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### Professor Dr. Ingvar B. Wedervang's Historical Archive on Wages and Prices

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Professor Dr. Ingvar B. Wedervang was genuinely interested in economic history as a tool of understanding the present economic situation and forecast the future. In consequence, an archive on historical prices and wages was set up along with the Institute of Economics at the University of Oslo in 1932. With generous funding, Wedervang and his assistants searched through private and public records in their efforts of establishing the best possible coverage of historical data of wages and prices for Norway. The archive, now located at the Norwegian School of Economics and Business Administration in Bergen, now stands as one of the world's largest manual archives of wages and prices. A number of historical price and wage series were calculated on the basis of the archive through several projects since the 1970s. Still, the Wedervang Archive has been under-utilized, until recently when it was revived during the Norges Bank project on Historical Monetary Statistics.

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## 4.1 One of the world's richest archives on historical wages and prices

The data which are presented in this project on Historical Monetary Statistics for Norway rely on data from several sources and archives. However, one archive has served as a predominant source in order to extract and calculate the time series for gross domestic product, the consumer price index and wages. This is Professor Dr. Ingvar B. Wedervang's Historical Archive on Wages and Prices, or Professor Dr. Ingvar B. Wedervang's lønns- og prishistoriske arkiv, as it is called in Norwegian. The archive is located at the Norwegian School of Economics and Business Administration in Bergen, Norway.

The Wedervang Archive holds a seven digit number of direct observations of prices, starting in 1641 and ending in 1940, and equally many observations of wages, starting in 1751 ending in 1939. These price and wage data reflect some two digit million observations. Thus, the archive, which is still manually recorded, is one of the richest of its kind internationally. It has its own history connected to Wedervang himself and to the staff working with its' files.

## 4.2 Professor Dr. Ingvar B. Wedervang (1891–1961)

Wedervang was born in Oslo on 21 June 1891. In 1913 he completed his degree in political economics, followed by a two-year position as secretary at Statistics Norway. He was employed as a statistician for Treschow-Fritzøe in the town of Larvik (eastern Norway) 1916–1918, and was head of department at the national Rationing Directorate 1918–1920. This job was followed by employment as counselor for to the National Price Regulation Office 1920–1923. In 1922 he took a leave to visit Munich with his family and work on his doctoral thesis *On the ratio of genders at birth*.<sup>2</sup> Along with working on his doctorate degree he was working for Statistics Norway again in 1923 and 1924.<sup>3</sup>

He submitted his thesis in 1924, which was successfully defended the year after, when he was also appointed reader in statistics at the University of Oslo. In 1927, at the age of 36, he was appointed professor of political economics and statistics, and became editor of the *Review of Political Economics*.<sup>4</sup> He retained his professorship until 1936.<sup>5</sup> Wedervang published a number of important works as author or co-author, such as *The National Income of Norway* (1926), *On the Use of Income and particularly on Saving* (1927) and *The World Economy in the Post-War Period* (1932).<sup>6</sup> The latter publication was a joint work with two other senior academic economists at the time, Wilhelm Keilhau and Ragnar Frisch.

In 1930 Wedervang traveled to the US, and visited he universities of Columbia, Yale, Harvard

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<sup>2</sup>Wedervang 1924.

<sup>3</sup>Coward 1962, 283.

<sup>4</sup>Bergh and Hanisch 1984, 147–153, Coward 1961, 184–197.

<sup>5</sup>Coward 1962, 283–284.

<sup>6</sup>Wedervang 1926, Wedervang 1927, Keilhau, Wedervang and Frisch 1932.

and Chicago. He also wrote a proposal for the restructuring of the Norwegian economics study program. On his return to Norway, together with Professor Ragnar Frisch, he started to reorganize and modernize the program in economics at the University of Oslo in order to make it compatible with the academic standards he saw in America, in line with his previous proposal.<sup>7</sup>

Frisch and Wedervang were also granted a substantial amount of money from the Rockefeller Foundation in order to establish an Institute of Economics at the University of Oslo. This funding was supplemented by a grant from the Norwegian Fund for War Risks Insurance (Norsk vareforsikringsfond) and later from several other sources.<sup>8</sup> The institute was founded on January 1 1932 with Wedervang and Frisch in a joint leadership.

Under the leadership of Wedervang the institute examined Norwegian retail trade, and during the first half of the 1930s it was a source of several publications on terms of trade and costs of different sub-industries within the trade sector. Perhaps more important, the institute compiled data on prices and wages in order to be able to examine the patterns and explanations of short- and long-term business cycles in Norway in the nineteenth and twentieth century.<sup>9</sup> In 1936 this research project and its' data compilation task was incorporated into a more general program aiming at analyzing the Norwegian economic structure. This project was led by a steering committee, where three of the most prominent Norwegian professors in economics took part, notably Wilhelm Keilhau, Ragnar Frisch and Ingvar Wedervang. Four different departments were set up to work on this huge task. One department was set up under the leadership of Wedervang, working on the price and wage historical data, one under Keilhau and one under Arne Skau, whereas Frisch had the responsibility of coordinating the process, working on technical aspects like econometrics and the formation of national accounting.<sup>10</sup> The outbreak of World War II, however, prevented the completion of the Norwegian economic structure project. Nevertheless, the data on wages and prices collected by Wedervang and his staff remained intact.

### **4.3 Wedervang and the Norwegian School of Economics and Business Administration**

In 1937 Wedervang moved to Bergen to take up a position as rector and professor of economics at the newly founded Norwegian School of Economics and Business Administration (NHH). Originally this move was seen as temporary. He was granted a three-years leave from his work in Oslo in order to help with the establishment of a high academic standard at NHH. However, on April 9 1940 Norway was attacked by Germany and surrendered after two months of battle. Wedervangs leave from the chair in Oslo was extended as he wanted to continue his work on establishing an academically sound

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<sup>7</sup>Wedervang 1930.

<sup>8</sup>Wedervang Archive, file W201.

<sup>9</sup>Gjølborg 1974a, 3–6.

<sup>10</sup>Coward 1962, 284–285.

institution within trade, commerce and economics at NHH.<sup>11</sup> The bulk of the material in the price and wage archive was sent to Bergen in 1941.<sup>12</sup> Wedervang refused to cooperate with the German occupants and a police order was issued forbidding him to stay in Bergen. Thus, he returned to his post in Oslo, but was shortly after arrested during the German raid against the University in the autumn 1943. He was later kept at the Berg prison camp.<sup>13</sup>

After his release he spent his time during the remaining war-years maintaining contact with academics and preparing possible solutions to the economic problems connected to the coming liberation. At the end of the war he was heavily engaged in the plans for the post-war reconstruction in Norway. He took part in numerous important working committees and in 1946 he became the chairman of the national currency committee. He was also a prominent member of a group of specialists who worked out a settlement between the government and national ship-owners when the state-controlled wartime ship-owner company *NORTRASHIP* was dismantled after the war. Wedervang was also a prominent member of the commission investigating the wartime work of the Norwegian Central Bank.<sup>14</sup>

He returned to Bergen to fill a new professor chair in economics set up for him at the Norwegian School of Economics and Business Administration. He was again appointed rector, a position he held until he retired in January 1957 due to health conditions.<sup>15</sup>

## 4.4 Wedervang and public duties

Wedervang had a direct and outspoken personality, and a remarkably practical approach to economics. As professor and rector he was involved in many representative duties. In 1931 he was appointed chairman of the committee set up to examine the Norwegian foreign trade and shipping industry. From 1932 he was leader of the Norwegian trade emergency council. In 1932–1933 he was commercial expert at the trade treaty negotiations with the United Kingdom, and in 1934–1935 chairman of the committee concerning the fishing industry. During the same period he was also member of the committee assessing the organization of the Ministry of Trade, i.e. Department of finance and trade. Wedervang was also chairman of the Neighbouring Countries Board 1935–1939, and held a permanent office at the Ministry of Trade. He was appointed representative at the meetings of the International Institute of Statistics in Prague in 1938, in Washington in 1947 and in Berne in 1949. He was member of the board of the Nansen Fund and member of both the board and council of the Norwegian Fund for War Risks Insurance. He was representative in Norwegian research councils, and a prominent member of the Norwegian Academy of Science since 1927, and later also the American Statistical Association and the International Institute of Statistics.<sup>16</sup>

He was awarded a series of honors and distinctions. Among others he was an officer of the French

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<sup>11</sup>Jensen and Strømme Svendsen 1986, 123–124.

<sup>12</sup>Wedervang Archive, file W001.

<sup>13</sup>Jensen and Strømme Svendsen 1986, 124.

<sup>14</sup>Coward 1962, 284–286.

<sup>15</sup>Bergh and Hanisch 1984, 147–153.

<sup>16</sup>Coward 1962, 285–286.

Legion of Honor.<sup>17</sup> The most prestigious, however, was probably commander of the Royal Order of St. Olav, granted in 1947.

## 4.5 The birth of the Wedervang Archive

After having received funding from the Rockefeller Foundation and the Norwegian Fund for War Risks Insurance, the Institute of Economics was set up at the University of Oslo and started its work in January 1932.<sup>18</sup> As a practical oriented economist Wedervang was genuinely interested in economic history as a tool of understanding the present economic situation and forecasting the future. His idea was that significant lessons could be drawn from the past in order to understand the problems of the interwar depressions. He believed that some of the answers could be found by studying historical time series of important economic indicators. As a consequence, the work on the compilation of historical prices and wages started along with the set up of the Institute of Economics.<sup>19</sup>

The work was very time consuming, but as the project had generous funding, as many as 46 full-time or part-time assistants were hired to compile the data during the heydays of the project in the 1930s.<sup>20</sup> Hence, the project was of a considerable size. His assistants searched through many kinds of archives and sources in their efforts aiming at establishing the best possible coverage of historical series for wages and prices for Norway from 1800 onwards. The data were taken from both public and private archives and records. The national archive, regional archives, Statistics Norway, central and local government files, public institutions, companies and offices served as sources. The bulk of the data concerning the private sector stems from business archives and records, farm or industrial plant accounts, bourses, employers' and employees' associations and newspapers.<sup>21</sup> The data became so huge in numbers that an archive had to be set up almost from the start of the project, more precisely during the spring of 1932. The initial project is fairly well documented in the archive itself. This was done by assembling important correspondence and administrative logs into files, which were stored in the archive.<sup>22</sup>

Between 1932 and 1936 the compilation of data went on at an impressive pace. The amount of collected data became so numerous that the staff was about to lose overview. In consequence, a new time consuming task of systemizing the data started. Some series were aggregated, whereas other were unified into shared tables. The process of documentation was given high priority. From 1936 the archive became part of one of the largest Norwegian research projects in economics ever, *The Economic Structural Survey of Norway*.<sup>23</sup> The project was initiated and led by some of the leading Norwegian economists, like Ragnar Frisch, Wilhelm Keilhau, Ingvar Wedervang and later

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<sup>17</sup>Jensen and Strømme Svendsen 1986, 125.

<sup>18</sup>Bjerkholt 2000, 3–7.

<sup>19</sup>Coward 1961, 184–197.

<sup>20</sup>Wedervang Archive, file W326.

<sup>21</sup>Wedervang Archive, files W002, W228, W260, W344 and W364.

<sup>22</sup>Wedervang Archive, files W001, W002, W003, W201, W202, W228, W260, W326, W344, W364 and W381.

<sup>23</sup>Bjerkholt 2000, 3–7.

Arne Skau.<sup>24</sup> Among these, Frisch and Wedervang had the strongest interests in the data from the archive. Wedervang was also given the responsibility to continue as leader of the data collection and systemizing work.

## 4.6 The archive in hibernation

In connection with Wedervang's work on his projects he published, together with Dag Coward, a handful of studies on the structure of different Norwegian trades and industries during the 1930s. These included studies on the costs and terms of trade of retail industries, including discussions on hardware, grocery, drapery, book and tobacco trades.<sup>25</sup> In these studies important information was drawn from the wage and price historical archive, and in fact some of the hand-written manuscripts from the projects are still kept in the archive.<sup>26</sup>

However, Wedervang was never able to use the data to the large degree he planned for. There are two main reasons for this. In the first place, the work on the archive was given lower priority as he took up his chair in Bergen in 1937. Secondly, the funding of the project was stopped under the German occupation of Norway April/June 1940 – May 1945. Then, in 1941, the bulk of the archive was packed down from the University of Oslo and sent to Bergen. The plan was to resume the work, with limited resources. However, since Wedervang was disliked by the German occupiers, and forced back to Oslo in 1942, only to be imprisoned and later dismissed from his duties, the archive remained untouched for several decades.

On his return to Bergen after the war, Wedervang still had plans for the archive. However, as he became occupied with a successful expansion of the Norwegian School of Economics and Business Administration, he never had the time to resume the work with the archive again.

## 4.7 The archive reborn

On Wedervang's retirement in 1957 he still stressed the possible usefulness of the archive. However, he died on December 4 1961. At that time the archive had stayed untouched for twenty years, and remained so until the end of August 1973, when Ole Gjølborg of the Norwegian School of Economics and Business Administration reopened it after 32 years of storage. When the files were unwrapped, Gjølborg found a seemingly unsystematic archive. Thus, he started reorganizing and restructuring its content. During this work he soon traced the framework of an originally systematic and organized archive. Hence, his work was carried out impressively fast. In November 1973 Gjølborg finished his survey of the archive's content, which finally was published the year after.<sup>27</sup>

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<sup>24</sup>Frisch, Keilhau and Wedervang 1936.

<sup>25</sup>Wedervang and Coward 1933a, Wedervang and Coward 1933b, Wedervang and Coward 1934a, Wedervang and Coward 1934b, Wedervang and Coward 1934c, Wedervang and Coward 1935a, Wedervang and Coward 1935b.

<sup>26</sup>Wedervang Archive, file W057.

<sup>27</sup>Gjølborg 1974a, 3–4.

The 403 different files at the time were basically organized in two major blocks; one for wages and one for prices. Wages were in principle organized according to their related industry or sub-industry, when prices in principle were organized according to the processing chain, i.e. import prices, product prices, gross prices, institution prices, market prices, retail prices and export prices.<sup>28</sup> The survey of Gjølberg also reveals that considerable parts of the data were aggregated, in some cases up to a national level.

Gjølberg did not report any definite number of direct observations of total prices and wages recorded in the archive. However, he concludes with 1.5 million observations for sailors. Later research has confirmed that this number is correct.<sup>29</sup> However, some of these observations are double-counted. Thus, the actual number of different single observations is lower.<sup>30</sup> This is still a quite impressive number, and can probably not be matched by any other known manual historical archive. For other industries, e.g. road construction, the number of observations must have been far higher than assumed by most scholars engaged with the archive.

The unwrapping of the archive was followed up by research on the development of prices, wages and the standard of living. This was the second wave of research linked to the archive after decades of hibernation since the original work conducted by Wedervang and his staff in the 1930s. The new work was basically done by postgraduate students of economic history from the Norwegian School of Economics and Business Administration, and was published in their theses. Instead of putting data into the archive it was now used as data source, in accordance with the original idea.

Already in 1974 Ole Gjølberg published a thesis on real wages and the standard of living for farm labor covering the years 1830–1880.<sup>31</sup> The main source of the publication was farm accounts kept in the archive. The following year Lasse Reinholdt utilized the rich data to examine sailor's wages in one of the important Norwegian ports at the time, i.e. Tønsberg, 1847–1914.<sup>32</sup> Further, Agnar Tjeldnes and Per Kr. Bekkelund examined wages for road construction workers in parts of Northern Norway 1870–1910.<sup>33</sup> Ole Gjølberg published extensively by using data from the archive in a number of smaller research papers, before he submitted his doctoral thesis on the Norwegian merchant fleet and its relation to the economy 1866–1913.<sup>34</sup> Again, the archive served as one of the major sources. On the basis of his work on maritime wages Gjølberg also shed new light on a major issue in Norwegian maritime history, the slow substitution from sail to steam in the late 1800s and early 1900s in an article published by the *Scandinavian Economic History Review* in 1980.<sup>35</sup> The same year Fritz Hodne and Jan Ramstad calculated the productivity development of Norwegian agriculture 1865–1910 assisted by data from the archive.<sup>36</sup>

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<sup>28</sup>Gjølberg 1974a, 2.

<sup>29</sup>See Chapter 5 on nominal wages 1726–1940 in the present publication.

<sup>30</sup>Wedervang Archive, file W201.

<sup>31</sup>Gjølberg 1974b

<sup>32</sup>Reinholdt 1975.

<sup>33</sup>Tjeldnes 1977, Bekkelund 1977.

<sup>34</sup>Gjølberg 1975, 1976, 1977a, 1977b, 1978a, 1978b, 1979a, 1979b.

<sup>35</sup>Gjølberg 1980, 135–146.

<sup>36</sup>Hodne and Ramstad 1980.

## 4.8 The research project of the 1980s

A new research project was launched, with a threefold purpose. In the first place, one wanted to stimulate research on the basis of the data records. Secondly, secure the files from destruction, and thirdly, make the archive more userfriendly by computerizing it. The duration of the new project was planned to six years; 1 January 1981 – 31 December 1986. Seven institutions funded the project. The social science council and the humanist council of the Norwegian Research Council granted NOK 597000, The Norwegian School of Economics and Business Administration granted NOK 541000, Norges Bank (the Central Bank of Norway) NOK 46700, and finally Hedmark, Hordaland and Telemark road construction offices NOK 60300. All in all, the funding amounted to NOK 1.245 million.<sup>37</sup>

The project had a steering committee of four experts within different fields: Atle Alvheim (information technology), Ole Gjølberg (economic history and the Wedervang Archive in particular), Sofie Rogstad (private archives) and Kari Skrede (social science research). It had a staff of five, all employees at the Norwegian School of Economics and Business Administration. Jan Ramstad (leader), Geir Løkken, Kjell Bjørn Minde, Brita Nordstrønen and Judy Heggvik. The project was set up in cooperation with an international network represented by Professor Lewis R. Fischer, University of Maryland, USA, later Memorial University of Newfoundland, Canada, Professor John J. McCusker, University of Maryland, USA and Helge W. Nordvik of the University of Bergen, Norway.

The same year as the project started, four publications drawing on the files from the archive came out: Fritz Hodne published his textbook *The Economic History of Norway 1815–1970* (Norges økonomiske historie 1815–1970).<sup>38</sup> Hodne and Gjølberg mapped market integration during periods of Norwegian industrialization.<sup>39</sup> Helge W. Nordvik published on the wage conditions for Norwegian sailors in the Canadian merchant fleet 1863–1914, whereas Jan Ramstad presented a draft on female wages in the textile industry.<sup>40</sup>

The project succeeded in safeguarding the files and in promoting research both on a national and international level. Considerable effort was put into organizing and documenting the files. Also, a number of catalogs were published explaining the content of the archive systematically. A great deal of this work was carried out by two of the research assistants employed in the project, Kjell Bjørn Minde and Geir Løkken. As for the computerization of the data, the work was far more difficult and time demanding than assumed. Thus, only surveys of the contents of the files were computerized.

New publications drawing on the exhaustive data sets of the archive were published as part of the latter project. Whereas the early works predominantly investigated nominal wages, Jan Ramstad presented a new consumer price index for Kristiania (Oslo) in order to map real wages for female employees in the textile industry 1850–1910.<sup>41</sup> This was published for a wider audience in 1986,

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<sup>37</sup>NFI 1987.

<sup>38</sup>Hodne 1981.

<sup>39</sup>Hodne and Gjølberg 1981.

<sup>40</sup>Nordvik 1981, 79–86, Ramstad 1981.

<sup>41</sup>Ramstad 1982, Ramstad 1983.

when Ramstad and Minde gave an overview of trends in Norwegian real wages 1730–1910.<sup>42</sup> Minde continued the work on real wage trends within the limits of the project.<sup>43</sup> Ramstad also published four works on wages for road construction workers on the basis of files in the archive.<sup>44</sup>

Øivind Gladsø, Trond Olav Seim and Geir-Helge Sjøtrø, utilized records from the archive in a thesis on Norway's dual economy.<sup>45</sup> Torill Lønningdal examined wages for female domestic servants on farms in Eastern Norway 1850–1910.<sup>46</sup>

When Helge W. Nordvik took up a position as associate professor at the Norwegian School of Economics in 1986, he became the leader of the Wedervang Archive, staffed with one full time assistant. From the mid 1980s to the late 1980s Nordvik and Lewis R. Fischer worked extensively with the archive's impressive files of sailors wages. This research gave new information of considerable importance for international maritime history research.<sup>47</sup>

## 4.9 New utilization

Due to illness, Nordvik's work on the archive ceased in the 1990s. However, the material was set at free disposal for other scholars and a new group from the Norwegian School of Economics and Business Administration, under the leadership of Professor Fritz Hodne used records from the archive in order to construct real wage series for Norway from the mid nineteenth century to the mid twentieth century. Two papers were published internationally as part of a European project.<sup>48</sup> Later, two new textbooks on Norwegian economic history in the nineteenth and twentieth century also included new series from the archive.<sup>49</sup> Ola Honningdal Grytten, who was part of Hodne's team, continued this work together with Kjell Bjørn Minde, a former research assistant at the archive. Two new international publications were put forward.<sup>50</sup>

After the sudden death of Professor Nordvik in 1998, Professor Grytten took the responsibility of the Wedervang Archive in 1999. In 2004 he was appointed leader of a steering committee, with Bjørn L. Basberg and Jarle Møen as members. The archive was moved to more secure premises and it was reorganized according to the original catalogues made in the 1970s and 1980s with Odd Magne Havneraas as archivist. A new project aiming at improving the basic catalogues was started. After a careful examination of the content of all records and files a new catalogue was completed in 2006.<sup>51</sup>

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<sup>42</sup>Minde and Ramstad 1986, 90–121.

<sup>43</sup>Minde 1987.

<sup>44</sup>Ramstad 1984a, Ramstad 1984b, Ramstad 1985a, Ramstad 1985b.

<sup>45</sup>Gladsø 1983.

<sup>46</sup>Lønningdal 1984

<sup>47</sup>Nordvik 1985, 117–148, Fischer and Nordvik 1986a, 519–544, Fischer and Nordvik 1986b, 139–170, Fischer and Nordvik 1986c, 103–132, Fischer and Nordvik 1987a, 41–66, Fischer and Nordvik 1987b, 99–116, Fischer and Nordvik 1988a, 17–42, Fischer and Nordvik 1988b, 1–21, Fischer and Nordvik 1988c, 14–35, Fischer and Nordvik 1988d, 159–186, Fischer and Nordvik 1991, 77–96.

<sup>48</sup>Hodne, Grytten and Alme 1994, 59–72, Hodne, Grytten and Alme 1995, 61–75.

<sup>49</sup>Hodne and Grytten 2000, Hodne and Grytten 2002.

<sup>50</sup>Minde and Grytten 1997, 42–58, Grytten and Minde 1998, 61–82.

<sup>51</sup>Grytten 2006.

At the same time, Norges Bank (The Central Bank of Norway) took interest in the under-utilized archive. The bank was working on a project providing historical monetary statistics for Norway back to 1819, and Grytten was asked to construct historical price and production series. This was done on the basis of several sources, the archive being one of the most central in the work with the GDP-series and the most central one in the work with the consumer price index. The resulting historical time series, a.o. a consumer price index for Norway 1516–2003 and a GDP-series for Norway 1830–2003, were published by the Central Bank in 2004 as part of its project on Historical Monetary Statistics.<sup>52</sup> The same year a consumer price index for Norway 1819–1871 was published in the *European Review of Economic History*.<sup>53</sup> In 2005 another work on real wages from the eighteenth century till present was printed in a second publication related to the project by Norges Bank.<sup>54</sup> An finally, new historical series on wages, containing data drawn from the archive, are presented in Chapter 5 and 6 of this volume of Historical Monetary Statistics for Norway.

Internationally, David S. Jacks at the University of California, Davis, USA and later Simon Fraser University, Vancouver, Canada, among other foreign scholars, visited the archive several times in the early 2000s. Data from the archive is used in Jacks' PhD on international economic integration in the nineteenth century.<sup>55</sup> This is also the case for several other papers by Jacks, published in top international journals like *The Journal of Economic History and Explorations in Economic History*.<sup>56</sup>

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<sup>52</sup>Grytten 2004a, 47–98, Grytten 2004b, 241–288.

<sup>53</sup>Grytten 2004c, 61–80.

<sup>54</sup>Grytten 2005, 57–80.

<sup>55</sup>Jacks 2004a.

<sup>56</sup>Jacks 2004b, 285–329, Jacks 2005a, 381–413, Jacks 2005b, 625–649, Jacks 2006, 383–412.

## 4.10 The present structure of the archive

Today the archive holds 471 files of documentation, raw data, systematic data and processed series. Each file has its own number. These numbers were basically given chronologically, which implies that they were given as running numbers and not thematically.<sup>57</sup> The files are classified into five major sections according to their content, as listed below.<sup>58</sup>

Content classification:

1. Administration of the archive
2. Wages
3. Prices
4. Accounts
5. Miscellaneous

Wages and prices by far constitute the two largest groups, with 242 and 122 files correspondingly. The files are presented very differently, and the levels of processed raw data vary considerably. In the catalogue the files are also classified by four different kinds of content according to their state of processing.<sup>59</sup>

Processing classification:

1. Overview material
2. Basic material
3. Systematic material
4. Processed material

Overview material contains descriptions of sources, information on the data or topics related to these. These files also include some analysis carried out on the basis of the material in the archive. Basic material is in principle raw data or primary data recorded or copied in the archive. Systematic material includes data, which are organized in a systematic way in order to being utilized by users of the archive. Processed material is data, which has been organized and processed in order to find different kinds of aggregated series.

Table 4.1 below reports the classifications of the files in the archive according to their content and the state of processing of the data. As the archive stands today, most of its records are classified as

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<sup>57</sup>Gjøølberg 1974a, 7–53.

<sup>58</sup>Grytten 2006.

<sup>59</sup>Grytten 2006.

basic material, i.e., 244 files. However, the level of data classified as systematic material, i.e. 82, or processed material, also 82, enable us to come up with some aggregated series on wages and prices for some products quite easily.<sup>60</sup>

TABLE 4.1  
Files in the Wedervang Archive according to classifications

	Number of files				
	Overview material	Basic material	Systematic material	Processed material	All material
1. Administration	3	7	1		11
1.1. Correspondence	1	6			7
1.2. Documentation	2		1		3
1.3. Others		1			1
2. Wages	19	120	48	55	242
2.1. Merchant fleet	11	60	40	33	144
2.2. Road construction	7	18	7	17	49
2.3. Railway construction	1	5		2	8
2.4. Manufacturing		24	1	1	26
2.5. Agriculture		7			7
2.6. Others		6		2	8
3. Prices	19	60	21	22	122
3.1. Documentation	14				14
3.2. Market prices		9	2	6	17
3.3. Prices on goods		35	14	14	63
3.4. Agricultural prices	2	6	2	2	12
3.5. Fish prices	3	10	3		16
4. Accounts	11	57	11	3	82
4.1. Farm accounts	4	21	1	1	27
4.2. Dairy accounts	3	33	10		46
4.3. Construction accounts		2			2
4.4. Others	4	1		2	7
5. Miscellaneous	11		1	2	14
5.1. Correspondence	3				3
5.2. Exchange rates	1		1	1	3
5.3. Others	7			1	8
Total	63	244	82	82	471

Source, Grytten 2006.

<sup>60</sup>Grytten 2006.

## 4.11 Content of the archive

As already shown, the content of the archive is manifold. And if one seeks a detailed description of the files one has to search through the catalogues. However, a few lines can be said about the data, following the content classification above.<sup>61</sup>

### 4.11.1 Administration of the archive

This part basically holds correspondence, documentation of the work in progress, reports, letters of recommendation and general information of the work on the establishment of the archive. Thus, it deals with technical-administrative aspects. Unfortunately, some of the files were not sent along with the bulk of the archive from the University of Oslo to the Norwegian School of Economics and Business Administration in 1941, and still remain in Oslo.

#### Correspondence

The bulk of the administrative section of the archive holds important correspondence in connection with the data collection and the work on the archive and the different projects it sorted under. Here we also find records of employees, and important traces of the archive's first history.<sup>62</sup>

#### Documentation

This part gives documentation of data collection, sources and work organization. It gives a fairly good insight in how the principles of the archive structure were established, and the importance of well documented and empirically sound data files.

#### Others

This part offers working lists and letters of recommendation for Wedervang's staff. From this file we can get a feel for how the archive was established, how the data were collected and how various challenges of different matters were solved. It also gives a fairly good impression of Wedervang's personal care for his employees.

### 4.11.2 Wages

This material consists of detailed wage data from a number of sources, stretching from public offices to merchants and ship owners. Although the exact number of observations is unknown, the archive is probably reflecting a two-digit million observations.<sup>63</sup>

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<sup>61</sup>Alme 1992a.

<sup>62</sup>Gjølberg 1974a, 5–6.

<sup>63</sup>Wedervang Archive, W516, W517 and W324.

## Merchant fleet

According to the documentation files in the archive, this material holds several hundred thousands of data, reporting individual wages for almost 1.5 million sailors.<sup>64</sup> After a closer look at the material, however, these numbers may not take into consideration double counting. Nevertheless, this is one of the richest international data source for sailor's wages in the eighteenth and nineteenth century. The data stretches from 1751 till 1921. The main source is public recruitment offices in the Norwegian ports. Wages are reported in different ways. By direct reports written by the ship captains, contracted salaries and *ex post* salaries. These are often overlapping, and thus, can be controlled against each other. All capacities of crew, except captains, are included, implying up to 26 different capacities in 26 ports. Wages from both foreign going and domestic going vessels are recorded, and even some international wages from foreign ports.

Some of this material has been systemized and processed into regional or even national aggregates for different capacities of crew. The data is very well organized from 1819 onwards. The number of observations is also reported in the aggregated tables.

## Road Construction

The magnitude of this part of the wage material is second only to the merchant fleet. It basically consists of wage and financial account reports from public road construction financed by the national parliament and carried out in the counties. It stretches from 1850 onwards and reports daily and hourly payments for employees on fixed and piecework wages (from 1854). A substantial number of observations are also given for hired workers with horse. Most of the data are given county-wise, while some series are aggregated up to national levels.<sup>65</sup>

According to these files, there are several million observations of public road construction workers. One has to keep in mind, however, that these are not direct observations, but wage costs divided by working time. The data becomes poorer in 1915 and cease around 1920.<sup>66</sup>

## Railway construction

These files basically report daily and weekly wages for day hired labor on piecework and labor on fixed contracts. Some observations are also reported in hourly wages. The numbers of observations are estimated in the same manner as for public road construction. Thus, it is very high. The data basically start in 1873 and end as late as 1940, however, with a lacuna 1884–1891, when railway construction activity was low.<sup>67</sup>

Like for public road construction, the wage data for railway construction reflect a two-digit million number of observations of daily and hourly wages. However, the number of direct observations is significantly smaller.

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<sup>64</sup>Wedervang Archive, W201

<sup>65</sup>Alme 1992b, 4–9.

<sup>66</sup>Ramstad 1984a, Ramstad 1984b, Ramstad 1985a, Ramstad 1985b.

<sup>67</sup>Alme 1993, 15–16.

## **Manufacturing**

The files containing manufacturing wages are fragmented. Most of them are records from individual companies or manufacturing plants. Some of these date back to 1820. However, the bulk of data stems from the second half of the nineteenth century. Also, parts of the newer data often reflect the state of professions, industries and sub-industries rather than that of individual companies. Some data are taken from branches of the Employers Federation, founded in 1900.<sup>68</sup> The best example of this kind of material is probably wage data from the mechanical engineering employers' federation.

A substantial part of the data is taken in towns and urban areas. They were taken as annual, monthly, weekly, daily or hourly wages. Some include board and lodging, some do not. All in all, they cover most years 1820–1930. Admittedly, they have a regional bias in favor of the Oslo-region. However, this was also the center of the manufacturing industry in the nineteenth century.

## **Agriculture**

Most data on agriculture is kept in the section for farm accounts. Moreover, wages from seven farms and two foresting employers are also in separate files in the archive. Here we can trace wages within agriculture and forestry from 1820 till 1913. Most data are reported as daily, some are taken weekly, monthly or annually. Some include board and lodging.<sup>69</sup> In addition to these files the farm account section of the archive holds important data on wages in agriculture and forestry.<sup>70</sup>

## **Others**

This section holds six files of basic and two of processed material. The wage files cover smaller parts of various industries, branches, sectors and professions, like mining, crafts, the public sector or just different kinds of occupations in towns and urban areas.<sup>71</sup> The two processed files hold data reports and calculations of the value of boarding and lodging.

### **4.11.3 Prices**

The price data also stem from a number of sources, both private and public. They come from merchant archives, business accounts, local product bourses and exchanges, public offices, institutions and government ministries. It is the second largest group in the archive, stretching back to 1641 and ending in 1940.<sup>72</sup>

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<sup>68</sup> Alme 1993, 16–18.

<sup>69</sup> Gjølberg 1974a, 22–30.

<sup>70</sup> Alme 1993, 13–15.

<sup>71</sup> Gjølberg 1974a, 31–37.

<sup>72</sup> Wedervang Archive, files W134, W135, W212, W254 and W388.

## Documentation

The first sub-section of prices deals with documentation. In all the 14 files we find well documented descriptions of how the price data was collected both at first hand and by the Wedervang staff. The user is also provided with information on how observations taken in different currencies are transformed into one unit, basically the krone.

These files also reveal that some price series are converted into fixed currency, i.e. they are adjusted for currency fluctuations. The documentation files' detailed descriptions of the sources and the data compilations also enable the user to examine the validity and reliability of the price material in the archive.<sup>73</sup>

## Market prices

This is the second largest sub-section of price data, and one of the best documented, classified and organized parts of the price section. The data reported are basically market place prices to consumers registered by public servants in the larger towns and cities of Norway. They start as early as 1830 and continue till 1920. Prices on some 70 products were reported, half of them must be considered consumer products. However, it is not possible to follow all items continuously over the time.<sup>74</sup>

The local magistrates were formally responsible for the data collection. The prices were reported to the statistical office of the Ministry of Domestic Affairs and organized and processed by them. Most files report prices by cities or towns, some at national levels. They were partly taken monthly, partly quarterly.

## Prices on goods

In this sub-section we find the richest source of prices in the archive. It holds different sorts of market prices. The most important is publicly reported market prices on a set of 15–72 products.<sup>75</sup> These were assembled by decree from the government. Again, magistrates and public servants were responsible for the collection of data. There were strict standards for how these prices were to be measured. They included both typical consumption goods and gross products and inputs to production. The prices were to be taken at least quarterly, often monthly or even more frequently. The archive includes data from 40 Norwegian towns and cities from 1832 onwards.<sup>76</sup> These are also to a great magnitude aggregated on product levels and geographical levels.

Other important sources for this sub-section of prices is retail prices from shops, merchant houses and different kinds of market places, special time-limited markets or product exchanges. It also holds price currents from newspapers, bourses or trade chambers. Likewise, it reports gross and product prices (factory gate) from similar sources. In this sub-section we can also find institutional prices

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<sup>73</sup>Gjøølberg 1974a, 38–48.

<sup>74</sup>Grytten 2004, 52–53.

<sup>75</sup>Wedervang Archive, W272, W273, W274, W275 and W276.

<sup>76</sup>Grytten 2004a, 58–61.

for hospitals, garrisons, prisons, local governments and similar institutions. Most price series end between 1910 and 1914, some of them continue till the 1930s.

All in all this part of the archive consists of 63 files, which has served as the main source in the construction of price indices previous to 1900 for Norway. Still, many of the files can be considerably further explored.

### **Agricultural prices**

Despite this part contains only 12 files it is rather interesting. In the first place it includes prices on crops from 1641 onwards.<sup>77</sup> Secondly, it includes the northernmost parts of Norway better than most other sources and files. Thirdly, some series in these records are reported as imports, product, gross, retail and even export prices. Fourthly, they are very well documented. The bulk of the data stretches from 1860s onwards. However, officially collected market prices on crops, peas and potatoes exist from 1736, when official appraisal prices go even further back in time; to 1641.

Some series also include prices of milk and milk products along with different kinds of meet, wool and wood. Most of them cover the period up to World War I, when some continue into the early 1920s.

### **Fish prices**

These files are also very rich on price data. Some of them can be traced back to 1700 and cover the period till 1940, when the bulk covers the nineteenth century.<sup>78</sup> Again this sub-section, as the previous one, reports many kinds of fish prices, i.e. catch prices, gross prices, market place prices, retail prices, export prices etc. Some fish products are reported in stunning numbers of qualities, and often according to the waters and seasons in which fish was caught.

An important reason for this remarkably detailed material is the impressive fish price records from Bergen, where prices were recorded at the local commodity bourse (the fish market) by merchants and public servants. However, the archive also reports fish prices from many other ports of exports and towns of consumption, e.g. Stavanger, Haugesund, Ålesund, Kristiansund, Tromsø and Oslo. The data continues to the mid 1930s.

## **4.11.4 Accounts**

These make up the third largest group in the archive, with 82 files. They are taken from farms, dairies, construction work and miscellaneous kinds of bodies and activities. Dairy accounts (milk factories included) constitute the largest of these groups, followed by farm accounts. Both of them, in particular the latter, is supplemented with files on farm and dairy wages and prices.<sup>79</sup>

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<sup>77</sup>Wedervang Archive, file W155.

<sup>78</sup>Wedervang Archive, files W051, W097, W098, W099, W100, W101, W102, W208, W397 and W408.

<sup>79</sup>Grytten 2006.

### **Farm accounts**

All in all, the 27 files of farm accounts along with files on farm wages give information from 57 farms, basically major farms in eastern Norway. Though, some accounts exist for farms located in other parts of the country. Most of these files hold basic material, i.e., raw or unprocessed data. Some of them stretch back to 1820.<sup>80</sup> They mostly cease before World War I.

They provide reasonably good information on prices, wages and working conditions, and may serve as tool for the calculation of non-cash payments. Information on different sets of prices, input, output and value added can also be drawn from these files.

### **Dairy accounts**

The 46 files of dairy accounts constitute another impressive part of the Wedervang Archive. The accounts are taken from dairies located in eastern Norway, mid-Norway and all along the coast from the south to the northern parts of the country.

The accounts hold information on wages, costs, sales, input, output and corresponding prices. Hence, they may serve as solid sources for the calculation of reliable value added series for this industry back to the 1860s.<sup>81</sup> Unfortunately, the data in these files, which primarily must be classified as basic material, have hardly been used for research purposes.

### **Construction accounts**

The archive holds two files with construction accounts.<sup>82</sup> The most interesting of these is probably construction accounts for the Royal Palace in Oslo from the nineteenth century. However, we can also draw information on other public and private construction accounts from the material in this sub-section.

### **Others**

This sub-section has seven files, containing public and private accounts and a detailed consumption survey. Of special interest is two studies led by Wedervang himself. One is on the profitability in the merchant fleet in the 1930s, when the other is on the income and cost structure of colonial gross trade during the same decade.<sup>83</sup> In the records we find data from the nineteenth century until the end of the interwar period.

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<sup>80</sup>Gjøølberg 1974a, 22–30.

<sup>81</sup>Wedervang Archive, files W138, W367 and W374.

<sup>82</sup>Wedervang Archive, files W410 and W411.

<sup>83</sup>Wedervang Archive, files W022B and W057.

### 4.11.5 Miscellaneous

In this section we find 14 files with correspondence, documentation and data related to the pioneer projects the Wedervang Archive was part of. Thus, we find technicalities concerning the data and the data collection along with the administration of the data files. We also find surveys and census data along with manuscripts with link to the data in the archive. This implies that this section has a substantial degree of overview material and hardly any basic data.

#### Correspondence

This sub-section contains three files with correspondence on data collection and related issues. We find correspondence both among the Wedervang staff and between the staff and different bodies providing data.<sup>84</sup> This material gives a good insight into how the work with data processing was conducted.

#### Exchange rates

Here we find descriptions of the Norwegian currency system and exchange rates covering a very difficult period in monetary history 1757–1842.<sup>85</sup> These have been used in several price and wage series in the archive to correct for exchange rate fluctuations from currency par values. This implies that some of the time series on wages and prices in the archive are not nominal, but real series, in the sense that they are exchange rate adjusted.

#### Others

The final eight files have different contents, covering comments, manuscripts, letters, censuses, conference proceedings etc. Seven of these files are classified as overview material, whereas one is considered processed material.<sup>86</sup> They give insight into how the data were meant to be used by the senior staff of the archive at the time of its creation.

## 4.12 Conclusions

Since the ambitious start of the Professor Dr. Ingvar B. Wedervang's Historical Archive on Wages and Prices in January 1932, the archive was left so to say untouched from 1941 to the autumn of 1973. From then on, the focus on the archive has fluctuated substantially. During limited time spans it has been used by small groups of researchers, but then left alone when their projects came to an end.

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<sup>84</sup>Wedervang Archive, files W073 and W505.

<sup>85</sup>Wedervang Archive, file W155.

<sup>86</sup>Grytten 2006.

During the last five years the archive has caught the interest of numerous scholars, both Norwegian and foreign, and the number of visitors is increasing. In 2006 the archive had 118 registered visitors of whom 84 Norwegians and 34 foreigners. The majority of visitors were economic historians, followed by economists and then historians. In addition, a total of 81 requests were made about the archive, of which 37 from domestic scholars and 44 from abroad. Along with new research activity initiated by Norges Bank, the Norwegian School of Economics and Business Administration and staff from the Simon Fraser University, this implies that the archive is now probably more used for international research purposes than ever before.

Still the files of one of the largest manual historical archive on wages and prices in the world must be considered under-utilized, and the bulk of data has still not been used at all. In view of the great visions of the two pioneers of the archive, Wedervang and Frisch, and in light of the overwhelming analytical possibilities hidden in the data, considerably more research could and should still be carried out on the basis of the archive.

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