Subcontracting and the Creation of Inequality in the Dutch Clothing Industry
1980-1992
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Subcontracting and the Creation of Inequality in the Dutch Clothing Industry 1980-1992

Dirk H. M. Akkermans

Abstract
The paper analyzes a dual industry structure and its effects as hypothesized by segmentation theory. A dual industry structure refers to the simultaneous existence of two groups of firms within an industry which differ in terms of bargaining power and product and labor market performance: sales and job fluctuation levels should be higher in the dominated group, and job security lower. Empirical analysis of the clothing industry in the Netherlands for the period 1980-1992 confirms the hypotheses for the largest part.

JEL classifications: J42, L14, L11

Keywords
dual labor market, subcontracting, sales fluctuation, job security

Introduction
Theories of labor market segmentation state that one of the causes of segmentation is the exercise of power by dominant firms. By exerting price pressure and specifying delivery requirements from weaker firms, powerful firms are considered to create what is called a dual labor market structure, in which powerful firms are able to pay their workers high wage levels and provide job security, while their weaker counterparts are forced to pay their workers low wages and have to resort to labor flexibilization. Analyses that focus on the power relations between firms normally investigate chains, meaning a series of supplier-purchaser relations between (firms in) different industries, starting with the production of raw materials to the selling of the final product. The analyses come under different headings, for instance supply chain analysis (Christopher 1998; Lambert and Cooper 2000; Doel 1999; Schuurhuizen, Van Tilburg, and Kambewa 2006), value chain analysis (Kaplinsky and Morris 2000; Kaplinsky 2000, 2005; McCormick and Schmitz

1University of Groningen, the Netherlands

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Corresponding Author:
Dirk H.M. Akkermans, Faculty of Economics and Business, University of Groningen, P.O. Box 800, 9700 AV Groningen, the Netherlands
Email: d.h.m.akkermans@rug.nl
global commodity chain analysis (Gereffi and Korzeniewicz 1994; Gereffi 1994, 2001; Taplin 1994, 1996; Coe, Kelly, and Yeung 2007: ch. 4; Sturgeon 2000; Dicken 2007), or filière analysis (Raikes, Jensen, and Ponte 2000). They cover chains in the agro-food sector, the automobile industry, the furniture industry, and the footwear and apparel industry, amongst others (see the references).

The present contribution, however, has a different focus: instead of concentrating on between-industry relations it aims at analyzing power relations and their accompanying unequal distribution of sales fluctuation and job security within one industry by investigating the clothing industry in the Netherlands in the period 1980-1992. Generally, the literature on supply chains (this term will be used from now on) places a heavy emphasis on vertical linkages (“almost exclusively”; see Coe, Kelly, and Yeung 2007: 114; also the discussion in Sturgeon 2000). Bair and Gereffi (2001: section 2) point out that the focus of analysis shifted from horizontal to vertical relations, as the latter were deemed more important when it came to understanding and explaining poverty in developing countries (see also Schmitz 1995). Therefore, the analysis of within-industry processes has stayed relatively underdeveloped in the supply chain literature. One of the instances of a within-industry analysis can be found in the paper of Bair and Gereffi (2001; also in Schmitz 1999), when they briefly discuss the hierarchical organization of the clothing industry in Torreon into different tiers of suppliers. They state: “From the perspective of the second- and third-tier suppliers in Torreon’s assembly networks, the difference between receiving an order from a Mexican intermediary or a U.S. buyer is probably negligible” (1,896). The present paper argues that in fact the opposite is true: receiving an order from a Mexican intermediary or a U.S. buyer does make a difference, and that difference creates a specific structure within the industry.

The paper builds upon theories on labor market segmentation, in particular theories that have connected the product and labor markets with each other (e.g. Averitt 1968; Victorisz and Harrison 1973; Piore 1980a, 1980b; Hodson and Kaufman 1982; Cohen and Pfeffer 1984; Piore and Sabel 1993; Godard 1993) and have analyzed dual labor markets and provided some clues about their dynamics and results. It is related to ideas on insider-outsider relations (Lindbeck and Snower 1988) and will also use notions from supply chain analysis.

The paper is organized as follows. In section 1, three hypotheses will be developed. Section 2 discusses the data and methods used, while empirical results are the subject of section 3. Last, section 4 concludes with a discussion.

1. Subcontracting Within an Industry as Basis for a Dual Industry Structure

In almost every industry the phenomenon of “capacity subcontracting” is present: when a firm is not able to meet the requirements of delivery date or amount to be produced, firms contract a part of the order out to others. It is often meant as a temporary and onetime relief for production capacity bottlenecks. When, however, capacity subcontracting becomes a permanent feature of the strategy of some firms, the industry structure is profoundly changed: two different groups of firms arise, one with direct relations with the purchasing industry (henceforth group W) and one without (from now on group O). Figure 1 depicts the situation after this structural change, which creates a chain within an industry.

The same structural change towards the rise of a within-industry chain can also be triggered by the strategy of companies in the purchasing industry. In fact, that process is better known and has been discussed more elaborately than the previous one, probably because well-known and powerful firms in medium- and high-technology industries were involved. Companies in Western Europe and the United States introduced that strategy in the 1980s and 1990s as a reaction to the competitive pressure of Japanese firms. The firms meant here, e.g. electronics firms (for instance
Philips in the Netherlands), car manufacturers, and office machinery producers (Van der Gaag 1985; NMB Bank 1985; Altmann and Sauer (Hg.) 1989; Laurier, Graef, and Kornalijnslijper 1987; Nijsen et al. 1987) started to reduce the number of suppliers. Until that time the companies had surrounded themselves with a large number of relatively small suppliers, each of which had direct relations with its buyer. Reduction of the number of suppliers benefited purchaser firms as it entailed a vast reduction of coordination costs. In industries such as car manufacturing and electronics the reduction was accomplished by outsourcing of parts production: suppliers that were granted a “preferred” status (also known as “first-tier suppliers”) were supposed to produce parts that the subcontracting firm formerly manufactured. The policy aimed at reduction of production costs, often by reduction of wage levels. An example is Visteon, a car parts producer in the United States which used to be a part of General Motors. After a transition period of a few years, wage levels have been adjusted downwards.1 In high-technology industries, an accompanying “supplier upgrading program” aimed at familiarizing suppliers with product and process innovation, just-in-time and zero-defect delivery (see Sayer 1986). Given the fact that the number of suppliers is limited by the purchasing industry, these suppliers, as in the previous situation, receive orders for the whole industry. Again, a within-industry chain may arise when they do not produce the whole order themselves.

In short, a supplier industry structure changes in that a formerly homogeneous group of suppliers with direct relations with purchasing firms is split up into two different groups: suppliers with purchasing industry contacts on the one hand, and suppliers without contacts with the purchasing industry on the other. As a consequence, there are two arenas of competition in such an industry structure instead of one. First, the suppliers that have contacts with the purchasing industry compete with each other for orders from that purchasing industry; second, the suppliers without such contacts compete with each other for orders from the first group of suppliers.

In a between-industry chain, the standard purchaser-supplier relation holds: each party is indispensable and price competition among the group-W suppliers will predominate. In contrast, in a within-industry chain the group-O suppliers’ bargaining position towards group-W suppliers is very weak as they are principally dispensable; the group-W suppliers are able to produce the goods

themselves. Hence, competition in a within-industry chain is not only price-oriented, but also focuses on the order size, the minimum order being zero. The fact that the group-W suppliers know the market very well adds to the weakness of the position of the group-O suppliers. And as profit orientation and structural inequality in bargaining position are the necessary and often sufficient conditions for the evolution of exploitative relations, we may expect that the relationship between both groups of suppliers shows a characteristic sign of exploitation: unequal performance.

Segmentation theory states that the societal effects of such an industry structure are felt in both the product and the labor market. The theory predicts that performance of the two groups will show structural differences:

A. The dominating group-W suppliers, maximizing their own capacity utilization, will devolve the fluctuating part of sales orders (leftovers) to the other group of suppliers, which will create differences in sales fluctuation between the two groups. Hence, the following hypotheses can be formulated:

Hypothesis 1. The dominating group-W suppliers’ sales fluctuation is lower than that of group-O suppliers. The difference will be carried over to the labor market, which means that

Hypothesis 2. The dominating group-W suppliers’ job fluctuation is lower than that of group-O suppliers. Hence:

Hypothesis 3. Job security in the dominating group (group-W suppliers) will be higher than in the dominated one (group-O suppliers).2

B. Dominating group-W suppliers exert price pressure on the other group of suppliers to gain a competitive advantage vis-à-vis others in their own group. According to segmentation theory, we will again see structural differences, this time in terms of profits (group-W suppliers’ profit levels will be higher) and wages (wage levels in the dominating group will be higher).

The present paper will investigate the hypotheses on sales fluctuation and job security (heading A). The first two hypotheses—1 and 2—will be put to a more rigorous test; due to data availability the third one will only be discussed.

2. Data and Methods

The empirical analysis will focus upon the chain within the clothing industry in the Netherlands in the period 1973 (or 1980; see below) to 1992. The data were collected by Statistics Netherlands (in Dutch: the Central Bureau of Statistics in the Netherlands, CBS), which classified the “manufacture of clothing” (= dominating group, group-W) and the “manufacture of clothing on contract” (= dominated group, group-O) as two separate 3-digit industry categories in the period running from 1973 to 1993; to my knowledge, the only country that makes this distinction.

Both industries therefore meet the requirement Hodson and Kaufman (1982: 728) emphasized for the dual economy model: a dependency relation. They form a within-industry chain with the clothing industry in the role of the group that has contacts with the purchasing industry, the clothing retail sector. Economic ties between both industries are close: “Clothing firms that work on-contract produce almost exclusively for the clothing industry in the Netherlands. Only a few

2Segmentation theory assumes a straightforward link between the product and the labor market. See for a similar idea Amable and Gatti 2006.

However, the exact sales and purchasing dependencies (= percentage of total sales/purchases that is sold to or bought from the other industry) are not known. Translation of Dutch quotes and terms by the author.
firms produce for foreign customers. Manufacture of clothing on-contract by foreign firms for Dutch firms is much more common” (CBS 1983: 5).3

I shall primarily focus on the period 1980-1992 as it is the most interesting period to investigate the theory. According to Bloeme and Van Geuns (1987a, 1987b), production work returned to the Netherlands in the 1980s after a decade of outsourcing to other countries; consequently, the best period to test the theory is the 1980s, as both groups of firms were present in large numbers in the Netherlands at that time.

The analysis is restricted to the subject of sales fluctuation and job fluctuation. The basic reason is data availability. Although Statistics Netherlands collected data for both groups of firms separately, some data were only gathered at the aggregate level, e.g. investments in assets and prices. Consequently, only the fluctuation hypotheses can be put to the test.4 Hypothesis 3 will be discussed, but cannot undergo a genuine test due to the lack of data.

Two data series were used. The first is the Quarterly Industry Statistics (QIS), which comprises the following variables per industry:

- number of firms;
- male and female employee jobs, 1973-1992;

The series are standard data in the QIS; the sales data were deflated using the price index series of Statistics Netherlands,5 yielding the period 1980-1992. It should be pointed out here that Statistics Netherlands provides one price index for the clothing industry and manufacture on-contract together; price developments are then assumed to be equal. It is possible, however, that price developments differ between the two groups of firms, which may bias the results in favor of the hypotheses specified. In the relevant literature (Smits and Jongejans 1989; Bloeme and Van Geuns 1987b), no indication is given regarding price fluctuation in the on-contract group (or the illegal group); respondents only mention a strong and continuous price pressure due to international competition amongst others.6

The second data series used is the Working Persons series 1990-1992: a short quarterly series that counts all persons working in the industry and gives the most complete and consistent picture of different personnel categories needed to establish job security level. Categories include male and female employee jobs, workers from temporary employment agencies (TEA workers), directors/shareholders, owners, and homeworkers. The term “TEA workers” refers to workers

4A complete test of the hypotheses is not quite possible, as there is also a financial side to job fluctuation and job security. Price pressure exerted by the clothing industry (see under heading B at the end of section 1) may induce employers in the on-contract manufacture industry to hire more people on a temporary or “flexible” basis, thereby influencing job structure. This latter process is probably also present as profit and wage levels differed between the two industries: the profit level per firm in the period 1987-1992 for clothing manufacture was 0.53 million guilders, and for manufacture on-contract 0.03. The same goes for wage levels: 39,946.25 guilders per year per employee job in the clothing industry, and 32,225.00 guilders per year in the manufacture on-contract industry in the same period. These data can only sketch some of the background and are not very useful for a full-fledged analysis as these are yearly data and based upon a different sample (firms with 20 employee jobs and more). I shall proceed under the supposition that the sales fluctuation and job security part of the story is only mildly related to the financial part.

5The monthly price index series was changed into a quarterly series. When investigating the relation between number of jobs and sales fluctuation, the calculation of a real sales series is imperative.

6Even if Statistics Netherlands had collected separate price indices for both groups, it would not have sufficed as it would have been impossible to relate the price developments of both groups to each other. One needs a price index of one group expressed as percentage of the other group’s price level.
that work for a staffing agency; firms in need of extra personnel may hire these workers from such an agency. The workers come with the advantage that they do not have employee status and no employment protection, but they have the disadvantage of being relatively expensive; the firm that hires them has to pay the standard wage to the worker plus a fee to the agency. Contrary to the QIS series, all data entries in the quarterly series on job categories are rounded to equivalents of 10, except for the number of firms.

The most important limitation of both data series is connected with the sampling procedure; Statistics Netherlands only collects data on firms with 10 employee jobs or more. Furthermore, the analysis is confined to (semi)legal firms (registered entries only); in the 1980s the illegal sector in the clothing industry became very large indeed (see the next section).

The analysis of fluctuation constitutes a theoretical and methodological problem. The concept of “fluctuation,” as it is used in segmentation theory, is not very clear save for its general definition: “deviations from a trend.” Take for example sales fluctuation: apart from random fluctuation, sales also fluctuate in predictable cycles with different time horizons. There are daily cycles, yearly cycles with lower sales levels during vacations, a 4-year cycle called the Kitchin that is based on investments in inventories, the 10-year cycle of the Juglar based on investment in fixed assets, etc. Segmentation theory is silent on which cycle is meant and what can be expected in what case in the labor market. Methodologically, a choice should be made how to compute the trend and the deviations. The following method was decided upon.

1. First, the trend of the quarterly series was calculated by using a centered 4-period moving average. A moving average has an important advantage over a regression line; a straight regression line adds up all different kinds of fluctuation: random, quarterly, yearly, etc., while a moving average provides the opportunity to distinguish between at least some of them.

2. Next, the observed values were expressed as relative deviations from the trend to make interindustry comparisons possible.

Quarterly fluctuation patterns were then analyzed using autocorrelations. In addition, the variance was computed of the relative deviations (the original method differs slightly from the one used here: Fair 1989; see also Blinder and Maccini 1991) as a summary measure indicating the size of the fluctuation over the whole period under investigation.

The interpretation of the variance is straightforward: the higher the variance, the higher the fluctuation. Depending on the item analyzed, the variance is interpreted as quarterly sales fluctuation, quarterly job fluctuation, or as quarterly fluctuation in the number of firms in an industry.

As the Netherlands is a country with employment protection for employee jobs, one may expect that employers that experience more fluctuation in production and sales will hire relatively more workers without employment protection. Therefore, “job security” may be measured by taking the percentage of flexible jobs—temporary agency workers and homeworkers—among all jobs in the industry. However, temporary employee jobs are not protected either, hence they qualify as “flexible jobs” as well. Temporary employee jobs and part-time jobs, also often classified as “flexible” (e.g. Arvanitis 2005), are not specified as separate categories in the dataset of Working Persons. For this reason and because of the fact that the series of Working Persons is not quite representative—it is a very short series collected in a period of economic downturn—a more rigorous test of the job security hypothesis is not possible. Nevertheless, I shall discuss the job structure of both industries, and shall add job fluctuation data to make the picture more complete. The level of job fluctuation may indicate the presence of temporary employee jobs on the

And not only there; there is no quarterly series on temporary jobs and part-time jobs for these two industries.
assumption that the higher the level of employee job fluctuation, the higher the level of temporary jobs might be in that category.

The analysis shows a peculiarity regarding the distribution process of sales fluctuation. When a clothing firm receives orders, it does not matter whether the orders stem from foreign or domestic firms; it will compute its capacity and contract out the rest (the leftover). Therefore, we shall look at total sales development of the clothing industry. The supplier accepts the order and sells it to the clothing firm; hence, we have to look at the domestic sales development of the supplier industry.

3. Results

3.1 A Quick Sketch of Developments in the Dutch Clothing Industry in the 1970s and 1980s

In the 1970s, the clothing industry and the on-contract manufacture industry were in decline in the Netherlands. Graph 1 shows the quarterly development in number of firms and employee jobs of the clothing industry and on-contract manufacture industry over the period 1973-1992; the absolute number of firms and employee jobs over the year 1973 is taken as benchmark. Both industries lost a considerable number of firms and jobs; according to Dicken (1986: 232) the decline in the Netherlands was a very sharp one compared to other countries. As the graph shows, the downward trend of the clothing industry levels off a bit but continues in the 1980s. For manufacture on-contract firms, however, that same decade showed a revival as the number of firms and employee jobs went up again due to the growth of within-country subcontracting.
Although the figure suggests a smooth development, the period 1973-1992 consists of two decades with a totally different character for the clothing industry in the Netherlands. The 1970s were the decade in which both the clothing industry and manufacture on-contract industry underwent major reorganizations. Due to competitive pressure both industries, but mostly the clothing industry, experienced a shake-out. The clothing industry started to contract out production work to other countries, e.g. Belgium and Poland; it gave the 1970s its name as a period of “runaway.” In the 1980s the production of clothing returned to the Netherlands (“re-runaway”): the clothing industry reoriented its subcontracting strategy towards the national level. Reduction of the time-to-market period seems to have been the most important factor (Bloeme and Van Geuns 1987a, 1987b). Probably at the end of the 1980s and the beginning of the 1990s, the subcontracting strategy of the clothing industry was reinforced by the “supplier base reduction” strategy; Baden (2002: 74) suggests that the clothing retail industry introduced the “supplier base reduction” strategy somewhat later than other industries.

The runaway and re-runaway periods can be identified by the quarterly fluctuation in the number of firms of the dominating party, the clothing industry; the production logic of the clothing industry based on fashion cycles creates a strong quarterly fluctuation pattern. In the first decade 1973-1982 we see a high level of fluctuation in the number of firms, while in the second decade 1983-1992 firm fluctuation drops to a much lower level. The following picture emerges (Table 1).

For the clothing industry, the periods appear to have been vastly different: a period of high quarterly fluctuation of the number of firms was followed by a quiet period. Not so for the manufacture on-contract industry which experienced much less difference between the two periods. The reason for the difference between the two groups is most probably the subcontracting strategy of the clothing industry which shifted a part of its quarterly fluctuation to the on-contract manufacture industry in the Netherlands itself. The fact that the quarterly fluctuation of firms also went down in the on-contract manufacture industry may have to do with the emergence and growth of the illegal sector in this period; the clothing industry devolves its fluctuation to the on-contract manufacture, while the on-contract manufacture industry devolves a part to the illegal sector. Given the lack of data, however, this explanation is “educated guesswork.”

One caveat should be added, however, when interpreting the figures that have been and will be presented. The subcontracting strategy of the 1980s of the re-runaway period created a huge illegal sector in the manufacture on-contract industry in the Netherlands. In 1992-1993 the Dutch Parliament accepted the “Wijziging Coördinatiewet Sociale Verzekering” for the clothing industry in 1992-1993, also known as the “Act on Chain Liability in the Clothing Sector.” The act was meant to stop tax and social insurance evasion by making the final purchaser responsible for the tax and social insurance payments of the whole chain of suppliers involved in production of the goods. At that time, it was estimated that half of total clothing production with a sales value of 1 billion guilders was done in illegal firms: about 1,000 firms, employing 10,000 people (Kamerstuk 22 958, nr. 4, 2), of which two-thirds was located in Amsterdam (Zorlu and Reil 1997). When this estimate is about right, the illegal sector became slightly larger than the “official” clothing industry (about 6,658 working persons, mean of 1990-1992) and manufacture on-contract

Table 1. Quarterly fluctuation (= variance) of the number of firms per period

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<tr>
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<tbody>
<tr>
<td>Clothing industry</td>
<td>36.55</td>
<td>5.42</td>
<td>18.889 ***</td>
</tr>
<tr>
<td>Manufacture on-contract</td>
<td>13.90</td>
<td>7.52</td>
<td>2.366</td>
</tr>
</tbody>
</table>

Levene’s statistic is a measure for the inequality of variances.
Level of significance:* p < .10, ** p < .05, *** p < .01

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industry (about 2,406 working persons, mean of 1990-1992) together (see also Vakraad voor de Confectie-Industrie 1992; Smit and Jongejans 1989). Workers in the illegal sector were mostly immigrants, often with Turkish people as entrepreneurs (Bloeme and Van Geuns 1987b: 104). After 1992, the illegal sector started to decline. Zorlu and Reil (1997) give two reasons for this development. First, the “Act on Chain Liability” was actively enforced by intensive controlling activities of the “Clothing Intervention Team,” a cooperation between the Tax Office and Labor Inspection amongst others. As a second factor they mention the fall of the Berlin Wall in 1989, which created opportunities for relocation of clothing firms to formerly socialist countries.

As a consequence, in the period investigated the total clothing industry in the Netherlands consisted of three groups:

1. The leading clothing firms (the dominating group-W) that took orders from the purchasing retail firms and therefore were in contact with the “power center.” The clothing chain, also in the Netherlands in this period, can be characterized as a “buyer-driven chain” (Gereffi 1994), with the clothing retail as the buyer (Smits and Jongejans 1989; Rogier et al. 1992)8;
2. The (semi)legal on-contract manufacture that received its orders from the leading clothing firms (the dominated group-O). It did not normally have contacts with the retail firms;
3. The illegal sector which, again, normally had no contacts with the retail firms. This group of firms is in fact the second layer within the dominated group-O suppliers.

The analyses cover the (semi)legal sector of the first two groups of firms only. In general, we shall proceed under the assumption that the conclusions drawn are also valid for the illegal sector as it is subject to the same distribution process; however, the illegal sector may constitute a distinct group of firms that is dominated by the second group, the on-contract manufacture firms.9

3.2 Segmentation: Quarterly Fluctuation

The clothing industry is characterized by a distinct pattern of quarterly real sales fluctuation which is related to seasonal fashion changes; troughs are in May-June and in January-February (Bloeme and Van Geuns 1987b: 146). Therefore, a strong saw-tooth pattern is visible in sales: one quarter sales are high, the next quarter sales are low. This pattern is prominently present in the clothing industry: autocorrelation for the first lag in total sales is –.804, for the second lag +.617 (both significant). In the manufacture on-contract industry, however, the pattern is much less clear: –.347 (significant) and –.092 (not significant) for the first and second lag in domestic sales respectively. These data do not lend strong support to the expectations formulated above, which is confirmed when quarterly sales fluctuation is summarized over the whole decade (see Table 2).

As total quarterly sales fluctuation of the clothing industry should be lower than domestic quarterly sales fluctuation of the manufacture on-contract industry, hypothesis 1 is evidently not confirmed for quarterly real sales fluctuation.

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8Gereffi (1994: 97, 2001: 1618-20) distinguishes between buyer-driven chains in which large retailers and trading companies organize and coordinate decentralized production networks (examples: garments, toys) and producer-driven chains, in which transnational manufacturers play this role (examples: automobiles, aircraft). Later he suggested the possibility of the emergence of an Internet-driven chain (example: computers, such as Dell) (Gereffi 2001).

9Working conditions in the illegal sector were worse than those in the legal sector: lower pay, less job security, lower quality of working environment (Smit and Jongejans 1989; Bloeme and Van Geuns 1987b; Zorlu and Reil 1997).
These results on the sales fluctuation pattern and the overall fluctuation may be explained in several ways. First, firms in the clothing industry may have long-term contracts with a number of suppliers in the on-contract industry. However, the relevant literature (Smits and Jongejans 1989; Rogier et al. 1992; Bloeme and Van Geuns 1987a, 1987b) does not provide any indication for the presence of such a strategy. Second, firms in the on-contract manufacture tried to cope with price pressure and delivery requirements by producing partly illegally: workers were only partly on the official payroll, and only a part of sales was registered, hence the term “semi-legal” as used above. Consequently, not all sales do show up in the figures, which will mostly affect the sales figures of the on-contract manufacture given its structural position. Last, the result may also have been affected by the means of outsourcing. In principle, there are two different ways. Suppose a clothing firm contracts the leftover out to an on-contract supplier. In the first method of outsourcing, the clothing firm buys the raw materials (cloth, yarn, etc.) itself while the on-contract supplier supplies machine- and working-hours only. In that case, the work of the on-contract supplier is classified as “industrial services,” a subcategory of “industrial sales.” At the same time, the product sales of the leftover are classified as “industrial sales” of the clothing firm. In short, that specific order will show up in the sales of both firms, although the actual work is done only by the on-contract supplier. Moreover, the clothing firm will seemingly have a somewhat higher sales peak than the on-contract supplier as the amount of sales consists of the sum of raw materials + machine- and working-hours for the clothing firm, while only machine- and working-hours are added to the sales of the on-contract supplier. In conclusion, this method of outsourcing overstates the sales fluctuation of the clothing firm (group-W) while underestimating the sales fluctuation of the on-contract supplier. The second method of outsourcing does not carry such a bias: if the on-contract supplier purchases the raw materials itself, sales of the leftover (raw materials + machine- and working-hours) are added to the industrial sales of the on-contract supplier. Statistics Netherlands data do not allow assessment of the magnitude of the latter two effects: semilegality and outsourcing method.

Let us turn to the labor market data, the number of jobs and number of firms series. They are closely related to actual production and have an advantage over sales data; they are not affected by the outsourcing method.

Segmentation theory stipulates that the difference in bargaining positions of firms also influences labor market outcomes. Given the hypothesized difference in real sales fluctuation between the industries and the absence of inventories, one would expect more job fluctuation and less job security in the manufacture on-contract industry. I shall proceed as before: investigating both the fluctuation pattern and the summarizing measure, the variance. I shall start with the latter.

When we take a look at the summary measures regarding quarterly employee job fluctuation, we see, first of all, that quarterly fluctuation has generally risen: job fluctuation is higher in the period 1983-1992 than in the period 1973-1982. The most probable explanation is the labor market flexibilization strategy that employers initiated in the first half of the 1980s. Their policy carried a strong emphasis on enhancing numerical flexibility, for instance by hiring more workers on temporary contracts (in the period 1980-1986 their number increased to

<table>
<thead>
<tr>
<th>Table 2. Quarterly sales fluctuation (= variance) 1980-1991*</th>
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<tr>
<td>Domestic sales</td>
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<tr>
<td>Foreign sales</td>
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<td>Total sales</td>
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</tbody>
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* The arrow indicates the transfer of sales fluctuation: the fluctuation in total sales of the clothing industry has to be compared with the fluctuation of the domestic sales of the manufacture-on-contract. Levene’s statistic in the single relevant case 3.743 *. Level of significance: * p < .10, ** p < .05, *** p < .01
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10 percent of the working population (Dienst Collectieve Arbeidsvoorwaarden 1989: 9-10), and by inventing new “atypical” flexible labor contracts (Jaspers, Schippers, and Siegers 1988; Delsen 1991; see also SZW-Werkgroep Flexibele Arbeidsrelaties 1987). As to the difference between the clothing industry and the on-contract manufacture, we find that, conforming to the hypothesis, quarterly job fluctuation in the on-contract sector has always been the highest in both periods.

Producing without inventories means that sales, production, and, given a high level of numerical flexibility, amount of personnel data may be expected to show a close match. Hence, the saw-tooth pattern in sales should be visible in the personnel data of the clothing industry. The lines that represent employee jobs and number of firms for the manufacture on-contract industry in Graph 1 already showed such a quarterly pattern in the second decade (see above), but more in the manufacture on-contract industry than in the clothing industry, a rather surprising finding as a clear quarterly sales pattern was absent in the on-contract industry. As data regarding employee jobs and number of firms are present for the whole period of 1973-1992, we can again distinguish between the two decades as before (see Table 1). Autocorrelations were calculated for both the firms and employee jobs series as both industries have a lot of small firms. In such a situation the two series will be closely connected because only firms with a minimum number of 10 employee jobs enter the series. The following pattern emerged (Table 4).

The results prove that the clothing industry shifted its quarterly hiring and firing pattern of employees to the manufacture on-contract firms. The pattern shift is evident both from the number of employee jobs and the number of firms series, implying that mostly small firms produce on contract for the clothing industry. The data also lend credibility to the explanation of the anomalous result on quarterly sales fluctuation discussed above; the outsourcing method and, possibly, the semi-legality of the on-contract manufacture may have caused a downward bias in its quarterly sales fluctuation data.

To conclude, contrary to the quarterly sales data and the product market, the hypothesis is confirmed for the labor market.

### Table 3. Quarterly employee job fluctuation (= variance) in the clothing industries, 1973-1982 and 1983-1992

<table>
<thead>
<tr>
<th></th>
<th>Clothing industry</th>
<th>Manufacture on-contract</th>
<th>Levene’s statistic</th>
<th>N (both industries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973-1982</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male employee jobs</td>
<td>1.52</td>
<td>22.83</td>
<td>19.161 ***</td>
<td>38</td>
</tr>
<tr>
<td>Female -</td>
<td>2.45</td>
<td>5.59</td>
<td>5.596 ***</td>
<td>38</td>
</tr>
<tr>
<td>Total -</td>
<td>1.90</td>
<td>5.23</td>
<td>8.405 ***</td>
<td>38</td>
</tr>
<tr>
<td>1983-1992</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male employee jobs</td>
<td>3.57</td>
<td>33.51</td>
<td>28.033 ***</td>
<td>38</td>
</tr>
<tr>
<td>Female -</td>
<td>2.10</td>
<td>7.33</td>
<td>7.305 ***</td>
<td>38</td>
</tr>
<tr>
<td>Total -</td>
<td>2.03</td>
<td>6.98</td>
<td>10.553 ***</td>
<td>38</td>
</tr>
</tbody>
</table>

Level of significance: * p < .10, ** p < .05, *** p < .01

10 Percent of the working population (Dienst Collectieve Arbeidsvoorwaarden 1989: 9-10), and by inventing new “atypical” flexible labor contracts (Jaspers, Schippers, and Siegers 1988; Delsen 1991; see also SZW-Werkgroep Flexibele Arbeidsrelaties 1987). As to the difference between the clothing industry and the on-contract manufacture, we find that, conforming to the hypothesis, quarterly job fluctuation in the on-contract sector has always been the highest in both periods.

Producing without inventories means that sales, production, and, given a high level of numerical flexibility, amount of personnel data may be expected to show a close match. Hence, the saw-tooth pattern in sales should be visible in the personnel data of the clothing industry. The lines that represent employee jobs and number of firms for the manufacture on-contract industry in Graph 1 already showed such a quarterly pattern in the second decade (see above), but more in the manufacture on-contract industry than in the clothing industry, a rather surprising finding as a clear quarterly sales pattern was absent in the on-contract industry. As data regarding employee jobs and number of firms are present for the whole period of 1973-1992, we can again distinguish between the two decades as before (see Table 1). Autocorrelations were calculated for both the firms and employee jobs series as both industries have a lot of small firms. In such a situation the two series will be closely connected because only firms with a minimum number of 10 employee jobs enter the series. The following pattern emerged (Table 4).

The results prove that the clothing industry shifted its quarterly hiring and firing pattern of employees to the manufacture on-contract firms. The pattern shift is evident both from the number of employee jobs and the number of firms series, implying that mostly small firms produce on contract for the clothing industry. The data also lend credibility to the explanation of the anomalous result on quarterly sales fluctuation discussed above; the outsourcing method and, possibly, the semi-legality of the on-contract manufacture may have caused a downward bias in its quarterly sales fluctuation data.

To conclude, contrary to the quarterly sales data and the product market, the hypothesis is confirmed for the labor market.

### 3.3 Segmentation: Medium-term Fluctuation

The data on industrial sales show another fluctuation pattern which does not follow the seasonal production logic based on the quarterly fashion cycle of the clothing industry. The second sales fluctuation pattern is a cycle with a duration of about 4 years and therefore carries a strong

---

10 However, fluctuation patterns in the sales/production data and specific personnel categories data may diverge due to unequal distribution of sales fluctuation over job categories.
resemblance to the well-known Kitchin cycle (Zarnowitz 1985, 1992). Graph 2 displays the trend in sales figures in both industries; it shows a strong similarity to the one Piore and Sabel sketched to explain the segmentation strategy (1984: 56-7).

The presence of a Kitchin cycle in the sales of the on-contract manufacture industry is somewhat surprising; the Kitchin cycle is based on investment in inventories, while the production system of the clothing manufacture resembles the just-in-time system which is characterized by the absence of inventories. Nevertheless, when we take a look at Graph 3 displaying two business cycles in the Netherlands in that period, the Juglar and the Kitchin, the interpretation of the presence of a Kitchin cycle in the sale of the on-contract manufacture is corroborated. The most likely explanation is that the cycle found represents demand for clothing that is derived from the business cycle of other industries; when the business cycle elsewhere is at its peak, employment is higher, people have more purchasing power, and are more willing to buy clothes—the Kitchin cycle affects overall GDP growth, as Graph 4 shows. The business cycle in other countries appears to be synchronous to the one in the Netherlands, as the development of foreign sales in the on-contract manufacture shows. We shall keep the term “Kitchin” for the business cycle in the on-contract manufacture, although the cycle identified here is not a proper Kitchin cycle based on investments in inventories in the industry, but one that is derived from the business cycle in other industries.

For medium-term development, the hypothesis is evidently confirmed: two Kitchin cycles appear in the domestic sales data of the dependent industry, but not in the total sales development of the dominating industry. Apparently, clothing manufacturers adopted a strategy to keep their production capacity constant, meaning the bulk of the extra production capacity had to be provided by the on-contract sector. The dependency of manufacture on-contract firms is even better visible in the foreign sales data. Foreign clothing firms probably favor their own on-contract suppliers in the vicinity—especially during economic downturns—to reduce transport costs; moreover,

---

Table 4. Development in employee job and firm quarterly fluctuation patterns per period (significant autocorrelations)* **11

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing industry</td>
<td>lags 4,8,12,16 positive</td>
<td>lags 2,14 negative</td>
</tr>
<tr>
<td>Manufacture on-contract</td>
<td>lag 2 negative</td>
<td>lags 4,8,12 positive; lags 2,6,10 negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing industry</td>
<td>lags 4,8,12,16 positive</td>
<td>None</td>
</tr>
<tr>
<td>Manufacture on-contract</td>
<td>2,6,10,14 negative</td>
<td>lags 4,12 positive; lag 2 negative</td>
</tr>
</tbody>
</table>

* The underlying tables are not reproduced here to save space.
** The arrows indicate the transfer of fluctuation. For instance, the fluctuation in the number of firms in the clothing industry in the period 1973-1982 is shifted to the manufacture on-contract in the period 1983-1992.

---

11The test is a conservative one, as employees are the strongest protected category on the labor market, contrary to for instance homeworkers and workers from temporary employment agencies.

12Of course, the factors that were discussed regarding the quarterly fluctuation results will have had their influence here, too (e.g. outsourcing method). However, when differences become too big, as in a business cycle, they cease to be visibly present. Also, the need to seek refuge in illegal activities might be lower in prosperous times, at least for a couple of firms.
communication is easier when the supplier is close at hand. Summarizing over the whole period, we get the following picture (Table 5). In short, the hypothesis about the unequal distribution of sales fluctuation is strongly supported for medium-term fluctuation.13

The last part of the analysis is the medium-term fluctuation in employee jobs and firms. The beautiful pattern found in medium-term sales fluctuation is not mirrored in the employee job or number of firms series (not shown). The summary statistics regarding the labor market, however, show more support for the hypothesis (Table 6).

Several qualifications are needed, however. To begin with, in the runaway period 1973-1982, differences between the two industries are very large and hypothesis 2 is evidently confirmed. In the second period we find only partial confirmation: the difference resides solely in the female employee jobs. In addition, the level of job fluctuation in the second period is substantially lower than in the first, in both industries.

13The conclusion regarding medium-term sales fluctuation can be extended to the 1970s. As the price index series for both industries are the same, nominal sales developments can be compared. The graph (not shown) clearly indicates that subcontracting in the Netherlands was already present in the 1970s; domestic sales of manufacture on-contract went up slowly. Moreover, medium-term sales fluctuation was already devolved from the clothing industry to manufacture on-contract firms in that period.
The data suggest that the periodization found using quarterly job fluctuation is also reflected in the medium-term fluctuation of jobs. In the first period, the runaway, the clothing industry was in decline as Graph 1 shows, causing a generally high level of job fluctuation. The same development was present in the on-contract manufacture, but in that industry another element contributed to its level of job fluctuation: the specific kind of dependency from the clothing industry. The manufacture on-contract industry at that time was not a “structural production capacity supplier” of the clothing industry, as the clothing industry subcontracted many of its quarterly orders for fashion clothing to foreign firms, leaving leftovers of leftovers for the on-contract manufacture. That position of being second in line after foreign firms created a much more random

Graph 3. Two business cycles in the Netherlands: the Juglar (related to investment in fixed assets) and Kitchin (related to investment in inventories)
Source: Hoogenboom and Scholten, 1997. Figures in the graph are moving averages.

Source: De Haan & Visselaar, 1998
Note: Percentages are on the vertical, and years on the horizontal axis.
pattern in production for Dutch on-contract producers. In the second period, as we have seen, its position changed; instead of second in the line of supplier groups, Dutch on-contract firms became the first one, receiving not only more orders but also more predictable ones. As the previous section showed, that change was initially found in the rise of a predictable job fluctuation pattern, and now is found here again in the lower overall level of medium-term job fluctuation.

Table 5. Medium-term sales fluctuation (=variance) 1980-1991* **

<table>
<thead>
<tr>
<th></th>
<th>Manufacture on-contract</th>
<th>Clothing industry</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic sales</td>
<td>147.08</td>
<td>127.87</td>
<td>46</td>
</tr>
<tr>
<td>Foreign sales</td>
<td>1305.38</td>
<td>53.73</td>
<td>46</td>
</tr>
<tr>
<td>Total sales</td>
<td>174.62</td>
<td>51.89</td>
<td>46</td>
</tr>
</tbody>
</table>

* The medium-term fluctuation was calculated in the following way. A regression line was used to calculate the trend of the moving average line. After that, the relative deviations of the moving average from the regression line were computed. Calculating the variance over the resulting series of deviations supplies the fluctuation measure.

** The arrow indicates transfer of sales fluctuation; hence, the fluctuation in total sales of the clothing industry has to be compared with the fluctuation of the domestic sales in the manufacture on-contract. Levene’s statistic in the one relevant case: 14.242 ***

Table 6. Medium-term fluctuation (= variance) of employee jobs; both industries; per period

<table>
<thead>
<tr>
<th>Trend fluctuation of:</th>
<th>Clothing</th>
<th>Manufacture on-contract</th>
<th>Levene’s statistic</th>
<th>N (both industries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1: 1973-1982</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male employee jobs</td>
<td>50.78</td>
<td>226.26</td>
<td>24.637 ***</td>
<td>38</td>
</tr>
<tr>
<td>Female employee jobs</td>
<td>67.59</td>
<td>194.74</td>
<td>17.927 ***</td>
<td>38</td>
</tr>
<tr>
<td>Total employee jobs</td>
<td>61.81</td>
<td>197.28</td>
<td>20.783 ***</td>
<td>38</td>
</tr>
<tr>
<td>Period 2: 1983-1992</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male employee jobs</td>
<td>27.41</td>
<td>29.91</td>
<td>0.376</td>
<td>38</td>
</tr>
<tr>
<td>Female employee jobs</td>
<td>11.05</td>
<td>29.95</td>
<td>9.978 ***</td>
<td>38</td>
</tr>
<tr>
<td>Total employee jobs</td>
<td>11.60</td>
<td>21.13</td>
<td>6.281 **</td>
<td>38</td>
</tr>
</tbody>
</table>

Level of significance: * p < .10, ** p < .05, *** p < .01

* The variance was calculated using the relative deviations of the moving average from the predicted values of a linear regression. Given the fact that there are two different periods with a different trend, linear regression lines were calculated for each period separately.14

14 The method used here is based on the exact same principle as used with the determination of the periods based on quarterly fluctuation: the development of the dominating party, the clothing industry, decides. Given the development of both industries, two methods can be used to estimate the general development: first, calculate a linear regression line per period, or use a quadratic function to calculate the regression line over the whole time series. The first method—on which the table above is based—gives the better fit for the clothing industry as indicated by the fact that the overall variance over the whole timespan of 1973-1992 is lower than when using the quadratic method. Hence, it was chosen as method here. However, the quadratic function gives a better overall fit for the manufacture on-contract. Even if we take the best-fitting method for each industry separately (two-periods linear regression for the clothing industry, and quadratic function for the on-contract group), the conclusions do not change. In fact, the results above are the most conservative ones, as the variance in the second period for the manufacture on-contract with the two-period method appears to be lower than in the quadratic estimation.
aspect of the division of labor in clothing production: men are mostly found in non-production jobs such as sales and management, while women form the core of the production workers. It is possible that the change in position of the on-contract manufacture created more non-production jobs, and maybe also relatively more job security in non-production jobs. For the clothing industry, the lower level of job fluctuation probably reflects the fact that the second period is the after-reorganization period, which is generally a quieter period.

Summarizing, hypothesis 2 was not confirmed regarding the fluctuation pattern. Regarding the amount of fluctuation it was confirmed, save for male employee jobs in the second period.

3.4 Job Structure

The general result of the distribution process should be a difference in job structure, as hypothesis 3 stipulated. As discussed in the methodology section, a full-fledged test is not possible as part-timers and temporary workers are not distinguished in the series; employee jobs are only subdivided by gender. Therefore, I added quarterly fluctuation measures per job category as an additional measure to gain somewhat more insight. Next, the series is short (only three years) and displays the situation in a period that is characterized by a general economic downturn in the Netherlands: economic growth dropped from about 3 percent to about 1 percent in the period 1990-1992 (see Graph 4). Also, the presence of a huge illegal sector in the clothing industry in the Netherlands had drawn attention and initiatives to combat the problems that were under way. Last, Eastern Europe opened up after the fall of the Berlin Wall, providing a new opportunity for subcontracting (see section 3.1). Hence, the period cannot be taken as fully representative for the whole second period; both economically and politically the sector was under great pressure.

Table 7A indeed shows a significant difference in overall job structure; Table 7B specifies the differences per job category. It turns out that the hypothesis specified above regarding overrepresentation of flexible job categories in the dominated industry is supported for homeworkers. However, it is rejected for workers from temporary employment agencies (TEA workers): there are less TEA workers in the manufacture on-contract than in the clothing industry. The most probable explanation is costs, as they are relatively expensive; the firm that hires them pays the standard wage but also a fee to the agency. The same explanation applies to the relatively low number of male employee jobs in the on-contract manufacture; the price pressure exerted on the manufacture on-contract industry appears to have a clear influence on job structure. As for the other job categories, the presence of many small firms is reflected in the overrepresentation of directors/shareholders and owners. Last, there is no difference between the two industries regarding the job category that constitutes the bulk of the workforce: female employee jobs.

Quarterly fluctuation per job category was calculated to complete the picture. In addition, fluctuation may serve as a proxy for the presence of temporary employee jobs, as no data for temporary jobs are available. Table 7C shows the results. To start with, fluctuation is higher for all working persons in the on-contract manufacture compared to the clothing industry; the difference is even significant at the 5 percent level. The overall difference is caused by the category of male employee jobs; there is a very large and highly significant difference in fluctuation level between the two industries suggesting that the number of temporary jobs in this category is much higher in the manufacture on-contract than in the clothing industry. Looking at the other individual job categories, the on-contract manufacture shows a higher level of fluctuation in all job categories save one: only owners show a much higher turnover in the clothing industry than in the manufacture on-contract. It suggests that there were relatively many changes in ownership of firms in the clothing industry; however, it seems to be a rather limited development as it is not reflected in the figures on firm fluctuation (not shown). For all other job categories, the differences are as the theory expects them to be, and sometimes even significant.
Table 7A. Job structure in both industries, mean 1990-1992, absolute and in percentages [row = 100%]*

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>TEA workers</th>
<th>Directors/</th>
<th>Owners</th>
<th>Homeworkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing industry</td>
<td>1471</td>
<td>4543</td>
<td>88</td>
<td>58</td>
<td>28</td>
<td>437</td>
</tr>
<tr>
<td></td>
<td>(22.20)</td>
<td>(68.57)</td>
<td>(1.32)</td>
<td>(0.87)</td>
<td>(0.42)</td>
<td>(6.59)</td>
</tr>
<tr>
<td>Manufacture on-con-</td>
<td>303</td>
<td>1753</td>
<td>13</td>
<td>43</td>
<td>37</td>
<td>239</td>
</tr>
<tr>
<td>contract</td>
<td>(12.68)</td>
<td>(73.40)</td>
<td>(0.54)</td>
<td>(1.80)</td>
<td>(1.54)</td>
<td>(10.00)</td>
</tr>
</tbody>
</table>

Chi square = 167.8023, df = 5, p = 0
* All data entries in the present quarterly series on job categories are rounded to equivalents of 10.

Table 7B. Deviation per job category of the manufacture on-contract from the clothing industry (*) in percentages

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>TEA workers</th>
<th>Directors/</th>
<th>Owners</th>
<th>Homeworkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture on-con-</td>
<td>−9</td>
<td>+1</td>
<td>−14</td>
<td>+16</td>
<td>+31</td>
<td>+9</td>
</tr>
<tr>
<td>contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Real minus expected cell frequency, divided by the total of the job category for both industries

Table 7C. Quarterly job fluctuation (variance) 1990-1992, per job category

<table>
<thead>
<tr>
<th>Job category</th>
<th>Clothing industry</th>
<th>Manufacture on-contract</th>
<th>Levene’s statistic</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male employee jobs</td>
<td>1.05</td>
<td>39.08</td>
<td>12.05 ***</td>
<td>10</td>
</tr>
<tr>
<td>Female employee jobs</td>
<td>0.97</td>
<td>4.72</td>
<td>1.13</td>
<td>10</td>
</tr>
<tr>
<td>TEA workers</td>
<td>409.49</td>
<td>1954.20</td>
<td>3.33 *</td>
<td>10</td>
</tr>
<tr>
<td>Directors/shareholders</td>
<td>47.09</td>
<td>207.26</td>
<td>3.24 *</td>
<td>10</td>
</tr>
<tr>
<td>Owners</td>
<td>735.05</td>
<td>201.44</td>
<td>3.68 *</td>
<td>10</td>
</tr>
<tr>
<td>Homeworkers</td>
<td>513.38</td>
<td>598.97</td>
<td>0.00</td>
<td>10</td>
</tr>
<tr>
<td>Total of working persons</td>
<td>1.45</td>
<td>9.67</td>
<td>4.61 **</td>
<td>10</td>
</tr>
</tbody>
</table>

Level of significance: * p < .10, ** p < .05, *** p < .01

Of course, the figures presented here are the result of both domestic and foreign sales fluctuation (which, by the way, is also the case in the previous tables regarding personnel data). However, as foreign sales of manufacture on-contract firms are of minor importance (about 20 percent of total sales and falling), we can conclude that hypothesis 3 has received some support.

4. Conclusions and Discussion; Limitations

The present contribution set out to analyze the industry and labor market consequences of within-industry subcontracting: the origination of two different groups in an industry through capacity subcontracting, resulting in the concentration of commercial contacts with customers into the hands of a few incumbents of the industry. The industry population is then divided into two groups: group-W suppliers—the “haves” when it comes to customer contact—and group-O suppliers, the “have-nots.” Division along this line creates a power differential within the industry between these two groups. That differential, in turn, creates differences in performance between the two groups. In the empirical analysis, the clothing industry played the part of the dominating group-W,
while the manufacture on-contract industry played the part of the dominated party, group-O. Summarizing the empirical results, we find the following (Table 8).

The summary shows that in the majority of instances, the hypotheses have been confirmed by the analysis whether or not we include the runaway period in the conclusion. Consequently, we might formulate the following general conclusion: contrary to what was argued by Bair and Gereffi (see the introduction), receiving orders from a U.S. buyer or a Mexican intermediary does make a difference as it determines a firm’s place in the industry, either in the dominating group of haves or in the dominated group of have-nots; having contacts with buyers in another industry is of primary importance.

Two aspects draw attention. First of all, the analysis clearly showed the presence of two different kinds of fluctuation in the sales data. The one that was expected to be present was quarterly fluctuation as it is based on the fashion cycle, which creates a specific production and sales pattern. A somewhat surprising finding was the presence of a medium-term fluctuation cycle spanning about 4 years; it was baptized “Kitchin cycle” for want of a better term. It was hypothesized that it derived from the general economic development present in the Netherlands, which interpretation was supported by the business cycle indicator of the Dutch Central Bank (DNB) and the pattern of economic growth in the Netherlands. We may expect that the influence of the Kitchin cycle on sales and job fluctuation will lessen as inventory fluctuations have gone down in the second half of the 1980s and the 1990s: inventory management has improved because of information technology amongst other factors (Bosman 2005; for the United States see for instance Irvine and Schuh 2005; McCarthy and Zakrajsek 2007). However, labor market flexibilization policy in the Netherlands may have the contrary effect of making the economy more sensitive to the business cycle (De Beer 2004).

Second, a clear change in subcontracting strategy of the clothing industry could be detected in the job fluctuation series: the pattern of quarterly job (and firm) fluctuation was transferred to the manufacture on-contract industry. Although the dependency relation between the two industries was a constant during both periods, its specific nature changed. Conforming to the hypothesis of segmentation theory, we found that the amount of fluctuation in the dependent industry

<table>
<thead>
<tr>
<th>Table 8. Summary of results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluctuation pattern</td>
</tr>
<tr>
<td>Quarterly</td>
</tr>
<tr>
<td>Hypothesis 1</td>
</tr>
<tr>
<td>(Sales fluctuation 1980-1991)</td>
</tr>
<tr>
<td>Hypothesis 2*</td>
</tr>
<tr>
<td>(Job fluctuation 1973-1982, ‘runaway’)</td>
</tr>
<tr>
<td>Hypothesis 2*</td>
</tr>
<tr>
<td>(Job fluctuation 1983-1992, ‘re-runaway’)</td>
</tr>
</tbody>
</table>

* n.a. = not applicable.

The present study focuses on the period 1980-1992, the re-runaway period. Hence, hypothesis 2 referred to that period only. Nevertheless, tests were done for both periods. Therefore, the row on job fluctuation in the first runaway period has been added for reasons of completeness. Given the fact that the subcontracting strategy changed between periods, applying the hypothesis to the fluctuation pattern is not logically defensible. Application of the hypothesis to the difference in amount of variance, however, is, as the manufacture on-contract was in a dependent position in both periods.
surpassed that of the dominating industry. The amount of variance is a more general indicator for dependency relations between industries (firms) than a specific fluctuation pattern is.

The results can be generalized in principle to all industries that are characterized by a somewhat larger number of firms: all those industries may experience a distribution process such as the one depicted. After all, outsourcing has grown into a standard way of doing business as the general presence of strategies such as “focusing on core activities” and “reduction of the supplier base” testify. Both in high- and in low-technology industries, these strategies are being applied. Organizing production chains has even become an industry in itself; see for instance the Li & Fung Group (http://www.lifung.com/eng/global/home.php, accessed August 28, 2009). Hence, we may expect that this distribution process will be present in quite a number of industries. Its impact on product and labor market depends on the height of the industry’s entry barriers: the lower they are, the fiercer the competition and the more severe the consequences for firms and workers will be (Kaplinsky 2005).

What about generalization to other countries? In principle, the answer is, again, that it can be generalized to other countries as well. However, not all countries will have laws and institutions that are designed to lessen exploitation, such as minimum wage laws and a social insurance system. As we have seen, competitive pressure in the Netherlands became so high that an illegal sector was created. Active intervention by the government put an end to that. However, we may not exclude the possibility that the same industrial structure and its accompanying results were just relocated to former socialist countries after the fall of the Berlin Wall in 1989 and became a part of the legal clothing industry there.

The conclusion formulated above, “in the majority of instances the hypotheses have been confirmed,” comes with a proviso, though. Despite the fact that the data allowed analysis of within-industry relations, the analysis is limited due to data characteristics. For instance, there is not always a match between sales and labor market data which seems rather peculiar. The most striking example is the one on quarterly fluctuation: rejected in the sales data, while prominently present in the job (and firm) fluctuation data. Several explanations have been brought forward to explain this mismatch. In the case of the sales series, the way in which the two different methods of outsourcing enter the data may obscure relations and fluctuation patterns. In all series, the problem of semi-legality—meaning partial registration of sales and employee jobs—is present. Finally, in the job and firm fluctuation series, the choice of measurement unit—firms with 10 employee jobs or more—captures changes and fluctuation only partially.15 In this way, data characteristics may create anomalies.

In addition, the data used in this paper show some gaps, and conclusions, therefore, cannot be definitive. The most important gap is the price index: a price index for the dominating and dominated industries separately does not exist. Therefore, sales data were deflated using an aggregate price index for both industries. Consequently, data on sales fluctuation may be biased in a specific direction, invalidating the conclusions drawn. Hence, it is not possible to gain insight into the price pressure exerted by the clothing industry on the on-contract manufacture (however, a thorough analysis demands a specific kind of price data and not just a price index for each industry separately; see footnote 6).

15In general, there is a “dispersion problem”: an on-contract supplier that receives a “leftover” may ask part-time employees to work some extra hours, ask others to do overtime, may hire some extra employees, or hire extra homeworkers, or TEA workers, or any combination of the possibilities listed. When an employer uses all options simultaneously we may end up not finding any statistically significant relation between sales fluctuation and fluctuation in any job category at all, as the total effect is distributed among too many groups to yield meaningful results.
Likewise, a thorough analysis of job structure appeared impossible due to the fact that the job structure series does not cover all relevant job categories, in particular temporary employee jobs. Although a proxy could be defined for temporary employee jobs, the role of part-time jobs stayed in the dark. Apart from that, the series is very short and collected within a specific time frame that is not representative for the whole period 1983-1992.

One of the most important limitations is the absence of the illegal sector in the analysis. Given its size, a complete analysis of the Dutch clothing industry should also contain a description of the structure and development of the illegal sector, as it might influence the results we have found. Maybe the influence of the illegal sector shows itself in the reduction of fluctuation in the on-contract manufacture in the second period: both the fluctuation of firms and medium-term employee job fluctuation (Tables 1 and 6) went down in the second period. Accepting that explanation of the reduction in fluctuation in the on-contract manufacture means concluding that the three parts of the Dutch clothing industry—the clothing industry, the on-contract manufacture, and the illegal sector—form a whole because they are closely interrelated and react to one another. As a consequence, one may indeed wonder whether the concept of “dual labor market structure” is appropriate here; we would be facing “triple labor market segmentation” instead of “dual labor market segmentation.” The latter term would be too restricted as it only refers to the legal labor market. Given the lack of data, however, no definite conclusion is possible.

In spite of these shortcomings, we may for the moment conclude that for the largest part the hypotheses in this paper specified by segmentation theory have been supported by the facts: subcontracting may create a dual industry structure with two groups of firms that differ in bargaining power; thus the foundation is laid for inequalities in both product and labor market performance. Sales fluctuation is generally higher in the dominated industry, and so is job fluctuation.

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16One of the reviewers kindly suggested this.
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**Bio**

Dirk H. M. Akkermans graduated as a sociologist in 1980. After working as a researcher and teacher, he received a Ph.D. in economics in 2001. He is working as assistant professor in the Department of International Economics and Business, University of Groningen. His research interests include industrial relations, foreign direct investment, and corporate governance.