhärl argues that Singer applied his semiotics also in the realm of business cycle research. As an example, she regards the Wirtschaftsbarometer published in the Wirtschaftsdienst as an expression of the semiotic method, since it encompasses only a small number of selected indicators from which the situation of the overall economy is inferred (Schönhärl 2009: 177). Schönhärl's interpretation seems reasonable against the background that Singer, as we saw, explicitly defines as the goal of business cycle research to understand the "meaning" of the observed economic phenomena – thus using a term that is associated with his cultural philosophy. This finding provides further explanation for why Singer regarded the Wirtschaftsdienst's statistical barometer to be superior to the data-rich barometers of the IfK.

3.4.2 Wagemann: American empiricism and formal-statistical analysis

Singer considers the work of the Berlin Institut für Konjunkturforschung to be closely oriented towards the statistical method developed by Persons and the Harvard Committee on Economic Research. In his "Remarks on business cycle research", Singer expresses critique of the mere symptomatic investigation of business cycles borrowing from research principles of the natural sciences. In the conference proceedings of the 1928 meeting of the Verein für Socialpolitik he critically characterises those attempts as follows:

> "The intention here is to make business cycles calculable by exhibiting natural law-like relationships between the elements of different statistical series. For the selection of these series, it is in fact not an economically substantive moment that is decisive, but the phenomenal uniformity in the course of blindly selected economic data […] If it turns out that [] a maximum [of a correlation relationship; A/N] can be exhibited when a curve B can be grasped as following the movements of another curve A at a time interval of t months, then a law-like sequence of the curves A and B with the time interval t is confirmed" (Singer 1928: 328)

According to Singer, the researchers "randomly" select series of economic data and compare them with regard to their statistical properties without referring to a genuinely economic argumentation. This approach is particularly problematic, if the identified statistical patterns are used to forecast future economic development. This was in fact initially a major purpose of the Harvard barometer, which Singer therefore considers as an ideal type of "prognostic business cycle barometers" (Singer 1928: 296). According to Singer, in making predictions about future economic events, the researchers generalise the statistical relationships they

observed in the data and assume a law-like character of the interplay of economic determinants. To him, this approach implies the idea of a deterministic course of economic events based on a logic of the natural sciences.

In contrast, Singer characterises the Wirtschaftsbarometer published by the Hamburg weekly as a "diagnostic business cycle barometer[]" (Singer 1928: 296). It selects the observed data not on the basis of "strong phenomenal uniformity" (Singer 1928: 330) but based on a theoretical understanding of the characteristic course of a high capitalistic economy. This theoretical understanding allows the authors of the Wirtschaftsdienst to deliver helpful analyses "in the given situation" (Singer 1928: 330). While Singer emphasises the *diagnostic* function of the Wirtschaftsbarometer in his 1928 article, he and Spiethoff in earlier articles however also highlighted the barometer's task of forecasting. As we saw, in his introductory article in the Wirtschaftsdienst, Spiethoff points out the capability of a statistical barometer to reveal an approaching over-production and consequently to predict economic stagnation (Spiethoff 1926: 6). In his "Remarks on business cycle research", Singer self-confidently emphasises the superiority of the Wirtschaftsbarometer also in its predictive function. In addition, he emphasises the "prognostic tasks" of the economic barometer, which distinguishes it from a purely reproducing or descriptive barometer (Singer 17 September 1926: 1277).

The fact that Singer now, in 1928, explicitly differentiates the Wirtschaftsbarometer as a diagnostic barometer from a prognostic barometer, can in part be attributed to the weak performance of the Spiethoff-barometer. Singer is now more carefully in formulating the barometers capabilities. On the other hand, the classification of the Wirtschaftsbarometer as a diagnostic barometer seems largely justified in view of how it is conceptualised. Singer's earlier emphasis on a prognostic function of the Wirtschaftsbarometer in the "Remarks" (1926) therefore appears to be exaggerated. Spiethoff attributes great influence to the decisions of the economic actors, which in turn are influenced by psychological factors and moods. These are not only pivotal for the occurrence of a new upswing, but they can furthermore have a reinforcing or mitigating effect on over-production and stagnation. While the occurrence of stagnation cannot be prevented, the intensity of stagnation and economic downturn however depends on the reactions of the economic actors. Therefore, Singer argues in 1928 that the Wirtschaftsbarometer is "not [directed towards] prediction per se", but towards "economic diagnosis and therapy" (Singer 1928: 330). For him, this therapy consists of warning the entrepreneurs to refrain from further production expansion and to prepare

themselves psychologically for an upcoming economic downturn, the extent of which they can in fact influence by their behavior.

The emphasis on the diagnostic purpose of the Wirtschaftsbarometer in contrast to a stronger prognostic purpose of those statistical barometers oriented towards the Harvard approach is therefore justified in principle. It seems that Singer, depending on the context, strategically highlighted either the diagnostic or the prognostic aspect of the Wirtschaftsbarometer. In the "Remarks" published in the Wirtschaftsdienst, he mainly addresses an audience of private business people who had a particular interest in economic forecasts. Furthermore, he aims to declassify the work of the IfK and to highlight the superiority of the Wirtschaftsbarometer in every regard. In 1928, he addresses an academic audience. In this context, he emphasises the distinction of the Wirtschaftsbarometer from a formal-statistical approach, which draws on analogies from the natural sciences in its vision of forecasting.

As Lenel (2021) shows, Warren Persons, the chief statistician of the Harvard Committee on Economic Research, who developed the index of general business conditions, was indeed initially concerned with discovering "stable patterns" (Lenel 2021: 153) of economic activity using a scientific-mechanical method (Lenel 2021: 144). Persons assumed "the existence of an 'ordinary universe'" (Lenel 2021: 147), which justifies the expectation that the discovered sequence of movement of the indexed data series will remain stable in the future with a certain objective probability (Lenel 2021: 147-148). When, however, in 1922, the Harvard Economic Service that published economic forecasts based on the Harvard index, failed with its prediction of a recovery from the preceding recession, the Harvard researchers distanced themselves in part from their original method. The Harvard Economic Service refrained from purely mechanical forecasts based on their index and draw their expertise more strongly from correspondences with economic and political decision makers. Respectively, Persons revised his statistical method and distanced himself from the use of inferential statistics based on mathematical probability theory for the study of economic activity (Lenel 2021: 149-150, 154-155).

As Biddle (2017) shows, Persons now closely aligned himself with the idea of "statistical inference without [mathematical] probability" (Biddle 2017: 151) that was proposed by John Maynard Keynes in his Treatise on Probability (1921). In his presidential address at the annual meeting of the American Statistical Association in 1923, Persons asserts that "[t]he view that the mathematical theory of probability provides a method of statistical induction or aids in the specific problem of forecasting economic conditions […] is wholly untenable".

He argues that it is not possible to regard any data series retrieved from a past period as a random data sample, since any past period is "a special period with characteristics distinguishing it from other periods". Furthermore, the items of the time series cannot be supposed to be independent from each other. Due to these characteristics of the data material, it is inappropriate to apply mathematical probability theory and "rational" forecasting in the field of economic research (Persons 1924: 6).[51]

Singer knew of Persons's reorientation of the methodological standpoint. He acknowledges Persons to have reflected on the "problematics of the application of correlation calculus methods" (Singer 1928: 328), with which Persons and his colleagues had constructed the curves of the Harvard index. In a footnote to his contribution to the 1928 conference proceedings of the Verein für Socialpolitik, he quotes an article in which Persons lays out his new concept of statistics and makes explicit his reference to Keynes's concept of statistical inference (Singer 1928: footnote on pp. 328-329). He points out that the Harvard Economic Service in its published analyses in fact "does not […] make the slightest use of [the] sequence" (Singer 1928: 326) of variations in economic activity suggested by the Index that was, in the first place constructed by using means of mathematical probability theory. In contrast, however, he accuses the IfK of using the Harvard methods "much more uncritically than the Harvard Service in diagnosis and forecasting". He criticises the Berlin institute for a "mechanical[]" application of the sequence scheme, which he illustrates by an example of "the spring of 1927, where the fall in stock market prices after Schacht's intervention in the banks' lending for speculation purposes was treated as a typical business cycle symptom in the sense of the sequence theory" (Singer 1928: 326).

As we saw in section 3.2, Wagemann indeed believed that the sequence scheme of alternations of the three markets, captured by the Harvard index, even if it no longer applied to the US, was basically well applicable to the German economy. The Berlin institute furthermore failed to predict the severity of the Great Depression due to an application of the sequence

[51] Keynes suggests the use of analogies in order to draw conclusions from an observed phenomenon about another phenomenon not (fully) covered by the data sample. Therefore, additional data on the situational circumstances in which both phenomena occur are needed. If the situational circumstances are similar, justified beliefs can be inferred from the observed phenomenon about the unobserved (Biddle 2017: 152-153). Correspondingly, Persons argues that in order to make inferences and economic forecasts, further (external) data on the economic situation should be considered that complement the statistical investigation based on the business cycle indices. Moreover, quantitative information should be complemented by qualitative evidence and non-statistical knowledge (Persons 1924: 5, 8). Persons emphasises that economic forecasts remain to be based on probability statements and the statistician's "deep-seated belief in the continuity and orderliness of affairs" (1924: 4). However, "[t]he probabilities of the economic statistician are not the numerical probabilities which arise from the application of the theorems of Bernoulli and Bayes; they are, rather, non-numerical statements of the conclusions of inductive arguments" (Persons 1924: 8).

scheme. Nevertheless, it is necessary to subject Singer's critique to a differentiated assessment. For this purpose, Wagemann's methodology needs to be considered in more depth. With his empiricist and formal-analytical approach, Wagemann indeed moved closer to investigation schemes of the natural sciences and away from the holistic understanding of economics characteristic of the tradition of historical economics. However, he firmly rejected the notion of a mechanistic functioning of the economy and interpreted statistical data with cautiousness (Wagemann 1928: 9-12)[52].

In the first issue of the IfK's regular publication "Vierteljahrshefte zur Konjunkturforschung", released in May 1926, Wagemann explicates that the work of the Harvard Committee serves the Berlin institute as an important guide. Like the Harvard researchers, the IfK focusses on observing the "symptoms" and statistical regularities of cyclical fluctuations (Wagemann May 1926: 4-5). Wagemann highlights the "mathematical foundation" developed by the Harvard researchers as well as their "strong use of the graphical method of representation" (Wagemann May 1926: 4) as groundbreaking for the analysis of the IfK.

Furthermore, Wagemann takes recourse to concepts and research methods of biology and medicine. He explicates that the Berlin institute founds its business cycle investigation on the "organic-biological principal" (Wagemann 1928: 9). It regards the economy as a "living organism" (Wagemann 1928: 10), all parts of which being interlocked and fulfilling a specific function. External impulses act as "stimuli" (Wagemann 1928: 12) to the economic body and initiate multiple reactions. In these reactions, the economic body shows an "autonomy of movement" (Wagemann 1928: 10). This means that independent of the type and intensity of an external stimulus the movement of the economic body follows certain endogenous rules (Wagemann 1928: 12).

The comparison of the economy with an organism or a living body was in fact common for economists of the historical schools and marks Wagemann as a descendant of this tradition. However, in his business cycle analysis, Wagemann abstracts from the social, cultural and institutional elements that were usually expressed by these kinds of metaphors. Instead, he concentrates on the interaction of objective and quantifiable determinants of the economy. This is in contrast to Singer and Spiethoff's idea of economics as a social and human science. Referring to the analogy of the economy as a living organism, one could argue that while

[52] Wagemann's monography of 1928, in which he explains his concept of statistical business cycle research, was probably published only after the conference proceedings, in which Singer issues his criticism (see Wagemann 1928: 13). Singer was therefore unable to take Wagemann's explanation into account. But even against the background of the IfK's argumentation in the Vierteljahrshefte, his accusation of a mechanical application of the sequence scheme seems exaggerated.

Singer and Spiethoff set into focus the mental, social and cultural capabilities of the living being, Wagemann points at the functional working of the body. In line with the organic-biological understanding of business cycles, the IfK's analysis broadly abstracts from human decision making and psychological influences on the cycle. In its interpretation of the current economic situation, it relies mainly on comparison with past business cycles. It refers to the statistical patterns observed in the data and reflects on the comparability of the observed symptoms with present developments. Singer points to the shortcomings of a purely empirical-statistical study of business cycles. According to him, it fails to recognise economic phenomena as being embedded in social and cultural practices:

> "The statistical part of the argument, considered on its own, will never permit the formation of a judgement. With slight exaggeration, we can venture the formulation that numbers never prove anything because they cannot provide a meaningful answer at all" (Singer 1928: 326-327)

The preceding remarks show that Singer is partly right when he attributes an orientation towards the natural sciences to the method developed by Wagemann and the IfK. However, Singer exaggerates the role that natural science concepts play in Wagemann's analysis. While Wagemann postulates endogenous rules and an autonomy of movement of the economic organism, which allow the IfK to focus on comparing patterns of quantifiable symptoms, he however rejects the idea of an absolute and universal *determinism* that underlies the movement of the economy, and that Singer accuses him of. In this regard, Wagemann identifies differences between the American type of business cycle research and the approach of the Berlin institute. He argues that American business cycle statisticians regard themselves in the first place as engineers who investigate the economy "as a mechanism, a huge machinery" (Wagemann 1928: 8). To him, these scholars assume that the ups and downs of economic activity follow the "strict rhythm of the machine" (Wagemann 1928: 11). In doing so, they fail to recognise the complexity of the multiple reactions of the economic body and reduce economic movement to a formula that can be used to predict the course of the economy by means of mathematical calculus (Wagemann 1928: 8). Wagemann critically comments that the movement of the economy "is anything but a mechanism" (Wagemann 1928: 10).

Against this background, Singer's criticism of an uncritical adoption of the Harvard method and a "mechanical" application of the sequence scheme of the three markets by the IfK appears to be unjustified. Wagemann's notion of the economy as a living organism implies a certain scope of possible courses of the economy and a considerable degree of uncertainty in economic forecasts. In the Vierteljahrshefte, Wagemann emphasises that conclusions

about the current state of the economy, which are drawn from typical historical patterns are "certainly not as compelling as according to the law of cause and effect" (Wagemann May 1926: 5). Historical regularities allow to make diagnoses and (cautious) prognoses by drawing "analogies" between past and present (future) patterns of movement, without however regarding "the subsequent movement of the […] markets [as] an absolutely valid law" (IfK November 1927: 8). Wagemann furthermore states that business cycles are historically contingent. He argues that specific types of cycles occur within the framework of a specific economic constitution that varies between economies and epochs (Wagemann 1928: 63). In this aspect, Wagemann is even in line with the representatives of the German historical tradition like Spiethoff and Singer.

While Singer's accusation of Wagemann and the IfK turned out to be undifferentiated, Carl Krämer's critique of a too "formalistic" interpretation of the barometer of the three markets by the IfK (2 May 1930: 746) seems to have more substance. According to Wagemann, the assumption of an organic-biological principle and an autonomy of movement of the economic body justifies a method that is primarily based on the observation of symptoms and the outer appearance of business cycles. As Krämer shows, such a focus on the external form made it difficult for the IfK to detect a deviation of the economy from the "normal" business cycle in the late 1920s and early 1930s and to predict the Great Depression.

While Singer attacks the IfK for relying too strongly on quantitative data and being too careless in their interpretation, one could counter that in some respect the IfK even refers to economic data with greater cautiousness as compared to the Wirtschaftsdienst. From his organic-biological principle Wagemann concludes that due to the complexity of the economic body and the interplay of its functionally linked parts, which all behave according to certain endogenous regularities, it is impossible to capture its cyclical movements by a single formula or a single barometer (Wagemann 1928: 8-9). In this respect, he criticises the one-sidedness of both the Harvard index and the barometer introduced by Spiethoff and Singer in the Wirtschaftsdienst. In contrast to their narrow analytical outcome, the IfK publishes a "system of economic barometers" (Wagemann 1928: 127) containing eight different charts. Besides the "barometer of the three markets" (Wagemann 1928: 128), which replicates the Harvard index for the German economy, the IfK constructs further barometers, e.g. capturing employment, the alternation of stocks and different classes of commodity prices. Wagemann is convinced that "[t]he more complete […] the symptoms [are grasped], the more certain the diagnosis can be made" (Wagemann 1926: 5). Whereas Singer criticises the publication of numerous different barometers by the IfK in his "Remarks on business cycle research" as

a sign of a lack of scientific maturity, for Wagemann a multi-faceted observation of symptoms arises as a necessity from the organic-biological view of the economy. According to him, any attempt to find "general indices" (Wagemann 1928: 126) is doomed to fail as the examples of the Harvard index and the "Spiethoff-Singer attempt" showed (Wagemann 1928: 126-127).[53]

3.4.3 Löwe: Deductive theory and statistical testing

In the "Remarks on business cycle research", Singer distinguishes the statistical approach of the Harvard Committee and the IfK from Löwe's vision of statistical business cycle analysis. Singer argues that Löwe defines as its goal "the mere collection of material for the purpose of verifying existing interpretations" (Singer 17 September 1926: 1277). And indeed, Löwe highlights the significance of "statistical-empirical" material in order to verify "our theoretical deductions" (Löwe 17 September 1926: 1274).

In his habilitation thesis "Wie ist Konjunkturtheorie überhaupt möglich?" (How is business cycle theory even possible?) (1926a), Löwe outlines his view on the interplay of theoretical and empirical investigation. He defines theory formation and empirical research as two distinct spheres of investigation and sets priority to the former. According to Löwe, the construction of a theory is independent of any empirical evidence and subject to the demand of logic (Löwe 1926a: 166-167). Empirical research does not contribute anything to theory formation, which is considered a "closed field of axiomatic, a priori knowledge" (Beckmann 2000: 101). Theories gain justification through their inner consistency. However, Löwe also recognises, that logical consistency does not ensure that a theory and its conclusions can represent and explain reality appropriately (Löwe 1926a: 166-167). Hence, he regards quantitative empirical analysis as a valuable tool for comparing theoretical models with empirical observations in a second step.

Consequently, the Astwik engaged in comprehensive empirical studies of the international economy in order to reveal the relative importance of different kinds of elements, like factors of production, specific markets, or trade flows. Based on this empirical work, the researchers

[53] Tooze (2001: 105-130) emphasises further differences between the work of Wagemann and the approach of the Harvard Committee. In contrast to the Harvard researchers who randomly selected the analysed data series, Wagemann designed the barometers, which were included in the IfK's publications, based on a circuit scheme of the economy that he outlined in two monographies in 1923 and 1928. On the basis on his scheme, the IfK furthermore published a first measure of national income. Wagemann and the IfK thus went beyond a mere empirical collection of business cycle data and made an important contribution to the development of modern macroeconomic statistics. By assigning his project explicitly to business cycle research and the approach of the Harvard Committee in his publications, Wagemann tried to link the institute's work to this internationally booming strand of economic research. This, however, partly obscures the IfK's actual achievements.

intended to assess business cycle theories and to confirm the "Imperialism Theory" formulated by Rosa Luxemburg and advocated by Löwe. For that purpose, the empirical studies illuminated especially those determinants that were the most relevant from a perspective of under-consumption explanations of business cycles (Beckmann 2000: 50-54). As an example, Max Schoenwald, responsible in the Astwik for research on transportation, conducted a series of studies on cyclical patterns in traffic of major shipping canals (1927/28). He finds confirmation for the argument central to Luxemburg's theory that during depressions industrialised countries use exports to economically less developed regions as an emergency valve (Beckmann 2000: 162-166). Due to their ambition to statistically test theoretical hypotheses, Beckmann calls the researchers of the Astwik "pioneers of econometrics in Germany" (Beckmann 2000: 14). The Astwik furthermore aimed to investigate and advance mathematical methods in business cycle research. Both orientations fit to the proclaimed self-concept of the Astwik as functioning similar to natural science laboratories (Beckmann 2000: 50, 54).

Singer refutes the claim of a primacy of (deductive) theory. His (and Spiethoff's) concept of economic theory emphasises the importance of the observation of a complex reality as the object of interest and necessary starting point of investigation. Their concept of historical and observational theory therefore conflicts with Löwe's methodology. The latter considers the contribution of empirical investigation to theoretical cognition to be clearly limited:

> "Verification of the data [explanatory factors, A/N] and the conclusions: that is all that empirical insight can contribute to a particular theorem as well as to the theoretical method as a whole" (Löwe 1926a: 167)

Singer regards this as a misjudgement and degradation of empirical studies:

> "Experiences have their own dignity that is violated when they are regarded as mere means to verify preliminary assumptions" (Singer 1928: 334)

While, according to Singer, empirical investigation indeed requires theoretical benchmarks, he rejects the idea of a spelled-out theory constituting the starting point of empirical investigation. In his view, this approach leads to an a priori constriction of the research focus and a superficial "proof" of theoretical hypothesis by empirical data:

> "The fact that every science presupposes an a priori 'concept' of the phenomena does not mean that empirical representation is possible only on the basis of prior hypothesis formation. Categories are presupposed, not hypotheses. Economics as a science of experiences cannot limit itself to constructing an ideal initial state by way of thought experiment and to inferring consecutive states by means of a series of heuristic hypotheses and axiomatic assumptions, and to declare itself satisfied if these consecutive states show a strong similarity with those traits of an experienced fact that are regarded important – whereby the features

> that are considered important are precisely those that may be considered explainable by the chosen means under the particular assumptions" (Singer 1928: 334)

According to Singer, this method disregards the important role of empirical observations, which precisely function as a gateway to gain knowledge about reality. In his understanding, only through empirical observation the researcher can reveal those relevant questions which ought to be explained by theory. Therefore, the formation of hypotheses prior to empirical investigation is misleading. Instead, terms and categories are needed to structure the empirical observations and to be able to analyse their embeddedness in the functioning of the economy. While the German Ricardians delineated themselves precisely from this "'Begriffsnationalökonomie'", a term that was coined by Walter Eucken (Janssen 2012: 39), which was characteristic of the German historical tradition and which they criticised as vague and unprecise, for Singer it was the proper way to explain business cycles as "objects of historical-social experience" (Singer 1932: 18). Singer argues that, in order to arrive at a historical and holistic theory of the economy, theoretical and empirical methodology need to synthesise. Only a broad overview of the empirically observable economic phenomena allows the economist to build theoretical categories. A theoretical comprehension is in turn a prerequisite for arriving at a true image of economic reality:

> "In any case, the relationship between conceptual and observational elements of cognition is not to be interpreted linearly, but circularly, similar to how Simmel has proven it for historical cognition: only by means of a vague global view, it is possible to discover and categorise the particular features of the individual figure, but only from the mental pervasion of the whole material arises the valid picture of things" (Singer 1928: 334-335)

To sum up, the preceding elaborations show that Spiethoff and Singer, Wagemann, and Löwe actually favoured three considerably different concepts of economic science, which also manifested themselves in their work in the field of statistical business cycle analysis. Spiethoff and Singer advocated an analysis of business cycles based on a historical and holistic theory that was guided by empirical observation and that considered the impact of irrational (culturally shaped) decisions of people on the course of the economy. With his semiotic approach and his advocacy of a normative economic science, Singer partly deviated from Spiethoff's concept of economic research. This did not have a notable effect on their common project of applied business cycle analysis in the Wirtschaftsdienst, though. In the concrete empirical characterisation and theoretical explanation of business cycles in advanced capitalistic economies, Singer closely followed Spiethoff's work. He appreciated Spiethoff's approach of selecting a small number of empirical figures that serve as indicators of the overall economic situation and shared Spiethoff's view of the limits that human decision-making place on the predictive power of statistical barometers. Inspired by American

empiricism, Wagemann was in favour of analysing business cycles purely through the lens of statistical data and formal analysis. He abstracted from social, cultural and psychological influences and assumed the economy to function similar to the biological rules of a living organism. Thereby, he approached analytical and interpretative patterns of the natural sciences. Contrary to Singer's accusation, Wagemann however did not infer from the observed regularities of business cycles the working of a machine-like determinacy. Still, Wagemann's emphasis on formal statistical reasoning, was in marked contrast to Singer and Spiethoff's claim for a holistic and inductive-theoretical study of the economy. Löwe claimed a primacy of (deductive) theory over empirical research in economics. He identified Luxemburg's under-consumption theory as the only logically consistent and conclusive business cycle theory. In order to test this and further business cycle theories against reality, Löwe and the researchers at the Astwik engaged in statistical business cycle studies, with which they endeavoured to reveal the relative importance of various parameters of the international economy. With their notion of statistical testing of ex-ante hypotheses, they came closest to the methods of modern econometrics that became established internationally in the 1940s. The emphasis on deductive theory and statistical testing was however in marked contrast to Singer and Spiethoff's vision of historical economics that highlighted empirical research as a gateway to and necessary starting point of the study of economic reality. That Singer was actually right when he claimed in the "Remarks on business cycle research" that Löwe's deductive-theoretical approach was also fundamentally different to Wagemann's empiricist concept of economic analysis, was confirmed by Wagemann himself. He distinctly criticises the "theoreticians", of which he explicitly mentions Löwe, and their asserted primacy of deductive theorising over empirical research:

> "Such a theory is not only unworldly, it is animated by a fanatical hostility to all reality. A pronounced empirical science [here Wagemann refers to economic science, A/N] has acquired the pretensions of a pure conceptual science; […] with arbitrarily seized premises it can rule unrestrainedly in the vacuum of thought, but avoid as far as possible taking hard knocks in the world of facts" (Wagemann 1928: 15)

4 Conclusion

After World War I, business cycle research and statistical business cycle analysis became a dominating field of economics internationally. In Germany, business cycle statistics played a decisive role for the discipline since the second half of the 1920s. Newly founded research institutes and economic journals created a link between (academic) research and public and private stakeholders, such as politicians, business associations and private business people.

The heyday of (quantitative) business cycle research at that time is at the same time surprising and comprehensible. It surprises, since regular and stable cyclical fluctuations of the overall economy were to a considerable degree obscured by structural crises and unsteady economic conditions in the aftermath of the war. Due to hardly tested statistical methods and short reference periods, statistical business barometers stood on shaky ground. Economic forecasting was a risky undertaking, as was proven by the failures of even the most renowned statistical barometers, like the barometer developed by the Harvard Committee on Economic Research. The boom of statistical business cycle research is, however, also comprehensible because it mirrors a desire and search for structure and order in turbulent times. A main purpose of statistical business cycle research was to gain a more precise insight into the interplay of economic determinants and their impact on the macro-economy. By providing tailored information to political and economic decision makers, research institutes and journals aimed to enable them to better cope with the current situation and to mitigate the danger of further crises.

The business cycle reporting that the Wirtschaftsdienst conducted between 1926 and 1930 is an example of such an endeavour. It provided business people with statistical indicators and interpretations of the overall economic situation based on the work of a renowned business cycle researcher. As the first part of our study showed, Arthur Spiethoff's business cycle theory provided the main analytical and interpretive framework for the two pillars of the business cycle reporting of the Wirtschaftsdienst – the Wirtschaftsbarometer and the reports Zur Lage. Spiethoff derived his business cycle theory inductively based on a comprehensive empirical study of business cycles in the 19th century up to World War I. According to Spiethoff, business cycles are characteristic of the economic style of advanced capitalistic economies. They originate within the sphere of the production of basic materials and producers' goods, which are purchased with capital. Mainly due to (technical) conditions of production, such as an accelerating effect of the expansion of basic material production, a considerable time lag between a signal of increased demand and the operation of new plants, and the decoupling from organic growth processes, the supply of producers' goods and basic materials is necessarily pushed beyond demand as the upswing progresses. The result is a (real) capital shortage. During stagnation capital investment and the production of basic materials and producers' goods decline. The transition to a new economic upswing does not only require a restoration of profit opportunities but also depends crucially on the revival of an optimistic mood among the mass of business people. The consideration of psychological influences on the course of the economy is a central feature of Spiethoff's business cycle

theory. Based on his study, Spiethoff defines a small set of empirical indicators, with which he describes a model cycle and which, according to him, allow to assess at which point of the cycle the economy rests. The Wirtschaftsbarometer's first chart plotted Spiethoff's two main indicators of the cycle – the domestic consumption of iron and steel and the (planned) share issues of private companies. The second chart included three figures that were meant to depict developments at the markets for capital, commodities and money. Here the Wirtschaftsdienst adopted the categories of the Harvard index. We argued that Singer wanted to align the business cycle reporting of the Wirtschaftsdienst with the renowned work of the Harvard researchers. The successive movement of the three markets that the Harvard index described, indeed, fit with Spiethoff's empirical characterisation of the typical cycle. Singer however distanced himself from the purely statistical method of the Harvard researchers and their mechanical vision of economic forecasting. In both charts, the data series soon deviated from the expected course. In the Spiethoff-chart the curve of the planned share issues fell considerably in 1927 and remained on a low level for several months, whereas the domestic consumption of iron and steel increased strongly. The domestic capital market appeared to be more and more decoupled from the increase in real production. Due to these severe challenges, in June 1927, the Wirtschaftsdienst was eventually discontinued, only one year after its first release. In contrast to what is suggested in the literature, the business cycle reporting based on Spiethoff's research was however continued.

This sudy showed that the reports Zur Lage complemented the Wirtschaftsbarometer with a more extensive empirical analysis of the current economic situation as well as an extended reference to Spiethoff's theoretical arguments. They allowed the authors of the Wirtschaftsdienst to provide possible explanation for the deviations of the statistical indicators of the Wirtschaftsbarometer from the model course of the cycle. In the reports, which were further published on a monthly basis until mid-1928 and, less frequently, until 1930, the authors, moreover, continued to emphasise domestic consumption of iron and steel in their assessment of the overall economic situation and adhered to Spiethoff's over-investment explanation of business cycles. For example, Krämer classified the comparatively strong fluctuations in the consumers' goods industries as an exceptional phenomenon that did not tackle the decisive role of the producers' goods industries for the genuine business cycle. Spiethoff's second indicator, the planned share issues of private companies, in contrast, proved insufficient to properly display capital formation in Germany. This was, however, reflected by Spiethoff himself and Krämer who emphasised the extraordinary conditions of German capital formation, especially the importance of foreign lending. Even

though parts of the statistical indicators needed to be adapted, central insights of Spiethoff's explanation of capital investment were continued to be applied. For example, Krämer highlighted the idea that the decisions of business people had a decisive influence on the course of the economy. He argued that their deliberate restriction of capital investment at the end of 1927 mitigated the intensity of the economic stagnation that set in at the beginning of 1928 and perhaps even prevented an economic crisis. In 1929 and 1930, Krämer argued that the regular cyclical movement, which had just started to set in again during the first month of 1926, was levered out by structural problems of the German economy anew. According to Krämer, misguided social and economic policies caused over-consumption and hampered capital formation of private enterprises. Although Krämer argued that a reporting that focussed solely on regular business cycles therefore did not suffice to depict the developments of the German economy at the turn to the 1930s, his supply side explanation of the structural disproportionalities between consumption and investment still referred to Spiethoff's business cycle theory. To Krämer, the structural problems consisted precisely in the fact that the regular cyclical fluctuations, which to Spiethoff depended decisively on capital investment and provided a driving force of advanced capitalistic economies, were disturbed. In 1931, the Zur Lage reports are discontinued. It seems that in the light of the Great depression, a regular business cycle monitoring had finally become obsolete.

In the late 1910s and the 1920s, various approaches were developed internationally for conducting quantitative business cycle analyses and constructing statistical barometers. There were also considerable differences in the methods applied in Germany. The Wirtschaftsdienst became the scene of a dispute about the proper way to display and interpret business cycle data. The second part of our study focussed on the analysis and discussion of this dispute. In 1926, Singer harshly criticised the IfK for its purely empiricist business cycle analysis. He claimed that the method underlying the reporting of the Wirtschaftsdienst is superior to the one applied by the IfK because Spiethoff's business cycles explanation provided a substantial theoretical argument that allowed to focus on a small set of figures that best indicate the overall economic situation. He listed several shortcomings of the statistical instruments developed by the IfK. Löwe defended the work of the IfK and in turn questioned the usefulness of the statistical indicators identified by Spiethoff and prioritised by the Wirtschaftsdienst. He characterised Spiethoff's theory as insufficient to explain business cycles. To him, the statistical barometer derived from his analysis was thus by no means superior to the figures published by the IfK. In a following article, Singer criticised Löwe's underconsumption explanation of business cycles and reacted with personal insults towards Löwe.

This led to an escalation of the debate, which was broken off in November 1926 without reconciliation.

In Singer's case, general cautiousness and reflection appeared to coexist with a rather naïve confidence – or at least its pretension – in the capabilities of the own barometer. At the beginning of 1926, Singer still pointed out the various structural crises that interfered with regular business cycles. The reports Zur Lage furthermore considered a variety of empirical figures and provided balanced interpretations. In his attack on the IfK and the heated debate with Löwe, he appeared to be overconfident about the workings of the few indicators of Wirtschaftsbarometer and intemperate in his reaction to Löwe. He emphasised Spiethoff's long-standing and recognised research and tried to declassify both Wagemann and Löwe. This indicates that Singer's intention went beyond a constructive discussion of the statistical barometers. We showed that the publications of the IfK and the Wirtschaftsdienst from 1926 to the beginning of 1929 even coincided remarkably in the assessment of the macro-economic situation. Nevertheless, Krämer did not take up results of the IfK until Singer had left the editorial board of the Wirtschaftsdienst in spring of 1928. Statistical business cycle research offered a relatively new and promising field in which to make a name for himself as a scientist. Spiethoff had tried to gain influence on the foundation of the Institut für Konjunkturforschung. When he failed, he considered the cooperation with Singer and the Wirtschaftsdienst as an opportunity to put his own theory into competition with the work of Wagemann and the IfK and Singer took Spiethoff's side. Against this background, Singer's critique of the IfK can be regarded as a targeted attack on a perceived competitor. Furthermore, Singer had an interest in distinguishing himself as a business cycle researcher in order to obtain a professorship at Hamburg University. The international relevance of business cycle research offered the faculty a strong argument to promote the introduction of a new professorship. Singer's dispute with Löwe, however, proved to be his undoing. As a consequence, he was dismissed as chief editor of the Wirtschaftsdienst and left with one-year lectureships at Hamburg University.

Besides strategic interests and personal conflicts, the dispute between Singer and Löwe was fuelled by fundamentally different ideas about the conceptualisation of economic science as such. It was therefore embedded in a more general controversy about the reorganisation and reorientation of German economics after World War I and the breakdown of the German Younger Historical School of Economics. The dispute revealed that all three considered parties oriented their business cycle analyses towards different (international) strands of quantitative economic research. Wagemann aligned his work to American empiricism and the

methods of the Harvard Committee on Economic Research. Löwe's endeavor to combine deductive theorising with statistical testing resembled the vision of upcoming econometrics. Spiethoff derived his statistical indicators from an empirical-inductive theory of the cycle, which he integrated into a holistic socio-cultural investigation of the economy. Thereby, he adhered closest to the tradition of German statistics and German historical economics. Like Spiethoff, Singer advocated a historical and holistic theory of the economy that was guided by empirical observation and considered the impact of irrational (culturally shaped) behaviour of the people. While with his semiotic approach, which was influenced by the epistemology of the George circle, Singer deviated from Spiethoff, this did not notably affect their common project of applied business cycle analysis in the Wirtschaftsdienst. While Spiethoff and Singer endeavored to preserve most of the central features of German historical economics, Wagemann and Löwe partly shifted away from a concept of economics as a cultural science and towards approaches of formal analysis and exact sciences. Wagemann focussed on the identification of patterns in the statistical data and assumed that these would persist with a certain steadiness. According to him, the functioning of the economy followed regularities that were similar to the biological rules of a living organism. Contrary to Singer's claim, Wagemann however did not interpret the observed regularities in a mechanistic fashion. Still, Wagemann's emphasis on formal statistical reasoning was in marked contrast to Singer and Spiethoff's claim for a holistic and inductive-theoretical study of the economy. Singer criticised the IfK for limiting its investigation to surface symptoms and not being able to understand the interplay of the various (technical, cultural, …) factors that led to these symptoms. Löwe associated himself with the "German Ricardians" who advocated deductive theorising in economics and aimed to discover general "laws" of the economy. Löwe furthermore claimed a primacy of deductive theory and over empirical research in economics. Singer criticised that such an approach fails to recognise the relevance of empirical observation as the primary gateway to gain knowledge about the reality. To him, investigations, which started from abstract theoretical hypotheses tended to be biased by the researchers' presuppositions.

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IV. Summary/ Zusammenfassung

Summary: Capturing reality – Two examples of the interplay of statistics and inductive theorising in the German Historical School of Economics

The development and conceptualisation of statistics and economics are closely linked. Historically, a variety of different concepts of statistics have been advocated by different (schools of) economists, ranging from the use of statistics as a mere means of mass observation and description to the application of complex mathematical models from which causalities were inferred. The use of statistics depended on the economists' definition of the purpose of the study of the economy and their understanding of the type of knowledge that can and should be generated in economics. Throughout history, different fields of application dominated the discussion and further development of concepts of statistics. In the 19th century, statistics developed in particular as researchers turned their attention to the quantitative study of the "society". At the beginning of the 20th century, the study of business cycles encouraged the advancement of statistics. This dissertation examines two examples of the conception and use of statistics in the 1860/70 and the second half of the 1920s by economists in the tradition of German historical economics.

Georg Friedrich Knapp (1842-1926) was a central figure of the German Younger Historical School of Economics. His "historical-realistic" concept of economics and the social sciences that envisaged a factual, objective and apolitical investigation of the economy and the society was shaped in particular by his early work on statistics (1865-1874). While he favoured to the holistic and descriptive understanding of German statistics, which accounted for the historical peculiarity of empirical observations and was shared by the economists of the Younger Historical School, he distanced himself in part from the "historical-ethical" research programme of its leader, Gustav Schmoller (1838-1917). Knapp demanded the extension of quantitative statistical observation even to such spheres, like the investigation of morality, which seemed to be reserved mainly to philosophical investigations and refrained from normative presuppositions to empirical observation, like the idea of an ongoing cultural progress. In order to enhance the scientific rigour of statistical studies in German economics, he developed a formal-mathematical theory of population statistics that provided a systematic framework for ordering and analysing population data. Knapp applied this approach of organising knowledge even to his monetary theory, in which he provided a taxonomy of historical monetary constitutions and adhered to the requirements of scientific rigour that he

developed in his formal treatises on statistics. This "statistical mode" of scientific investigation pervaded his entire work.

Since the late 1910s, statistical business cycle research internationally developed into a dominant field of economics. Its results were made accessible to official and private stakeholders via a rising number of statistical barometers. In 1926, Kurt Singer (1886-1962) and the renowned German business cycle researcher Arthur Spiethoff (1873-1957) introduced a regular statistical business cycle reporting to the Hamburg-based economic weekly "Wirtschaftsdienst. Weltwirtschaftliche Nachrichten" that consisted of two complementary pillars – the "Wirtschaftsbarometer" and the reports "Zur Lage". Spiethoff's business cycle theory provided the main analytical and interpretive framework for the business cycle reporting of the Wirtschaftsdienst between 1926 and 1930. His theory was based on a comprehensive empirical study of business cycles in the 19th and early 20th century up to World War I. From this study, Spiethoff derived a small number of empirical indicators that described the typical course of the cycle. These indicators were prioritised in the Wirtschaftsbarometer and the reports Zur Lage for the assessment of the overall economic situation. When the data series of the Wirtschaftsbarometer deviated from the expected typical course, the authors at the Wirtschaftsdienst reflected on the weaknesses of the suggested empirical indicators, but still decidedly adhered to Spiethoff's general approach and his explanation of business cycles. Singer demarcated the business cycle analysis of the Wirtschaftsdienst from other approaches that were applied in Germany since the mid-1920s. In 1926, he sharply criticised the work of the "Institut für Konjuntkurforschung" in Berlin, led by Ernst Wagemann (1884-1956) and thereby initiated a debate with Adoplf Löwe (1893-1995), who headed the department for business cycle research at the "Königliches Institut für Seeverkehr und Weltwirtschaft" in Kiel, about the appropriate way to conduct business cycle research. Singer's critique and his demarcation appear to be exaggerated against the background of similarities in the model cycle and the assessment of the overall economic situation in the publications of the IfK and the Wirtschaftsdienst. Strategic considerations and personal interests are part of the explanation of Singer's attack on Wagemann and the IfK. A further important explanation lies in substantial differences in the methodological standpoints of all three involved parties. In fact, the dispute between Singer and Löwe can be regarded as being embedded in a more general controversy about the reorganisation and reorientation of German economics after World War I and the breakdown of the German Younger Historical School of Economics. With favouring an inductive and holistic business cycle theory, that refrained from math-

ematical-statistical reasoning, Spiethoff and Singer adhered closest to the tradition of German statistics and German historical economics. Wagemann aligned the work of the IfK to American empiricism and focused on formal statistical reasoning. Löwe's endeavour to combine deductive theorising with mathematical-statistical testing resembled the vision of upcoming econometrics. They were thus moving further away from German historical economics and towards an understanding of economics as a formal and exact science.

Zusammenfassung: Die Wirklichkeit erfassen – Zwei Beispiele für das Zusammenspiel von Statistik und induktiver Theoriebildung in der Deutschen Historischen Schule der Nationalökonomie

Die Entwicklung und Konzeption von Statistik und Wirtschaftswissenschaft sind eng miteinander verknüpft. In der Geschichte wurden von verschiedenen (Schulen von) Ökonomen eine Vielzahl unterschiedlicher Konzepte von Statistik befürwortet, die von der Verwendung von Statistik als bloßes Mittel der Massenbeobachtung und -beschreibung bis hin zur Anwendung komplexer mathematischer Modelle reichen, aus denen Kausalitäten geschlussfolgert werden. Die Verwendung von Statistik hing dabei von der Definition des Untersuchungszwecks ihrer Studien sowie ihrem Verständnis von der Art des Wissens, das in der Wirtschaftsforschung generiert werden kann und soll, ab. In der Geschichte wechselten sich verschiedene Anwendungsfelder ab, die die Diskussion und Weiterentwicklung statistischer Konzepte dominierten. Im 19. Jahrhundert entwickelte sich die Statistik insbesondere durch die Hinwendung der Forscher zu einer quantitativen Erforschung der „Gesellschaft". Anfang des 20. Jahrhunderts dominierte die Untersuchung makroökonomischer Einflussfaktoren und von Konjunkturzyklen die Entwicklung der Statistik. Die vorliegende Dissertation untersucht zwei Beispiele für die Konzeption und Verwendung von Statistik in den 1860/70er Jahren bzw. in der zweiten Hälfte der 1920er Jahre durch Ökonomen, die in der Tradition der deutschen historischen Nationalökonomie stehen.

Georg Friedrich Knapp (1842-1926) war eine zentrale Figur der Deustchen Historischen Schule der Nationalökonomie. Sein „historisch-realistsiches" Konzept der Wirtschafts- und Sozialwissenschaften, das eine faktenbasierte, objektive und apolitische Erforschung der Wirtschaft und der Gesellschaft vorsieht, wurde insbesondere durch seine frühen Arbeiten zur Statistik (1865-1874) geprägt. Während Knapp ein für die deutsche Strömung der Statistik typisches holistisches und deskriptives Konzept der Statistik vertrat, das die historische Einzigartigkeit empirischer Beobachtung betonte und von den Ökonomen der Jüngeren Historischen Schule geteilt wurde, distanzierte er sich teilweise von dem „historisch-ethischen"

Forschungsprogramm ihres Leiters Gustav Schmoller (1838-1917). Knapp forderte die Ausweitung der quantitativen Beobachtung, auch in solchen Bereichen, wie die Erforschung von Moralität, die philosophischen Untersuchungen vorbehalten schienen und nahm bei empirischen Studien Abstand von normativen Vorannahmen, wie der Idee eines kontinuierlichen kulturellen Fortschritts. Um die wissenschaftliche Strenge statistischer Untersuchungen in der deutschen Wirtschaftsforschung zu erhöhen, entwickelte er eine formal-mathematische Theorie der Bevölkerungsstatistik, die einen systematischen Rahmen für die Ordnung und Analyse von Bevölkerungsdaten bot. Knapp wendete diesen Ansatz der Organisation von Wissen auch auf seine Geldtheorie an, in der er eine Taxonomie historischer Geldverfassungen darbot und dabei die Kriterien der wissenschaftlichen Strenge befolgte, die er in seinen formalen Abhandlungen zur Statistik entwickelt hatte. Dieser „statistische Modus" der wissenschaftlichen Untersuchung durchzog sein gesamtes Werk.

Seit den späten 1910er Jahren entwickelte sich die statistische Konjunkturforschung international zu einem dominanten Feld der Wirtschaftsforschung. Dessen Ergebnisse wurden öffentlichen und privaten Stakeholdern durch eine wachsende Zahl statistischer Barometer verfügbar gemacht. Im Jahr 1926 führten Kurt Singer (1886-1962) und der renommierte deutsche Konjunkturforscher Arthur Spiethoff (1873-1957) eine regelmäßige statistische Konjunkturberichterstattung in der, in Hamburg angesiedelten und wöchentlich erscheinenden, Wirtschaftszeitung „Wirtschaftsdienst. Weltwirtschaftliche Nachrichten" ein. Diese bestand aus zwei komplementären Säulen – dem „Wirtschaftsbarometer" und den Berichten „Zur Lage". Spiethoffs Konjunkturtheorie bildete den wichtigsten analytischen und interpretativen Rahmen der Konjunkturberichterstattung des Wirtschaftsdiensts zwischen 1926 und 1930. Seine Theorie basierte auf einer umfangreichen empirischen Studie der Konjunkturzyklen des 19. und frühen 20. Jahrhunderts bis zum Ersten Weltkrieg. Aus seiner Studie leitete Spiethoff eine kleine Anzahl empirischer Indikatoren her, die den typischen Verlauf des Musterkreislaufs der „wirtschaftlichen Wechsellagen" beschreiben. Diese Indikatoren wurden im Wirtschaftsbarometer und den Berichten Zur Lage für die Einschätzung der gesamtwirtschaftlichen Lage priorisiert. Als die Datenreihen des Wirtschaftsbarometers vom erwarteten typischen Verlauf abwichen, reflektierten die Autoren des Wirtschaftsdienstes Schwächen von Spiethoffs empirischen Indikatoren, hielten jedoch grundsätzlich an seinem Ansatz und seine Konjunkturerklärung fest. Singer grenzte die Konjunkturanalyse des Wirtschaftsdiensts von anderen Ansätzen, die seit Mitte der 1920er Jahre in Deutschland angewendet wurde, ab. Im Jahr 1926 kritisierte er die Arbeit des, von Ernst Wagemann (1884-1956) geleiteten, „Instituts für Konjunkturforschung" in Berlin scharf und stieß damit eine

heftige Debatte mit Adolf Löwe (1893-1995) an, der am „Königlichen Institut für Seeverkehr und Weltwirtschaft“ in Kiel eine konjunkturstatistische Abteilung leitete. Singers Kritik und seine Abgrenzung erscheint übertrieben angesichts der Tatsache, dass es Überschneidungen in den Modellzyklen und in der Einschätzung der gesamtwirtschaftlichen Lage in den Publikationen des IfK und des Wirtschaftsdiensts gab. Strategische Überlegungen und persönliche Interessen sind Teil der Erklärung für Singers Angriff auf Wagemann und das IfK. Eine weitere wichtige Begründung liegt in substantiellen Unterschieden in den methodologischen Überzeugungen der betroffenen Parteien. Tatsächlich kann der Streit zwischen Singer und Löwe als in eine allgemeinere Kontroverse um die Neuorganisation und Neuorientierung der deutschen Wirtschaftswissenschaften nach dem Ersten Weltkrieg und dem Zusammenbruch der Jüngeren Historischen Schule eingebettet betrachtet werden. Mit der Befürwortung einer induktiven und ganzheitlichen Konjunkturtheorie, die auf mathematisch-statistische Begründungen verzichtete, hielten Spiethoff und Singer am stärksten an der Tradition der deutschen Statistik und der historischen Nationalökonomie fest. Wagemann richtete die Arbeit des IfK am Amerikanischen Empirismus aus und fokussierte formale statistische Analysen. Löwes Bestreben, deduktive Theoriebildung und mathematisch-statische Testverfahren zu vereinen entspricht der Vision der emporkommenden Ökonometrie. Damit bewegen sie sich stärker weg von der deutschen historischen Nationalökonomie und hin zu einem Verständnis der Wirtschaftswissenschaft als einer formalen und exakten Wissenschaft.