

# Measuring employment in the food industry: comparing the Belgian censuses, 1910-1930

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## 1. INTRODUCTION<sup>2</sup>

In this paper close attention is paid to the different statistical datasets measuring employment in the Belgian industrial sectors in 1910 and 1930. In these years three surveys were held simultaneously that counted and classified employment from various perspectives. The first survey was an occupational survey organised within the framework of a *population census*. The others were an occupational survey and an industrial survey both integrated in an *industrial and commercial census*.

As we have three observations, albeit from different perspectives, the obvious question becomes: which survey is the most reliable one for our purpose? In general, the industrial survey is used most in historical research and credited as being the most reliable one (De Brabander, 1984). Nevertheless, while the methodology used was similar for the censuses of 1910 and 1930, the reception of these two censuses was completely different. Whereas the industrial and commercial census of 1910 was seen as a proper source for historical statistics, the industrial and commercial census of 1930 was often discarded and deemed unreliable. Furthermore this census of 1930 has never been extensively published by the authorities, which is seen as an extra argument for its unreliability. However since the registers of this census are available in archives it is not ex-ante excluded as a source for historical research.

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<sup>2</sup> The authors gratefully acknowledge the financial support of the Research Foundation – Flanders (project G0607.05).

We take this extraordinary richness of statistical material, because of this coinciding of three surveys at the same time, as an opportunity to examine the trustworthiness of the different datasets, especially the population survey and the industrial survey. A lot of attention will be paid to a comparison on aggregate and sector level in the censuses and on the differences in methodology and object of the censuses. These differences could be potential biases that can skew the acquired results. The food industry is taken as a case study for the comparison of the data. Although it is sometimes referred to as a *neglected industry*, this industry has always been an important industrial sector in Belgium, concerning both output and employment (Sas, 1999, 95). In the Interwar Years, the Belgian food industry was; next to Belgium's traditional strengths, the large-scale mine and metalworking sectors and the textile sector, and the labour intensive construction sector; the largest industrial sector. In 1930, the food industry employed 109900 people, or 14 per cent of total industrial employment.<sup>3</sup> The industry was furthermore characterised by a large number of mostly very small companies.

The reference works for the Belgian censuses are those of G. De Brabander (De Brabander, 1981, 1984). He is very critical of the population and occupational surveys and sees the industrial surveys as the only reliable, albeit flawed, sources for historical datasets on employment conditions. There are indeed some biases in the way the datasets were constructed. R. Vanderstraeten (2005, 201-241), focusing on the population censuses, pays attention to the way the classifications of the different occupations structured the outcomes. Which groups of occupations were classified in what sectors could change over time and depended furthermore on the kind of census, which biased the outcomes. P. Klep (1976, 25-69) also offers a critique of the different datasets measuring occupation, more focused on agrarian population, enabling him to make corrections of these numbers and produce new estimates for the agrarian population. N. Bracke (1996, 165-207) investigates the way in which gender and women labour affect the numbers in the industrial censuses. Women labour was often understated especially where male enumerators and respondents were involved.

Although the industrial census of 1930 was never published, there are some references to it in the historical literature. J. Buntinx (2002) gave a concise overview of the census and an inventory of archive material, as do S. Kirca and I. Van Damme (1995) for other parts of the archive. The discussions and

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<sup>3</sup>. ARA (Algemeen Rijksarchief) Brussel, Handels- en nijverheidstelling 1930. Neerlegging 2001 (registers).

limited presentations of the census in *Arbeidsblad/Revue du Travail* should also be mentioned (*Arbeidsblad/Revue du Travail*, 1934, 750-803; 1935, 1353-1521).

## 2. MEASURING THE INDUSTRIAL EMPLOYMENT IN BELGIUM

The history of measuring industrial employment in Belgium starts in 1846, with a census with a broad scope.<sup>4</sup> It encompassed counts of the population, agriculture and industry, but did not include the large domestic industry. The census of 1866 had the same scope, but now the domestic industry was part of the count basis.<sup>5</sup> However, the authorities deemed this census unreliable. It was therefore never published and left no traces in the archives. Because of this, the census of 1880 had a much more humble prospect.<sup>6</sup> It was thought to be very hard to provide such a broad scope, therefore in 1880 less than half of the industrial sectors were actually counted. Thus this census only offered a very fragmented picture of the Belgian industry. The census of 1896 only contained an industrial census. Moreover the methodology of this census was different to its precursors positioning the census of 1896 apart from the other industrial censuses.<sup>7</sup>

According to Klep (1976) the opinion in historical literature of the results of the 19<sup>th</sup> century Belgian censuses is rather positive. The statistics of the occupational structures are flawed but still perform somewhat better than comparable ones of the United States or Great Britain, although lagging them in time (Klep, 1976, 68).

The following censuses of 1910 and 1930 are potentially very important sources for the study of industrial structure in Belgium in the first half of the 20<sup>th</sup> century. These are the only two moments before World War II where very broadly-scoped information on the Belgian population and its economic activities can be found. This of course makes these datasets significant subjects for historical critique.

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<sup>4</sup> *Population, Recensement Général (15 octobre 1846)*, Brussel, 1850.

<sup>5</sup> *Population, Recensement Général (31 décembre 1866)*, Brussel, 1870.

<sup>6</sup> *L'industrie en Belgique. Exposé d'après le recensement de 1880 de l'état des principales industries*, Brussel, 1887.

<sup>7</sup> *Recensement Général des Industries et des Métiers (31 octobre 1896)*, Brussel, 1900.

Among the reasons the censuses of 1910 and 1930 are especially noteworthy is the fact that the *population census* and the *industrial and commercial census* were held again at the same moment. During the pre World War II period, there was also another population census in 1920 that was not accompanied by an industrial census. The same goes for the industrial census of 1937, which did not coincide with a population census. It was not the first time that these types of censuses coincided in the Belgian history (Hannes, 1975, 5-7). New however, was the way the organisation of the censuses was carried out. The new methodology that arose, rather coincidentally did actually lead to a closer tie between the different censuses.

Originally the *industrial and commercial census* from 1910 was planned to be held in 1911. But since it was better for the purpose of comparison and control to organise the *industrial and commercial census* together with the *population census* that was scheduled for the end of 1910, the organisation of the first one was hastened. Because of time constraints a new and easy adoptable system was proposed linking the two censuses further together and thus enabling the exercise of the *industrial and commercial census* without many foregoing preparations.

The *population census of 1910* had its own kind of *occupational survey* in which people had to declare what their occupation was and classify this occupation among a limited number of available economic sectors. The new system implied that when the forms of the *population census* were collected, new forms belonging to the *industrial and commercial census* were handed out to those mentioning an industrial or commercial occupation in this occupational survey.<sup>8</sup>

Different forms were handed out depending on whether people described themselves as being an employer or employee. Questions that were asked to the employee and employer concerning the description of their occupation gave way to the *occupational survey* that was part of the *industrial and commercial census* whereas the form that was given only to the employers also contained questions on the number of firms they controlled and how many persons they employed. This information was subsequently reported in the *industrial survey* in the strict sense.

Although the two censuses were held at the same time, the organisation was managed by two different agencies. The ministry of interior was responsible for the *population census* while the *industrial and commercial census* was

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<sup>8</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 17.

organised by the ministry of labour. There is no mention though of this causing problems or making the censuses less reliable.

The methodology of the censuses of 1930 is comparable with the one used in 1910. The different surveys were also held at the same time and the division of tasks between the responsible ministries was similar. In spite of those similarities the reception of the *industrial and commercial census* of 1930 was completely different to the census of 1910. This industrial census has never been published in a comprehensive way. Only in the periodical *Arbeidsblad/Revue du Travail* there were two articles published, four and five years later, giving a limited outline and some results of the census (*Arbeidsblad/Revue du Travail*, 1934, 750-803; 1935, 1353-1521).

The motives of the Belgian governmental institutions for ignoring these results are unclear, but it is known that conflicts arose between the responsible agencies (Buntinx, 2002, 7). The Ministry of Interior that had always been in charge of the organisation of the population censuses claimed that the Ministry of Labour, which had been responsible for the industrial censuses since 1910, lacked the necessary experience and competence to carry out this kind of task properly. This is of course remarkable since there was no critique before, with the same task division, in 1910. It is possible however that this conflict was the cause of the non-publishing of the *industrial and commercial census* of 1930. Maybe the Ministry of Interior was right. This makes De Brabander (1981, 1984) conclude that the *industrial and commercial census* of 1930 cannot be relied upon. Other authors appear to concur since this census is never used in historical research. Sure is that the government deemed it necessary to hold a new industrial census only a few years later, in 1937. This could mean that they considered the census of 1930 to be unreliable but there are also other possibilities. Maybe the rapidly changing economic conditions due to the economic depression of the 1930s led to this decision.

These developments could also have been the reason why the results of the *industrial and commercial census* of 1930 were never published in a comprehensive way. It takes time to collect, process and summarise the raw data of these censuses. Hence by the time this was finished, conditions had changed dramatically, strongly diminishing the utility of publication of these data, which had probably become increasingly irrelevant.

Another impact of the crisis had to do with the government budget. Although there is no positive evidence to support the idea, it is not impossible either that the census was never published because of a budget cut.

In any case, in 1934, at the time of the publication of partial results of the census in *Arbeidsblad/Revue du Travail*, there were still plans to bring out the entire census (*Arbeidsblad/Revue du Travail*, 1934, 751). Baudhuin (1934, 57-58; 1944, 358-359), who was at the time very well acquainted with the Belgian political and industrial elite, strongly emphasised this possibility several times. It was not the first time either in the 1930s that surveys or statistical information were not published, or only very belated, due to financial constraints (Baudhuin, 1934, 57-58). He furthermore lamented the deficient financial resources that were dedicated to the proper publishing of statistical material in the interwar years, blaming even some of the country's alleged misgovernment during this period to this deficiency (Baudhuin, 1944, 359). The strong emphasis of the well-informed Baudhuin on this explanation increases the importance that can be attached to this option. Therefore it seems to be premature to conclude that the census is unfit for historical research.

### 3. THE METHODOLOGY OF THE CENSUSES OF 1910 AND 1930

So for both 1910 and 1930 there are three different relevant datasets dealing with the same industrial structure in Belgium, which makes them eligible for comparison although their methodology and count basis is not entirely the same.

The first one was the population survey set within the framework of the *population census*. This was an occupational survey that gathered information on the Belgian industrial structure through the determination of the *occupation* of each active inhabitant of Belgium. As a part of the *population census*, its chief purpose was a social one.<sup>9</sup> The fashion in which the questionnaire was formulated also pointed in this direction, and the goal was clearly articulated in the added introduction (*Centrale dienst voor de statistiek*, 1934-1938, 9). The population had to be classified according to the

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<sup>9</sup> Out of convenience the occupational survey of the population census will from now on be referred to as *population survey* whereas the occupational survey and the industrial survey of the industrial and commercial census will be called *occupational survey* and *industrial survey*.

occupation they had and not according to the industrial or commercial sector they belonged to. The population survey contained a classification where the registered occupations were divided in many categories. The survey of 1910 has 21 categories relevant for the food industry, against 28 for the survey of 1930. Only when their occupation could not be clearly characterised, individuals would be classified among the industry where they were working.

To distinguish in social situation within the occupational categories people had to clarify whether they were *employer*, *employee* (white-collar worker) or *worker* (blue-collar worker). As employers, those who worked on their own account with their own equipment were counted, whether or not they employed other people. Employees and workers were salaried collaborators. The distinction between them was made by the involvement of manual labour in their task.<sup>10</sup> There was a special category, under the label of *helpers*, for family members who helped the family head with his occupation on a regular basis. They had to be without further occupation and should not be remunerated.<sup>11</sup> People who were currently inactive had to answer 'none' to the question about their occupation.

Since the population survey was part of the population census and because of the social focus of the survey, people were counted according to their place of residence and not based on the work location. So people living in Belgium but working abroad were part of the survey whereas people working in Belgium but residing abroad were not.

As mentioned before, the *industrial and commercial census* had two distinct surveys. This enabled some internal control, and complied with the demands the laws organising the censuses had stated (Kirca & Van Damme, 1995, 5).<sup>12</sup> The census had a double goal: to collect statistics on the occupation of all people residing in Belgium, working in the industry or commerce, and on the nature and size of the performed industrial and commercial activities in Belgium (*Arbeidsblad/Revue du Travail*, 1934, 750-751).

The occupational survey, which served the first goal, was part of the industrial and commercial census and proceeded mainly from the forms that were filled out by those people who described themselves as being employed in the industry or commerce. Those forms were divided into three parts, one

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<sup>10</sup> *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 18.

<sup>11</sup> *Population, Recensement Général (31 décembre 1910)*, Brussel, 1916, p. 5.

<sup>12</sup> Laws of December 14, 1910 and December 12, 1930.

of which had to be filled out by the respondent depending on his employment condition. This was done to tackle the difference between the domestic industry and the regular industry. The first part was meant for respondents working at the production plant of their employers. The second part was for workers who worked at home. The third part had to be filled out by workers who were employed at home by another worker.

All three had to specify their occupation, and declare whether they were currently employed or unemployed.<sup>13</sup> They also had to tell which employer or worker they were working for, and the workers in the domestic industry furthermore had to specify the address where they carried out their occupation. The results were ordered according to place of residence of the respondents on a municipal level. Since it was considered impossible to reproduce all respondents by their exact occupation, they were compiled in 38 different sectors belonging to industry and commerce, where the food industry counted as one group (*Arbeidsblad/Revue du Travail*, 1934, 752).

The industrial survey was held to attain the second goal the government had stated for the industrial and commercial census. The primary purpose of this survey was to provide an estimate for the industrial and commercial structure in Belgium by means of a count of the actual number of production plants, their machinery, and the commercial businesses. To offer an approximation of their size, there was also a count of the number of people employed in these plants or businesses.

This survey was executed through the responses received on the forms that were handed out to the people in the population survey describing themselves as employers in an industrial or commercial sector. This also means the same definition holds for employer as in the population survey.

The forms that were given to the employers were drawn up differently than the ones of the occupational surveys, since their goal was not so much a social as an economic one. The employers were asked to convey in which industry or commerce they were active, or which occupation they exercised, and whether their company was active at the moment. The subcategories to which the activities could be assigned, were more specified than in the population survey. In the industrial survey of 1910 the 'food industry' sector consisted of 64 relevant subsectors. In 1930 there were 65.

The respondents were questioned on the whereabouts of the company and their possible plants. To measure the amount of mechanisation they

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<sup>13.</sup> *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 24.



furthermore had to specify whether their business made use of motorised power, and how much horsepower this amounted to.

Finally they had to give information on the number of family helpers, employees and workers they employed. The definitions for these categories were again similar to those in the population survey.

From this method stems the fact that the employed people in the industrial survey were geographically organised according to their place of work, the address of the plant they had given, and not their residence. This implied that foreigners, working in the Belgian industry or commerce were included in the survey, whereas Belgians working abroad were not. This made sense because the purpose of the survey was to measure industrial and commercial activity in Belgium regardless of the origin of the people involved.

#### 4. COMPARISON OF THE CENSUSES IN 1910 AND 1930

If one would want to compare the different censuses measuring occupation and employment to test them on their reliability, the comparison between the occupational survey and the industrial survey of the industrial and commercial census would, at first thought, appear to be most suited for the censuses of 1910 and 1930. All three censuses were held more or less at the same moment, but the two surveys of the industrial and commercial census were carried out by the same institution, the Ministry of Labour. Therefore, their method of execution was similar, and they should theoretically be closer correlated to each other.

Unfortunately the data the occupational survey has to offer is relatively limited for our research. On the matter of professional specialisation the occupational survey released no data more specific than the large industrial or commercial sector. The entire food industry counted as one sector. Besides, it is not entirely clear which subsectors exactly made up the category 'food industry'. We can only assume that they are more or less similar as the ones of the industrial survey. Thus the only comparison we are able to make is situated on the sector level.

The comparison of the occupational survey with the data of the population survey is hampered for the same reason, although this comparison would have been interesting as well since these two censuses had more or less the same social goal, and were organised among the same basis.

#### 4.1. Biases in the methodology

As has been notified before, a few general factors arising from the methodology and purpose of the different censuses skew the observations. They have to be taken into account if one would want to compare the different surveys. It might be useful to sum them up since they distort the general picture, and thus might offer possible solutions for the observed differences between the surveys (Table 1).

The aforementioned difference in the used geographical entity, where the occupational survey and the population survey use residence and the industrial survey uses the site of the production plant, is an important factor contributing to deviations in the results, especially on the municipal or provincial level. Since we use data for Belgium on aggregated level this bias is decreased considerably. Only cross-border workers will influence the results. Belgian residents working abroad were not counted in the industrial survey whereas foreigners working in Belgian production plants were not registered in the occupational survey or population survey. Since this cross-border workers are not very important in the food industry, this should not have had much of an influence on the data.<sup>14</sup>

There might be some variation in the definition of industrial sectors and branches. Branches might be grouped differently, which would complicate proper comparison between the surveys. There definitely is a divergence in the way people are registered along the different branches, since people in the industrial survey are grouped by the industry they are employed in whereas in the occupational surveys they are classified according to their occupation. This means for example that a carpenter in a large sugar factory would have been classified in the sector 'wood and furniture' in the occupational surveys, while in the industrial survey he will be found in the sector 'food industry'. Obviously this difference could have a large effect on the eventual outcomes of the censuses, mostly depending on the nature and the size of the sector involved.

However, when an occupation was not defined clearly enough it was also in the occupational surveys classified under the same sector the individual

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<sup>14</sup> The occupational survey of 1910 stated for example that of the Belgian population 3,749 people were active in the food industry abroad. There are no comparable figures on the number of foreigners working in Belgium in the industrial survey, however it seems not unreasonable to assume comparable numbers, cancelling each other out to a large extent.

was active in. This implies that a truck driver for a brewery was classified under the sector 'brewing industry' in both the occupational and industrial surveys (*Centrale dienst voor de statistiek*, 1934-1938, 9). Naturally this left considerable space for discretion.

Since the occupational survey classifies people on the basis of the occupation they mention, it is very well possible that unemployed people counted in the occupational surveys still filled out their former occupation on the form. Although there was a special classification meant for inactive people with regard to their occupation (declaring 'none' to the question about their occupation), it is quite likely the unemployed would rather have been classified under their normal occupation. This would make them show up as employed in the statistics of the occupational survey or population survey while they would remain absent in the industrial survey. When this is true the results of the occupational surveys should display an upward bias compared to the industrial survey.

There was however also a measurement of unemployment in the industrial survey in 1930, where the unemployed were classified separately from the rest of the survey, but the notion of 'unemployment' was different. The unemployed that showed up in the industrial survey were those that worked in a company that was registered by their employer as inactive. Since this section probably included only those companies that were only recently or temporarily inactive, this would lead to an underestimation of unemployment in this survey.

Another possible deviation that tends to lower the industrial survey compared to the occupational survey, is the fact that employers might give up a lower number of active workers in their company for fear these numbers would be used for tax purposes.<sup>15</sup> De Brabander (1984, 69) considers this unlikely, stating that because of the declined importance of the taxes resulting from the patent law, there was no incentive for employers to give up a lower number of workers. Yet it should not be excluded that employers still had the reflex to underestimate the active workers in their plants for fear of higher taxation. The industrial and commercial census of 1910 explicitly mentions this tax motive in its introduction.<sup>16</sup> Therefore the authorities tried to assemble the

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<sup>15</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 77.

<sup>16</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 77.

results of the industrial and occupational survey of the same industrial plants in order to compare them and get rid of this bias.

Some weaknesses of the industrial census that were admitted by the organising ministry had to do with inaccuracies within the census.<sup>17</sup> Certain employers that could be found on the forms of the occupational survey, which was filled out by employees, did not have corresponding forms in the industrial census and thus appear to be excluded from it.

Moreover there were certain production plants that could have been double-counted in the industrial survey, since multiple persons within the firm reckoned they had to provide the information on the firm.<sup>18</sup> However by means of the information that was gathered through the occupational survey most of these weaknesses could be corrected.

On the other hand, multiple job holding could distort the picture since these workers might show up on several sectors in the industrial survey, while they were only counted once in the population survey. For the employers there was the problem of multiple firm holding leading to the same consequences.

Furthermore, because of the used methodology the civil servants of the Ministry of Labour, responsible for the industrial and commercial census, were not able to make use of the corrections that were made later on in the employment figures of the population survey.<sup>19</sup>

Concerning the disaggregation of the data (employer, employee, worker) it should be noted that in the population survey and the occupational survey, the employees were able to complete their own forms, whereas in the industrial survey, the distinction was made by their employer (Peeters, Goosens & Buyst, 2005, 69). It is not inconceivable either that the picture has been distorted by an underestimation of women labour. Women were traditionally highly present in the domestic labour segment, but in factories there was an overrepresentation of men (Bracke, 1996, 200). The occupational survey that has special attention for domestic labour shall have registered this type of employment better than the industrial survey where employment was registered by the employer.

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<sup>17</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 77.

<sup>18</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 77.

<sup>19</sup>. *Recensement de l'industrie et du commerce (31 décembre 1910)*, Brussel, 1913-1921, p. 246.

Seasonal labour and other matters of timing might have affected the data as well. People who were active in seasonal activities might have given up different occupational titles in the population and occupational surveys and might or might not have been counted by the employer in the industrial survey. The censuses of 1910 and 1930 were held in wintertime, at the end of December, when some seasonal activities were on hold, or people had temporarily switched to other activities. In the food industry there were some sectors such as canned foods, the sugar industry, or chicory preparation, but also the large brewing industry that had important seasonal components. Also, because many seasonal labourers worked in various industrial plants in winter, they were difficult to be assigned, especially when the population survey was concerned. Sometimes they appeared in this survey as 'unspecified', although in theory they had to be assigned to the occupation they devoted most of their time to. We should however note that because of the methodology of the censuses of 1910 and 1930, there was no real time gap between the different censuses, still enabling misrepresentations of the actual situation, but limiting the possibility of confusion between the different surveys due to timing differences.

Criterion	Population Census	Industrial and Commercial Census	
	Population Survey	Occupational Survey	Industrial Survey
<b>Geographical Entity</b>	residence of workers	residence of workers	company location
<b>Cross-Border Workers</b>	foreigners working in Belgium not included	foreigners working in Belgium not included	foreigners working in Belgium included
	Belgians working abroad included	Belgians working abroad included	Belgians working abroad not included
<b>Classification</b>	occupation	occupation	industrial sector
<b>Specification</b>	per subsector (moderately detailed)	per sector	per subsector (detailed)
<b>Unemployment</b>	unemployed mostly included in survey	unemployed mostly included but also separately registered	unemployed not included/ separately registered

TABLE 1: METHODOLOGICAL DIFFERENCES WITHIN THE CENSUSES

Finally, sometimes plain miscalculations were made during the processing of the results. In a few sectors, the different categories do not seem to add up completely and a difference can be found between the reported 'total' and the sum of the reported categories. These differences however were scarce, and remained limited.

#### 4.2. Comparison on aggregate level

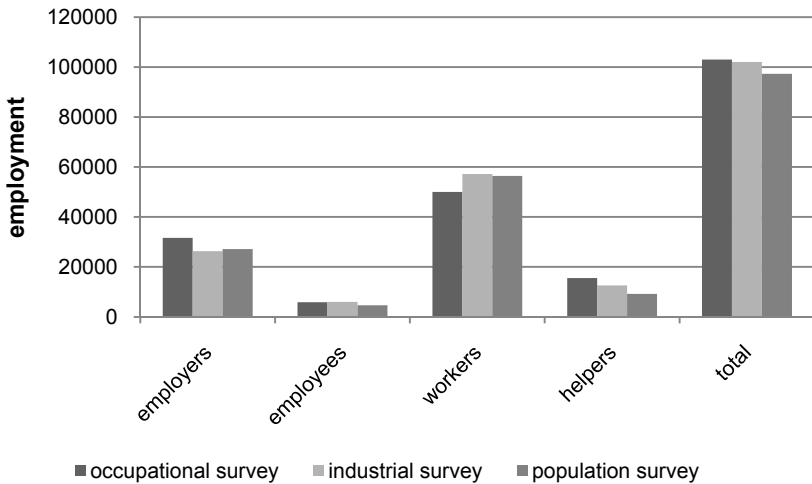
Still it would be useful to make the comparison between the three datasets on an aggregate level to see in which manner they vary in total number and in relative share between the used categories. To measure the deviations of the censuses we took the industrial survey as a benchmark.

<b>Food Industry 1910</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	31,602	5,861	49,987	15,535	102,985
Industrial survey	26,328	5,997	57,205	12,573	102,071
Population survey	27,135	4,627	56,395	9,172	97,329
Occupational survey	120.03%	97.73%	87.38%	123.56%	100.90%
Industrial survey	100.00%	100.00%	100.00%	100.00%	100.00%
Population survey	103.07%	77.16%	98.58%	72.95%	95.35%
Occupational survey	30.69%	5.69%	48.54%	15.08%	100.00%
Industrial survey	25.79%	5.88%	56.04%	12.32%	100.00%
Population survey	27.88%	4.75%	57.94%	9.42%	100.00%

TABLE 2: AGGREGATE COMPARISON EMPLOYMENT IN THE FOOD INDUSTRY, 1910

The comparison in Table 2 of the three different surveys on an aggregate level for 1910, gives us some fairly comparable results. The relative size of the different categories is more or less preserved. We could normally have expected some differences given the different basis on which the censuses were executed and the different goals of the surveys. Oddly though, the two occupational surveys, having more or less the same goal and count basis, diverge in a different way from the industrial survey as benchmark. The differences in the categories compensate each other to some extent so that the aggregates do not diverge too much. The rather large difference in the 'helpers' category is explainable because of the vague way the definition of

that category was formulated.<sup>20</sup> In 1930 this category would be treated more strictly to avoid these problems (Baudhuin, 1934, 59). The differences found in the other categories though seem to be more problematic.



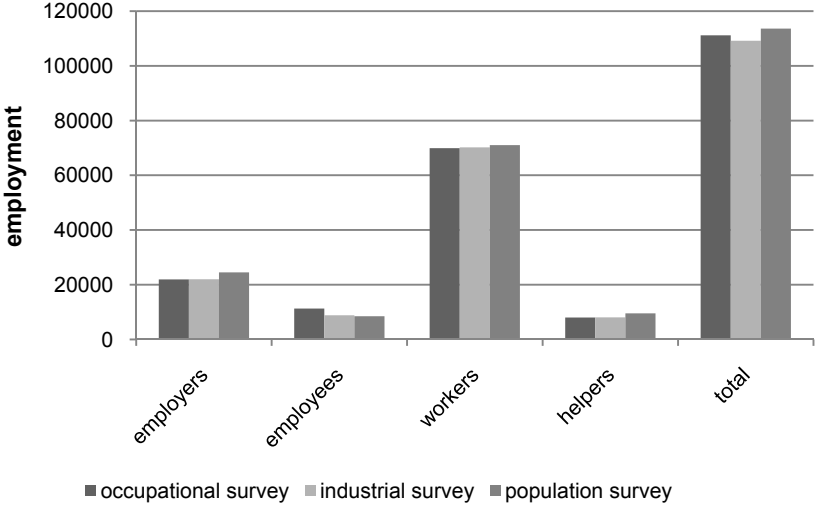
GRAPH 1: AGGREGATE EMPLOYMENT IN THE FOOD INDUSTRY BY SURVEY, 1910

Food Industry 1930	Employers	Employees	Workers	Helpers	Total
Occupational survey	21,936	11,283	69,914	8,029	111,162
Industrial survey	21,990	8,852	70,230	8,056	109,140
Population survey	24,530	8,480	71,019	9,564	113,593
Occupational survey	99.75%	127.46%	99.55%	99.66%	101.85%
Industrial survey	100.00%	100.00%	100.00%	100.00%	100.00%
Population survey	111.55%	95.80%	101.12%	118.72%	104.08%
Occupational survey	19.73%	10.15%	62.89%	7.22%	100.00%
Industrial survey	20.15%	8.11%	64.35%	7.38%	100.00%
Population survey	21.59%	7.47%	62.52%	8.42%	100.00%

TABLE 3: AGGREGATE COMPARISON OF EMPLOYMENT IN THE FOOD INDUSTRY BY SURVEY, 1930

<sup>20</sup> Especially the notion of the helper assisting the family head on a *regular* basis can lead to various interpretations on the necessary regularity.

The relative shares of the occupational categories in the different censuses of 1930 are preserved pretty well as can be noted in Table 3. Furthermore, the results of the occupational survey and the industrial survey of the industrial and commercial census are actually quite similar, except for the number of employees, which were a relatively unimportant category in the food industry during the Interwar Years. The population survey deviates somewhat from the other two and shows a higher overall number. In 1930, as in 1910, the two occupational surveys diverge in different ways from the industrial survey.



GRAPH 2: AGGREGATED EMPLOYMENT IN THE FOOD INDUSTRY BY SURVEY, 1930

Since the censuses had a different way to deal with unemployment, the industrial survey could have a tendency to show lower results than the other surveys. But because unemployment is registered in the industrial and commercial census we were still able to make a correction for it. Since for 1910 no unemployment numbers are published in the industrial survey, and because these numbers from the census of 1930 probably underestimate the real unemployment, we use the numbers that were given by the occupational survey. However, since unemployment in the food industry was relatively low, the results were not fundamentally different (cf. Appendix 1).



Both in 1910 and 1930, the occupational surveys show a somewhat closer correlation to the industrial survey than does the population survey. But, since no further subsectors are available for the occupational survey we will have to limit ourselves to the population survey and the industrial survey for further comparison.

To gather more of a statistical insight in the relationship between these two censuses we performed a Chi<sup>2</sup> test. Because the total observations do not add up, the relative subsectors were converted to their percentage of the aggregate total, and on these percentages the Chi<sup>2</sup> test was performed (cf. Appendix 3). The resulting p values for both censuses of 1910 and 1930 approximated 1, which suggests that the null hypothesis, stating that the datasets were made up out of different populations and behaved independently, should be rejected. This may imply that it could well be too quick to discard these datasets as entirely unreliable as was done with the industrial and commercial census of 1930. Furthermore it is clear that, concerning the food industry, the censuses of 1930 – at least at an aggregate level – did not perform worse than those of 1910.

#### 4.3. Comparison on a subsector level

To compare the censuses on the area of their different subsectors there are other matters complicating the exercise. In contrast to the occupational survey, the sector 'food industry' consists in both datasets of various branches, which unfortunately do not concur completely. To enable some comparison, the more detailed subsectors of the industrial survey had to be converted to match the less specific subsectors of the population survey. Therefore a concordance table, where the various subsectors were matched to the best of knowledge, was drawn up for the two censuses (cf. Appendix 2). This leaves room for interpretation since some subsectors of the industrial survey had no counterparts or were not easily classifiable, leaving no choice but to place them among the catch-all category 'other special food industry' that was found in the population surveys of 1910 and 1930. Hence this might contribute to an extra bias concerning the subsectors in the datasets since misplacements of some branches, due to the arbitrary nature of the task, cannot entirely be excluded. Most of the subsectors though allowed a pretty straightforward classification.

If one takes a look at the disaggregated numbers in the food industry a clear peculiarity can be noticed immediately. The fact that, besides a few notable exceptions, the data of the industrial survey at the subsector level seem to outpace those of the population survey is very pronounced for the census of 1910 and to a somewhat lesser extent for the census of 1930 (cf. Appendix 4). The extent of the difference seems to vary quite a bit along the various subsectors, but the tendency is unmistakable. This effect would of course even have been strengthened if unemployed people would have been included in the industrial survey, as was done in the population survey. This seems to contradict the statement of De Brabander (1984) that the population survey tends to overestimate industrial employment, at least as the food industry is concerned.

With regard to the differences in the censuses concerning industry and occupation, this could imply that there were a lot of people employed in the food industry with an occupation that was not directly related to the industrial act of food processing. The deviation being highest, both at an absolute and relative basis, at the level of the workers gives some tentative confirmation to this possibility. However, if this would have been the cause of the bias in these datasets, sectors with high average company size would naturally exhibit a larger bias than those with a small average size. Bigger companies tend to have more employees that are not directly related to the prime production process. This explanation however is not conclusively demonstrated by the data. No significant difference can be found between the large-scale and small-scale subsectors that holds over all different datasets. Some small scale branches such as flour production seem to exhibit a considerable difference, whereas the deviation is even reversed in some large-scale subsectors, such as sugar refineries or canned food in 1930. The fact that the population survey only registered the respondents' principal occupation may also have had an influence on results. People working in the food industry as a by-employment would sometimes have been reflected in the industrial survey, but they might not show up in the population survey.

There were however a few important branches in the food industry that defied the general tendency of the industrial survey showing higher results than the population survey. The category of 'other special food industries' is a more problematic sector where some errors could be expected because of its function as a 'catch-all' category. Besides this category the sub-sectors that encompassed bread making and baking on the one hand and butcheries on the other hand showed considerable reversed deviations compared to the rest of

the censuses. These deviations were present in the censuses of both 1910 and 1930 and were from that order that they compensate the higher results of the industrial survey on a subsector level on the aggregate level. The deviations being so large and persistent rule out the possibility of a coincidence. It is no coincidence either that these were the two sectors that were closest connected to the distribution sector. Often it was difficult to determine whether a bakery or butchery did indeed perform an industrial activity or whether they were only really active in the distribution sector. The population survey that registered people according to their occupation could less easily make this distinction than the industrial survey that operated with the industrial or commercial unit as the basis of the survey.

In the canned and preserved food sector in 1910 and 1930 as well as in the categories belonging to the sugar industry in 1930 the same deviations, albeit to a smaller extent, were found. In these categories confusion with the distribution sector cannot have influenced the results. However these were two sectors that used a lot of seasonal employment. In the population survey of 1910, problems with these sectors, concerning seasonal labour were already noted.<sup>21</sup> It is very well possible that people gave up an occupation in one of these sectors as their main occupation in the population survey, but were due to the seasonal nature of their job, not working in the industry at the time the industrial survey was carried out, thus not always showing up in those figures.

## 5. CONCLUSION

Both in the censuses of 1910 and 1930 the aggregate results of the three surveys appear to be relatively closely correlated to each other. The occupational survey of the industrial and commercial census is unfortunately not very detailed which decreases its utility for research on a sector level. The relative shares of the different subsectors of the population survey and the industrial survey seem to concur pretty good though. The Chi<sup>2</sup> tests suggest that the different surveys measure more or less the same population and are quite equally distributed.

It is by no means clear that the censuses of 1910 that were seen as reliable perform better than those of 1930, neither on the aggregate nor on the

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<sup>21</sup>. *Population, Recensement Général (31 décembre 1910)*, Brussel, 1916, p. 243.

subsector level. Furthermore the existing deviations in these subsector levels show more or less the same pattern. Therefore there is probably no reason to discard the industrial and commercial census of 1930 completely, at least as the food industry is concerned, while at the same time holding on to the censuses of 1910.

The deviations of the industrial survey compared to the population survey are considerable if one intends to study the different subsectors on a micro level. Still, these deviations show a twofold pattern. Partly they are erratic, which is sometimes explainable due to seasonal employment or confusion with the distribution sector, sometimes their nature is less clear. But on the other hand there is also the systematic difference of the industrial survey showing a tendency towards higher results than the population survey. Whatever reason might cause this tendency, its presence can be found both in 1910 and 1930. This trend rejects the thesis of De Brabander that the population survey tends to overestimate industrial employment, at least as far as the food industry is concerned. Since the relative shares of the different subsectors seem to hold among the different surveys and since there appears to be a systematic component to the observed differences, there might be a possibility to take these differences into account. Therefore if one intends to study the data on a more aggregate level or as a measurement of the composition of the industrial sector, the industrial censuses of 1910 and 1930 as well as the population censuses might after all be very valuable sources indeed.

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## ABBREVIATIONS

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ARA                      Algemeen Rijksarchief

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APPENDICES

APPENDIX 1: AGGREGATE COMPARISON CORRECTED FOR UNEMPLOYMENT

<b>Food Industry 1910</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	31,602	5,861	49,987	15,535	102,985
Industrial survey	26,328	6,102	59,913	12,573	104,916
Population survey	27,135	4,627	56,395	9,172	97,329
<b>Food Industry 1910</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	120.03%	96.05%	83.43%	123.56%	98.16%
Industrial survey	100.00%	100.00%	100.00%	100.00%	100.00%
Population survey	103.07%	75.83%	94.13%	72.95%	92.77%
<b>Food Industry 1910</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	30.69%	5.69%	48.54%	15.08%	100.00%
Industrial survey	25.09%	5.82%	57.11%	11.98%	100.00%
Population survey	27.88%	4.75%	57.94%	9.42%	100.00%

<b>Food Industry 1930</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	21,936	11,283	69,914	8,029	111,162
Industrial survey	21,990	9,505	71,042	8,056	110,593
Population survey	24,530	8,480	71,019	9,564	113,593
<b>Food Industry 1930</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	99.75%	118.71%	98.41%	99.66%	100.51%
Industrial survey	100.00%	100.00%	100.00%	100.00%	100.00%
Population survey	111.55%	89.22%	99.97%	118.72%	102.71%
<b>Food Industry 1930</b>	<b>Employers</b>	<b>Employees</b>	<b>Workers</b>	<b>Helpers</b>	<b>Total</b>
Occupational survey	19.73%	10.15%	62.89%	7.22%	100.00%
Industrial survey	19.88%	8.59%	64.24%	7.28%	100.00%
Population survey	21.59%	7.47%	62.52%	8.42%	100.00%

APPENDIX 2: CONCORDANCE TABLES

<b>Population Survey 1910</b>	<b>Industrial Survey 1910</b>
flour production	mechanical flailing pea flour flour production rice flour industrial mills mechanical mills naturally powered grain assorting grain drying
bakeries	bakeries industrial bakeries bakeries-patisseries confectioneries patisseries fabrication of small bakery products
sugar production	sugar factories beet sugar shredderies
sugar refineries	candy factories sugar refineries
canned/preserved food (fruit, vegetables)	preserved food
canned/preserved food (meat)	meat extracts
canned/preserved food (fish)	smoked fish canned fish/sardines
breweries/maltries	breweries breweries maltries Maltries yeast
distilleries	industrial distilleries of alcohol and gin distilleries of liqueur second distillation of alcohol
mineral water, fruit beverages, wine tappers	drinking water sparkling water, lemonades mineral waters honey beer sparkling wine wine tappers
butcherries, abattoirs	butcherries abattoirs preparation of horse meat
chicory preparation, coffee preparation	chicory preparation, chicory drying coffee preparation

cocoa preparation, production of chocolate	chocolate production candy production
ice fabrication	fabrication of artificial ice
margarine production	margarine production
mustard production	mustard production
pasta production	pasta production
rice preparation	rice peeling factories
salt refineries	salt refineries
vinegar production	vinegar production
other special food industries	milk powder maternised milk industrial steam creameries mechanical creameries biscuit fabrication cheese production production of flax and mustard seed production of food fats preparation of brewery corn production of grinded animal feed fabrication of coughing drops pepper production egg products liquorice production fabrication of linseed biscuits jam and syrup production

<b>Population Survey 1930</b>	<b>Industrial Survey 1930</b>
mechanical flailing and assorting of grain	mechanical grain batteries grain drying
production of flour and starch	industrial mills non-industrial mills grain assorting companies
bakeries, confectioneries, patisseries	bakeries industrial bakeries bakeries patisseries fabrication of gingerbread patisseries confectioneries fabrication of small bakery products confectioneries confectioneries patisseries



sugar beet factories and shredderies	sugar factories shredderies
sugar refineries and candy factories	sugar refineries
canned/preserved food (vegetables and fruit)	canned food
conservation and preparation of meat	meat broth canned/preserved meat
preparation of fish	smoked fish preserved sardines
drinking water services	drinking water water under pressure
production of malt and beer	breweries breweries malteries malteries beer tappers yeast production
distillation of alcohol, liqueur	distilleries of alcohol distilleries of spirituous beverages second distillation of alcohol
production of mineral water	mineral water cider sparkling water and lemonade sparkling wines wine tappers honey beer
mechanical creameries	mechanical creameries
steam creameries	steam creameries
factories of milk powder	milk farms milk powder
factories of maternised and pasteurised milk	maternised milk
cheese industry	production of cheese
abattoirs and butcheries	abattoirs and butcheries
industrial drying of chicory	industrial drying ovens for chicory
roasting and grinding of chicory	chicory factories
treatment of cocoa, production of chocolate	production of chocolate
production of artificial ice	production of artificial ice
production of margarine and coconut butter	production of margarine
production of mustard	production of mustard
peeling and gleaming of rice	rice peeling
salt production	salt refineries
vinegar production	vinegar production

other special food industries	production of jam and syrup mills for linseed production of feed for cattle roasting and grinding of cocoa production of corn for breweries production of biscuits fabrication of coughing drops fabrication of condensed feed pepper production agrarian products for feed production of liquorice feed of linseed
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APPENDIX 3: CHI<sup>2</sup> TESTS

1910	Industrial Survey		Population Survey		Chi <sup>2</sup>
flour production	12,924	12.7%	9,722	10.0%	0.0072
bakeries	31,751	31.1%	36,450	37.5%	0.0107
sugar production	5,609	5.5%	3,897	4.0%	0.0056
sugar refineries	1,721	1.7%	1,321	1.4%	0.0008
canned/preserved food (fruit vegetables)	1,015	1.0%	835	0.9%	0.0002
canned/preserved food (meat)	266	0.3%	352	0.4%	0.0003
canned/preserved food (fish)	852	0.8%	343	0.4%	0.0066
breweries/maltries	24,242	23.8%	22,332	22.9%	0.0003
distilleries	4,139	4.1%	2,698	2.8%	0.0059
mineral water/fruit beverages/wine tappers	2,213	2.2%	1,655	1.7%	0.0013
butcheries/abattoirs	2,610	2.6%	10,155	10.4%	0.0595
chicory preparation/coffee preparation	2,565	2.5%	1,092	1.1%	0.0172
cocoa preparation/production of chocolate	4,477	4.4%	2,676	2.8%	0.0097
ice fabrication	364	0.4%	266	0.3%	0.0003
margarine production	622	0.6%	414	0.4%	0.0008
mustard production	227	0.2%	220	0.2%	0.0000
pasta production	211	0.2%	174	0.2%	0.0000
rice preparation	94	0.1%	99	0.1%	0.0000
salt refineries	290	0.3%	169	0.2%	0.0007
vinegar production	233	0.2%	150	0.2%	0.0004
other special food industries	5,646	5.5%	2,309	2.4%	0.0421

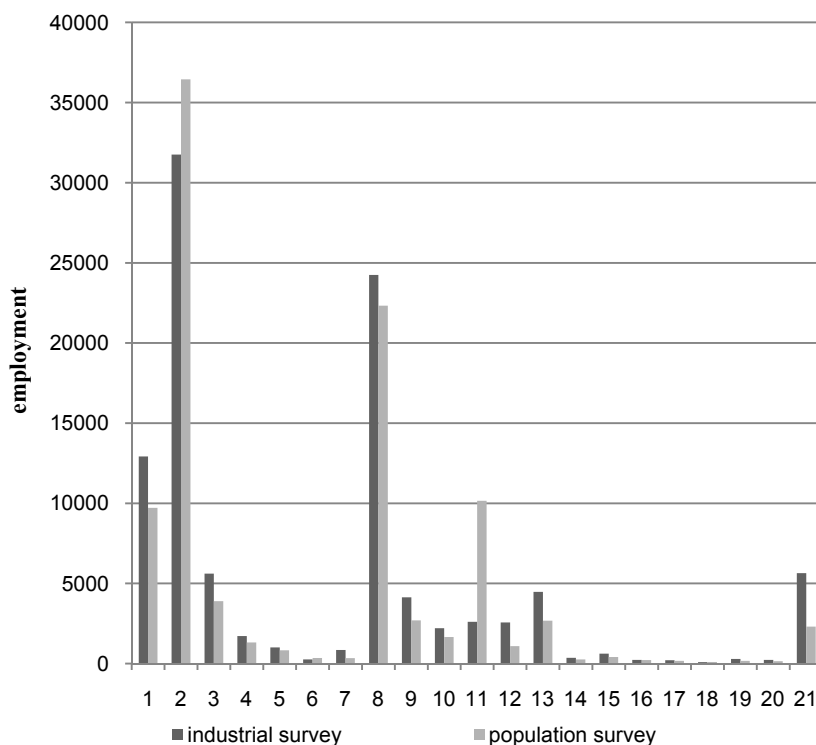
Note:  $\chi^2 = 0.169537$ ; p-value = 1

1930	Industrial Survey		Population Survey		Chi <sup>2</sup>
mechanical flailing and assorting of grain	1,743	1.6%	951	0.8%	0.0067
production of flour and starch	10,057	9.2%	9,229	8.2%	0.0013
bakeries/confectioneries/patisseries	34,709	31.8%	39,031	34.6%	0.0022
sugar beet factories and shredderies	2,700	2.5%	3,818	3.4%	0.0024
sugar refineries and candy factories	3,611	3.3%	4,152	3.7%	0.0004
canned/preserved food (vegetables, fruit)	1,464	1.3%	2,125	1.9%	0.0016
conservation and preparation of meat	1,000	0.9%	663	0.6%	0.0018
preparation of fish	1,521	1.4%	727	0.6%	0.0087
drinking water services	462	0.4%	359	0.3%	0.0003
production of malt and beer	23,939	21.9%	23,299	20.7%	0.0008
distillation of alcohol/liqueur	3,270	3.0%	2,391	2.1%	0.0036
production of mineral water	3,242	3.0%	2,118	1.9%	0.0064
mechanical creameries	302	0.3%	392	0.4%	0.0001
steam creameries	1,996	1.8%	1,481	1.3%	0.0020
factories of milk powder	297	0.3%	217	0.2%	0.0003
factories of maternised and pasteurised milk	229	0.2%	140	0.1%	0.0006
cheese industry	263	0.2%	201	0.2%	0.0002
abattoirs and butcheries	2,096	1.9%	10,716	9.5%	0.0604
industrial drying of chicory	364	0.3%	262	0.2%	0.0004
roasting and grinding of chicory	825	0.8%	632	0.6%	0.0007
treatment of cocoa/production of chocolate	6,055	5.6%	5,881	5.2%	0.0002
production of artificial ice	711	0.7%	622	0.6%	0.0002
production of margarine and coconut butter	1,177	1.1%	1,078	1.0%	0.0002
production of mustard	187	0.2%	194	0.2%	0.0000
peeling and gleaming of rice	64	0.1%	61	0.1%	0.0000
salt production	225	0.2%	216	0.2%	0.0000
vinegar production	189	0.2%	193	0.2%	0.0000
other special food industries	6,442	5.9%	1,684	1.5%	0.1303

Note:  $\chi^2 = 0.232164$ ; p-value = 1

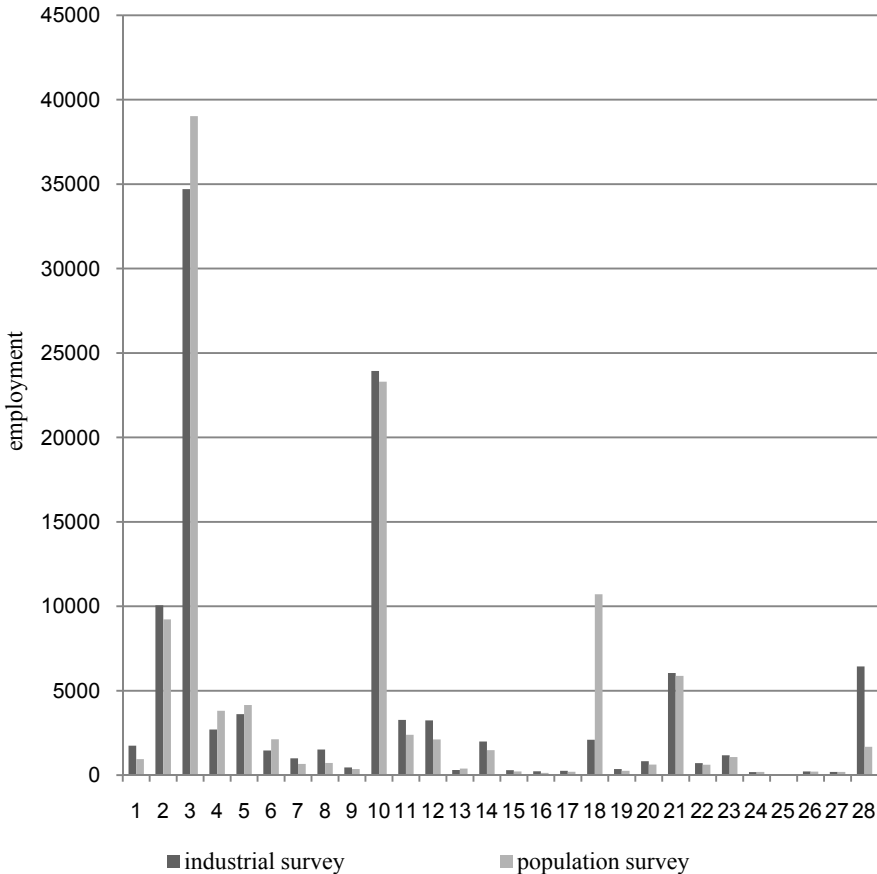
APPENDIX 4: SUBSECTORS IN THE FOOD INDUSTRY

**1910 subsectors food industry**



(1: flour production, 2: bakeries, 3: sugar production, 4: sugar refineries, 5: canned/preserved food (fruit/vegetables), 6: canned/preserved food (meat), 7: canned/preserved food (fish), 8: breweries/malteries, 9: distilleries, 10: mineral water/fruit beverages/wine tappers, 11: butcheries/abattoirs, 12: chicory preparation/coffee preparation, 13: cocoa preparation/production of chocolate, 14: ice fabrication, 15: margarine production, 16: mustard production, 17: pasta production, 18: rice preparation, 19: salt refineries, 20: vinegar production, 21: other special food industries)

### 1930 subsectors Food industry



(1: mechanical flailing and assorting of grain, 2: production of flour and starch, 3: bakeries/confectioneries/patisseries, 4: sugar beet factories and shredderies, 5: sugar refineries and candy factories, 6: canned/preserved food (fruit, vegetables), 7: conservation and preparation of meat, 8: preparation of fish, 9: drinking water services, 10: production of malt and beer, 11: distillation of alcohol/liqueur, 12: production of mineral water, 13: mechanical creameries, 14: steam creameries, 15: factories of milk powder, 16: factories of maternised and pasteurised milk, 17: cheese industry, 18: abattoirs and butcheries, 19: industrial drying of chicory, 20: roasting and grinding of chicory, 21: treatment of cocoa, production of chocolate, 22: production of artificial ice, 23: production of margarine and coconut butter, 24: production of mustard, 25: peeling and gleaming of rice, 26: salt production, 27: vinegar production, 28: other special food industries)

## **De tewerkstelling in de voedingsnijverheid meten: een vergelijking tussen de Belgische tellingen van 1910 en 1930**

PETER VAN DER HALLEN  
ERIK BUYST

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### SAMENVATTING

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Gedurende de jaren 1910 en 1930 werden drie verschillende enquêtes naar de tewerkstelling in de voedingsindustrie georganiseerd. Eén ervan werd uitgevoerd in het kader van de volkstelling, de twee andere, een beroeps- en nijverheidstelling, vonden plaats in het kader van de handels- en nijverheidstelling. De volks- en beroepstelling onderzochten de tewerkstelling vanuit sociaal oogpunt, de nijverheidstelling benaderde het onderwerp vanuit een economische invalshoek. Deze tellingen werden verschillend onthaald. Die van 1910 werden als degelijk aanzien, die van 1930 niet. Vooral de handels- en nijverheidstelling van 1930 werd als onbetrouwbaar beschouwd en werd om die reden niet uitgegeven. Daar ze verschillende doelstellingen hadden, wendden de tellers ook verschillende methoden aan, en dit zou de uiteenlopende resultaten kunnen verklaren.

Daarom wordt er in het artikel veel aandacht besteed aan de uitgangspunten van de tellers die van invloed kunnen zijn geweest op de data en het algemeen beeld. Vragen samenhangend met de werkloosheid, grensarbeid en de geografische ordening werden in de tellingen verschillend behandeld, wat de verschillende uitslagen kan verklaren. Een vergelijking tussen de tellingen gehouden in eenzelfde jaar leverde vergelijkbare resultaten op, zowel in 1910 als in 1930. Bovendien toonde een  $\chi^2$  test aan dat de enquêtes min of meer dezelfde populatie onderzochten en gelijk gespreid waren. Op het niveau van de subsectoren kan men vaststellen dat, op enkele belangrijke uitzonderingen na, de gegevens opgeleverd door de nijverheidstelling die van de volkstelling overtreffen. Belangrijke afwijkingen van die tendens zijn terug te vinden in de subsectoren 'bakkerijen' en 'beenhouwerijen'. Voor beide jaren zijn de aantallen opgegeven door de volkstellingen veel hoger dan deze van de nijverheidstellingen. Dit is waarschijnlijk toe te schrijven aan de nauwe banden die deze sectoren hadden met de distributiesector, waardoor nijverheids- en distributieactiviteiten moeilijk van elkaar kunnen worden onderscheiden. Met betrekking tot de voedingsnijverheid kan men in het

algemeen besluiten dat de tellingen van 1910, die als de meest betrouwbare werden beschouwd, niet beter waren dan die van 1930, noch op een geaggregeerd niveau, noch op het niveau van subsectoren. Bijgevolg is er geen reden om de nijverheids- en handelstelling van 1930 als volledig onbetrouwbaar af te schrijven.

### **Mesurer l'emploi dans l'industrie alimentaire: une comparaison des recensements belges de 1910 et de 1930**

PETER VAN DER HALLEN  
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#### RÉSUMÉ

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Cet article présente une évaluation des données sur l'emploi dans l'industrie alimentaire des divers recensements effectués en Belgique en 1910 et en 1930. À ces deux dates, trois enquêtes différentes, mesurant l'emploi, ont eu lieu. L'une a été effectuée dans le cadre du recensement de la population, les deux autres, une enquête industrielle et une enquête professionnelle, faisaient partie du recensement de l'industrie et du commerce. L'enquête professionnelle et celle de la population avaient comme but d'examiner l'emploi selon une perspective sociale, alors que l'enquête industrielle adoptait un point de vue économique. La réception des recensements dans ces deux années a été très différente. Alors que les recensements de 1910 avaient été généralement considérés comme fiables, ce n'était plus le cas pour les recensements de 1930. En particulier, le recensement de l'industrie et du commerce de 1930 a été jugé peu fiable et par conséquent n'a jamais été publié. Leurs buts étant différents, ces enquêtes ont appliqué des méthodes différentes et cela pourrait expliquer leurs résultats divergents.

Par conséquent, l'article accorde beaucoup d'attention aux biais éventuels dans ces enquêtes, biais qui pourraient affecter les données et le tableau général. Des questions concernant le chômage, le travail transfrontalier et la classification géographique ont été traitées différemment dans les diverses



enquêtes, ce qui pourrait expliquer en partie les variations observées dans les données. Une comparaison des enquêtes pour une même année a produit des résultats comparables, à la fois pour 1910 et 1930. En outre un test  $\chi^2$  indique que les enquêtes mesurent plus ou moins la même population et sont distribuées de façon égale. Au niveau des sous-secteurs, on peut voir que, à part quelques exceptions notables, les données de l'enquête industrielle semblent plus fiables que celles de l'enquête de population. Mais, au contraire, au niveau des sous-secteurs 'boulangeries' et 'boucheries', pour les deux années, les données de l'enquête de population sont beaucoup plus fiables que celles de l'enquête industrielle. Cela est probablement dû au fait que ces secteurs ont été les plus liés au secteur de la distribution, ce qui implique qu'il est difficile de faire une distinction exacte entre l'activité industrielle et l'activité de distribution. Généralement, on peut dire, que les recensements de 1910, qui étaient considérés comme plus fiables, ne sont pas plus performants que ceux de 1930, ni au niveau global, ni au niveau des sous-secteurs, au moins pour ce qui concerne l'industrie alimentaire. Par conséquent, il n'y a pas de raison de discréditer complètement le recensement de l'industrie et du commerce de 1930.