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Pre-industrial Worlds of Production: Conventions, Institutions and Organizations

*Christof Jeggle**

Abstract: »Vorindustrielle Welten der Produktion: Konventionen, Institutionen und Organisationen«. The concept of the *worlds of production* is discussed as an approach for analysing different forms of producing linen in the city of Münster in Westphalia in 16th and 17th century. The analysis shows how different conventions of product quality, of markets, of organizing artisans and of production regimes are combined to coordinate the actors and the objects and constitute a particular *world of production*. Fabricating linen in Münster did not take place in one homogeneous trade, but was operated in three different worlds of production, which are analyzed in detail.

Keywords: économie des conventions, economics of convention, worlds of production, product quality, linen, artisans, Münster, Westphalia, urban history, pre-industrial economic history.

1. The *économie des conventions* and Economic History

Despite the complaint that economics has forgotten history (Hodgson 2001) most economic historians still prefer analyzing historical economies with approaches based on economics, especially the New Institutional Economics, while economic sociology remains scarcely recognized and even less applied in empirical research. Accordingly the reception of the *économie des conventions* in economic history is proceeding slowly, although it started when the approach was introduced. In 1993 a conference of historians discussed the institutions of market economies in Lille and many participants questioned the established interpretations of economic history and asked for new approaches. Among the speakers Robert Salais (1994) introduced his view as an economist and just had offered an elaborated concept in his study with Michael Storper (Salais and Storper 1993). The proceedings of the conference were published in some detail in the *Revue du Nord* (Hirsch et al. 1994), but even among French economic historians, the *économie des conventions* was not discussed in theoretical or programmatic articles in the following years. The debate in France rather seems to have taken place in seminars and workshops that influenced research. Among the historians Bernard Lepetit (1995) started discussing con-

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ventions as a category for analysing coordination in social interaction, but he could not continue with his work.¹ In an article discussing the programmatic reorientation of the major French historical journal *Annales* around 1990 the Belgian historian Marc Jacobs (1996) proposed the *économie des conventions* for researching economic history. Generally this article did not have very much impact, but a research project on guilds in Brussels kept on discussing and applying the approach (Jacobs and Deceulaer 1998). Harald Deceulaer (2001) explicitly referred to the *économie des conventions* in his study on Dutch textile trades.² In France Philippe Minard mentioned it in the 1990s (Minard 1996, 180-184; Minard 1998, 283-286), more explicit references only turned up in more recent studies (Judde de Larivière 2008; Maitte 2009).³ One of the most advanced examples is the analysis of the development of the food industries in the nineteenth century by Alessandro Stanziani (2005). In the United Kingdom Noel Whiteside (Whiteside and Salais 1998) applied the concept to historical comparative studies on 20th century labour markets and welfare states. Despite this emerging reception the *économie de conventions* as a common approach for research in economic history is still not established.⁴

Applying the *économie des conventions* as a common approach of empirical research would be the more important, since it offers some solutions to long discussed problems in the economic history of pre-industrial societies (Judde de Larivière 2008, 3-4). In the debates on the specific character of modern industrial economies inspired by the theses of Karl Polanyi (1944) the embeddedness of pre-industrial economies was widely discussed (Braudel 1979, 194-195), but the search of applicable concepts met many obstacles caused by the established scientific discourses on social and economic analysis, which often still emphasize a substantial divergence between so called 'traditional' and 'modern' economies. The first type was considered as based on personalized economic relations avoiding the dynamics of markets, while the second type followed the dynamics of liberalized markets. Despite of these premises, which are still at the core of theoretical debates, empirical evidence has made clear, that 'traditional' societies could deal very well with the dynamics of markets, while 'modern' economies are still very much based on interpersonal

¹ Bernard Lepetit died in an accident in 1996.

² From the same project see also De Munck (2007a); (2007b); (2011), who also refers to the *économie des conventions*.

³ Jean-Claude Daumas based his dissertation of 1995 on the approach. In the printed version Daumas (1999) the explicit references are very scarce.

⁴ Discussions with economic historians give the impression that the English version of the 'Worlds of Production' (Storper and Salais 1997) has also found some reception in Germany, but without significantly influencing current research, cf. for example Berghoff (2007, 180).

relationships (Braudel 1979, 12, 195).⁵ These observations suggest reconsidering the analysis of the historical emergence of economies. Here the *économie des conventions* offers a framework that is explicitly questioning established holistic interpretations of the economic foundations of societies and instead is asking for repertoires and discourses of economic interaction for structuring social analysis (cf. Diaz-Bone 2009a), while the historical practices based on these repertoires and discourses are representing the diachronic variability of economic action. When the interpretation of cultures as situated repertoires of practices and discourses could be established in historical research from the late 1990s on (Algazi 2000), this framework also allowed interpreting economies as situated cultural practices and to go beyond the premises of standard economic theory and the New Institutional Economics, which still dominate the discourses of economic history. For interpreting pre-industrial economies as cultural practices the *économie des conventions* offers a highly developed program for research and in the following the possibilities of its application will be discussed on the example of the production of linen in early modern Münster/Westphalia.

2. Analysing the Pre-Industrial Production of Linen in Münster/Westphalia

The research on the production of linen in Münster turned up numerous details that were difficult to organize in a systematic order based on established explanations.⁶ The idea of an economy of quality (Karpik 1989, 207) offered a point of departure for arranging the bits and pieces of information being rather accidentally preserved in the documents of the archives in some systematic order. A variety of conventions for defining, inspecting and indicating certain product qualities could be identified. For analyzing these findings the concept of *worlds of production* of Robert Salais and Michael Storper (1993) turned out to be particularly useful.⁷

The coordination of different actors engaged in any form of economic interaction has to deal with the uncertainties caused by the unpredictability of forthcoming events. For reducing the uncertainties producers have to arrange their economic interactions as calculable as possible by giving their products certain characteristics. These characteristics give the base to coordinate the production itself and the interaction with the customers of the product. The characteristics

⁵ How personal ties and the dynamics of markets are related is also discussed by sociologists, cf. the short outline of Diaz-Bone (2010a, 222-224).

⁶ This article is based on my PhD-dissertation (Jeggle 2009a). The archival material is discussed there in detail providing full references. The publication is in preparation.

⁷ The following is based on Salais and Storper (1993, 12-17, 25-55) and Storper and Salais (1997, 26-43).

of products can be distinguished into products of similar qualities and specialized products.

In the first case the customers are demanding products designed to meet certain quality standards. They expect the producers to guarantee these standards and the customers choose these products without directly contacting particular producers. For meeting this demand production and distribution of these goods are operated by the convention of generic products. The aim of the producer is to consolidate the market by satisfying the demand of a large number of customers unknown to him while the customers expect to find these products on permanent offer. The customers choose these products according to their prices and the producers are competing on their shares of these product markets based on an economy of scale.

On the opposite side there are specialized products designed to meet individual demand. The products are unique and, while the customers are looking for producers being able to meet their particular demands, the producer designs his product in close interaction with the customer, trying to satisfy this demand. The production and distribution of these products are operated by the convention of dedicated products and the quality is more important than the price. In these economies of variety direct competition among the highly specialized producers is rather low.

Producers have to decide between consolidation or irreducible demands for constructing a market, which means to choose between generic or dedicated product qualities and the technologies to serve an economy of scale or an economy of variety. These conventions can be combined on a matrix and constitute four *possible worlds of production* (Salais and Storper 1993, 43; Storper and Salais 1997, 33). Each *possible world of production* appears as a framework for coordinating people and objects involved in the production, distribution and use of a certain product. One of the advantages of the approach is linking the producers' side with the demand side, showing that different product qualities are related to different forms of interaction between producers and customers. Each product, depending on its qualities, can be considered as generating and at the same time being generated by its own particular *possible world of production*:

- 1) The *Industrial World of Production* is based on products with generic-standardized qualities. Combining the convention of consolidation (the products are directed to markets composed of undifferentiated demands) and the convention of standardization, the producers fabricate serial products based on codified norms of product quality and production technology. The products are substitutable and may be freely transferred between persons, places or other social figurations. The uncertainty of dealing with these products is considered as predictable risk.
- 2) The *Market World of Production* is based on standardized generic products dedicated to the special demand of customers. Operated by the convention

of specialized products unique series are produced following the expressions of demand by the customers. Since buyers expect immediate satisfaction the producers are competing on the ability of rapid delivery as well as on the price. The producers have to deal with the uncertainty of the unpredictability of the future developments of prices and quantity of demand while the buyers expect the producers to respond immediately to their desires.

- 3) The *Interpersonal World of Production* is based on products dedicated to a certain person or group. The qualities of these specialized and dedicated products are unique and its evaluation is limited to the actors involved. Producers and customers are linked by the mutual understanding of a shared experience to which they may refer to, but they do not intend finding general standards for products. The quality of the product remains without reference, therefore producers and buyers need to find a 'common language' for defining the product and the way it is made. The price they negotiate is the only modality for evaluation accessible from the outside. The uncertainty of interaction requires mutual understanding of meaning of actions taken or requirements expressed.
- 4) The *World of Immaterial Production*⁸ is based on intellectual activities intending to change the quality of existing products or to find new purposes for them or to develop new ones. The knowledge is not directed to the development of unique, uncodifiable know-how, but to invent qualities that can be codified and reproduced by others. The producer is perceived as an inventor and when the knowledge is made public and being recognized these products may become generic. The uncertainty consists in the unpredictability of the demand for newly developed products.

Based on these basic patterns of *possible worlds of production* the *real worlds of production* will be studied on the example of fabricating linen with the label of origin of the early modern city of Münster in Westphalia.

3. Local Production and Global Product Lines

Like many cases of pre-industrial artisan production, the production of linen in Münster has to be seen in a larger context of a product line covering the whole production process from the linseeds to the distribution and consumption of the textiles. In the case of the linens the product line originated in the region of Riga in the Baltic, where the linseeds for large parts of the fabrication of linens in Western and Central Europe was grown and exported, since Baltic linseeds provided a better quality of fibres. Besides this advantage it was not possible to use the same flax plants for gaining fibres and seeds at the same time (Harder-

⁸ Salais and Storper (1993, 45); Storper and Salais (1997, 33; 36-37) use the term *World of Intellectual Resources*.

Gersdorff 1981). The flax was grown in Westphalia and rural and urban spinners produced the yarn. Trading yarn seems to have been an important part of the business, but the historical findings do not allow a detailed analysis. After weaving the linens on the countryside around the city or within the city these were sold through a chain of intermediary markets on all important European markets since late 15th century. A good part of the linens went into the overseas exportation where a steady demand has to be taken in consideration for understanding the relatively stable demand side as a factor of production (Pieper 1984, 80f.; Ormrod 2003, 145-168). Though the production of linen in and around of Münster appears to have been a rather local economy, it has to be seen as a link in the chain of a global product line reaching from the Baltic to the colonies in the Americas. These early modern production markets for the linens were already embedded in a network of different kinds of markets which constituted a historical variety of those networks Patrik Aspers (2010) describes in his analysis of present day fashion markets. The linens of Münster were rather designed as bulk ware of medium quality and the present state of research on the consumption of textiles does not provide very much information on the ways these linens were consumed. Therefore the consumer side and its repercussions upstream on the product line cannot be analysed in detail. The few findings suggest that better qualities were used in Britain for lining, probably also for underwear, while most of the linens, especially the lower qualities, were re-exported again. The expanding consumption of textiles in Britain generated further demand for which the Westphalian producers could provide improved qualities at favourable prices (Ormrod 2003, 161).

4. *Worlds of production* in the Linen Trade of Münster

In regard of the restrictions of empirical evidence the following analysis will focus on the *worlds of production* for linen within the city of Münster in the 16th and 17th centuries, but it will include the downstream side of the production markets as a factor. The production of linen in Münster was not based on one single *world of production*. Producing linen was a common competence in most parts of pre-industrial Europe, but the local forms of organizing the production were highly differentiated depending on the available resources like raw material, work force, skill and the access to markets and on the governance of producing linen. Like in many places weaving linen was a widespread practice in many households of Münster. The historical documents do not allow tracing the whole scope of production within the city and an unknown proportion of producers escapes any systematic analysis. Looking at structural criteria probably weavers like the housewives occasionally selling their linens to the eleemosyne, an organization for managing the foundations for poor relief of the chapter of the dome (Klötzer 1997, 59-71, 165-170), were not organized and therefore did not leave any other evidence as producers with the exception of

the account books of the eleemosyne. The account books do not allow an analysis in terms of the *worlds of production*. In the following only those parts of the urban production of linen that have left adequate evidence in the documents can be analyzed. Caused by changing circumstances, three different *worlds of production* were operated in Münster: 1. linens produced on the surrounding rural countryside that were inspected and branded in city, 2. the contract work of urban weavers in early 17th century, and 3. the production of standardized linens by urban weavers in 17th century.

4.1 Inspecting and Branding Rural Linen

Until late 16th century there are no indications for a developed and professionalized urban production of linen in Münster. Despite of this finding, the city council founded an organisation for the inspection and certification of linens around 1458 (Kirchhoff 1981). Maybe the city council wanted to draw the trade with linens operated in the Münsterland into the city after nearby Osnabrück had successfully established a *Legge* in early 15th century. During the early modern period the label of the *Legge* of Osnabrück developed to one of the most demanded brands of origin for European linens in the overseas trade (Wiemann 1910). The documentation for Münster remains scarce until the 1530s, but already in 1465 the city council of the important commercial city of Lübeck reclaimed an improved quality control (Urkundenbuch Lübeck 1898, Nr. DCLXIX, 676-677). Therefore it can be assumed that linen from Münster already was established on exportation markets as a product meeting certain standards of quality. Since early 16th century the organization for inspecting and certifying the linens was called *Legge* in the documents. The term was frequently used in Westphalia until the final decline of the *Leggen* with the shift to cotton textiles and industrialized production during the 19th century (Wiemann 1910; Flügel 1993; Reininghaus 2000; Küpker 2008). Organizations for inspecting and certifying textiles were common in pre-industrial textile production. They can be recognized as relying upon similar conventions since they shared some basic operations, while the particular practices and the forms of governance could differ significantly. Usually the institutional framework was provided by rules given by the political authority supervising the operations of the *Legge*. During the procedures of inspection the textiles were drawn over a table where they were measured and a repertoire of criteria was being inspected to find out whether the piece would meet certain qualities. These qualities, originating from professional conventions, have historically been transformed into institutionalized standards that were defined by the rules.⁹ Mixed forms of defining the standards seem to have been common. When the textile met the required qualities, it was labelled with stamps or seals. Many

⁹ For this kind of processes, see the contribution of Bert De Munck (2011) in this issue.

textiles had to be folded, packed, and tied in a specific way for signalling a specific sort meeting certain grades of quality. These packed and labelled textiles could be traded as branded goods. They could be ordered as standardized products without the necessity of inspection on the place of origin because their already guaranteed qualities reduced uncertainty in trade for the customer. In case of dissatisfaction the customer could complain. For the textiles this kind of branding was not referring to the single producer, but to the place of origin. The authorities governing the organization for inspection and labelling were kept responsible for guaranteeing the expected standards of quality. Successful brands were often subject to imitation and even fraud. Against these offences the reputation of brands was rigidly defended (Kaiser 1987, 1988; Abraham-Thisse 2006).

By setting up the *Legge*, the city council of Münster had transformed a well established convention into practice. When the municipal administration was restored after the defeat of the Baptists in the late 1530s, first versions of the rule, the institutional base of the *Legge*, were documented. The oldest versions had the form of an oath of the *Legger*, the employed inspector, who maintained the *Legge* together with his wife and some further staff (Offenberg 1898, 298-299). Since the *Legger* and his wife received a salary providing a convenient living, he, his wife and the staff were not allowed to receive any gifts from the people bringing linen for inspection, although giving gratuities was a common practice without necessarily being considered as bribery. In the institutional framework of the rules the *Legger* and his staff were imagined as independent agents for providing an unbiased estimation of the quality of the inspected linens. The *Legge* as an organization was thus based on, and identified to, the person of the *Legger*. Later on, while still referring to the person of the *Legger*, the rules were more directed at the procedures that had to take place. Certain parts of the procedures were only mentioned, some were never included into the rules, but other documents indicate practices going beyond the procedures described. These rules were publicly hung out and defined an institutionalized framework for the procedures that had to be accepted by all the actors involved. When the city council had the impression the *Legge* would not operate properly it discussed the rules and in many cases it tried to intervene by amending or changing the rules. The most important indicator seemed to be the fees being raised for the inspection. They depended on the length of the measured linen and were used to finance the operations of the *Legge*. The remains were considered as a source of municipal income. Although these rules remained at their core rather unaffected, they were subject to historical change.¹⁰

The most important points of the rules were the following: The pieces had to be made of pure flax and it was not allowed to use hemp and the so called *hede*

¹⁰ For examples see Krumbholz (1898, 304-312).

yarn made out of the leftovers of the combing process of the fibres before spinning. The pieces were expected to have an even selvage and the 'usual' breadth. Some of the rules indicate that there were standards for the breadth in steps of a quarter of an ell. The fabric had to be woven evenly and with a density according to custom. In a first step the linens had to be measured and their length had to be written on both ends of the piece. In a second step the quality of the fabric was inspected. When the fabric met the requirements it was stamped with the seal of the city council. Other pieces were disqualified with a black cross or marked as 'half-disqualified' with a red cross. Afterwards each qualified piece had to be packed in a roll. The outside of the roll had to represent the quality of the whole piece, the labels were also applied on the outside, and depending on the quality of the fabric the rolls were tied in a certain way indicating the level. The linens were sorted in three levels of qualified linens, and into the categories of 'half-disqualified' and the disqualified linens. With these labels the linens could be traded as a branded good with certain certified qualities. Probably there were markets for all five levels of quality. Therefore it was not allowed to combine qualified and disqualified pieces in one roll to prevent fraud and damage to the reputation of the brand. After having passed these procedures the linens were sold. For most of the markets further information is lacking. Some of the merchants send representatives to the *Legge* for buying the linens. In 1601 a new rule for imposing their proper behaviour on the *Legge* indicates that these representatives were competing for the pieces they were interested in.

Besides several versions of the rules only the data for the volume of the annual income of the fees is available. These data indicate that the *Legge* was operating quite successfully, though the volume of the inspected linens was in steady decline since the 1580s. This decline was probably caused by the effects of the wars in the Netherlands on the European trade with textiles. Only for the year 1616 and a few months for the years from 1615 to 1620 records with single pieces of linen are being preserved. At this time the linens made up about a half of the volume of the 1570s. These records contain the name of the provider of the linen, who was not necessarily the producer of the piece, the length and the fee, that had to be paid for each unit of measured length.¹¹ With the names and the length of the pieces the linens and their providers can be analysed in more detail. 7,240 pieces of linen were being recorded and one of the most remarkable findings is the ratio of persons and pieces of linen: of the 3,680 names 2,728 are recorded only once, indicating that about 75% of the providers only delivered one piece of linen. This is a strong indicator for a sideline production on the countryside. Five and more pieces were brought by 220 providers. Most of the large providers were merchants; about 20% of the

¹¹ These linens had a special unit of measure called *doeck*.

linens were delivered in the name of 17 merchants who had bought the linens before. The documents do not provide any information on merchants contracting weavers or operating as *Verleger* in a putting out system.

The length of the pieces was not defined by the rules and the recorded data covers a large variety from very short up to extremely long pieces. Some of the very long measured lengths could perhaps result from a cumulated recording of several pieces. Nevertheless the length of the pieces seemed to matter, because the measured lengths accumulate around certain units generating four cumuli. For interpreting this finding, the way linen was sold for exportation has to be considered. After the inspection the single pieces were packed into larger rolls containing 1,500 ells. Since 1601 a sworn in packer had to take care of the packing and for keeping the rules. In 1606 the city council prescribed a certain mixture of pieces of high, medium and low quality for each roll. As some documents show, one roll usually contained 13 to 14 pieces of linen, indicating that these linens had to be of a certain length. It turns out that the merchants clearly preferred pieces which were of about such a length. But only around 30% of the recorded pieces provided this length and the merchants, who were selling the rolls to London and tried to influence the policies of the city council in their sense, only represented one production market (White 2002) of the several ones that were attached to the *Legge*. Due to the lack of further evidence it can only be assumed that the other cumuli of units of measured length also indicate standards for other sorts of linen which constituted the quality frames of other production markets. Maybe several *real worlds of production* were operated at the same time for different sorts of linen.

At first glance the inspection on the *Legge* did not follow very precise standards of quality, but a few indices mentioning certain sorts of linens give reason to assume that the rules for the *Legge* only provided a general framework for inspecting and classifying several sorts of linens that followed much more precise conventions and measures concerning design, size and the quality of yarn and workmanship. Unfortunately the specific qualities of these sorts were not documented; the linens were only classified as 'narrow' (*schmal*) or '*Legge*' linens and as 'broad' (*breit*) linens. The rules also show that the inspection was particularly directed to the quality and the volume of the materials used. Concerning the quality of yarn they were very precise with allowing only pure flax as raw material. Although the quality of yarn was usually measured with the ratio of length and weight, this indicator of quality was not documented or certified. With the measures of the pieces the volume of material was documented very precisely while for the quality of workmanship only general references to conventions were given. Being accurate with the kind of raw material and the volume of product, and as it referred to general conventions for the quality of workmanship, such a labelling was common practice in pre-industrial artisan production (De Munck 2007, 236-243). The quality of the

workmanship had to be guaranteed by the reputation of the producers and to be evaluated by the connoisseurship of the buyer (Reddy 1986; Grenier 2003).

What kind of *world of production* (Salais and Storper 1993) did this kind of linen trade on the *Legge* constitute? Already the number of people involved makes evident that not all the actors could have known each other. Since the weavers were not supposed to attach a producer's mark to their linens, the individual producer does not remain related to his product while it is transferred downstream along the product line. Although single artisan producers were fabricating the linen, the distribution of these linens after production was not based on personalized relationships of the producers with the buyers. Moreover the *Legge* was clearly designed to classify and certify the linens to allow their free distribution as standardized product. As complaints show the buyers expected the linens to confirm to certain quality standards. The limitations of producing generic products under the condition of handicraft production were met with proceedings of post-production sorting that seemed to be very common in pre-industrial production processes (Reynard 2000). It is still a common practice for industrial goods to receive generic product standards as systems of quality classes show. Also the markets for partly disqualified, but still useable products remain, for example in the trade with textiles and books. Even in present day industrial production keeping generic quality standards remains a problem and a low share of disqualified products can be of comparative advantage in competition with other producers. Taking the criteria for the models of *possible worlds of production* (Salais and Storper 1993, 40-55) this production regime constituted a kind of *industrial world of production* (Salais and Storper 1993, 44).

While analysing economies of an epoch which in established terms for labelling societies has to be considered as 'pre-industrial' the term 'industrial' might be debateable¹² and the term *world of serial production* seems to be more adequate. In a diachronic dimension the analysis shows that *worlds of production* for the serial mass production of standardized products were established long before the 'Industrialization'. The differences between industrial and pre-industrial production may be found in the very different forms of *real worlds of production* as historically changing practices of organizing production.

Within this framework of a *world of serial production* thousands of independent rural producers and different groups of merchants as buyers of certain qualities of linen coordinated themselves. The *Legge* constituted an organization designed as an at least formally independent third party between producers and customers for solving two problems:

¹² Also in respect of its historical-semantic emergence the scope of meanings covered by the term *industry* is rather wide (cf. Hilger and Hölscher 1982) and as a symbolic term for describing the generic-serial world of production *factory* would be more precise.

- The coordination between very large numbers of producers fabricating very small volumes of linens that were more or less conform to some quality standard and comparatively small numbers of merchants who were interested in buying linens that would match the standards of certain sorts and could be traded as branded goods.
- The reduction of uncertainty by guaranteeing and certifying certain standardized qualities and of the risk for the buyers of the linens on markets downstream, because complaints could be brought on trial at the city council. These guarantees enabled the traders downstream to deal the linens as branded goods that could be ordered without inspecting them on the location of sale. As long as they met the quality standards the uncertainty for the producers of finding a buyer was reduced to a calculable risk.

For coordinating the actors the *Legge* provided a general quality frame that allowed classifying and sorting the linens while the buyers had their specialized quality frames within which they constituted production markets directed upstream (White 2002), since they were competing for the best pieces of linen available. At least the merchants who were selling their linens to London seemed to operate on stable markets on the downstream side and when the merchant adventurers had moved the transfer between Westphalian and British merchants from London to Emden in late 16th century (Baumann 1990) the numbers of buyers seemed to be rather small. The merchants may be considered as producers constituting a production market (White 2002) since they transformed single pieces of unspecified linen into a commercial commodity. The rural small scale producers upstream probably did not constitute production markets. Without the established *world of serial production* they probably would have had difficulties to sell their linens. The *Kaufsystem* (Gustav Schmoller 1900) on the *Legge* allowed these producers to offer their product without getting dependent of the buyer and the merchants could avoid organizing a large number of small scale producers which would have caused them some expenditures respectively higher transaction costs. As long as the producers provided the sorts of linen the merchants demanded for, this *world of production* seemed to satisfy the needs of both sides. When the merchants were complaining they would not get enough pieces of high quality linen to supply their rolls properly, they convinced the city council to enforce a minimum breadth by rule to meet higher quality standards, but obviously the producers did not care to keep this standard. Here this *world of production* reached its limitations, since the merchants could not influence the way the weavers upstream were producing. The reason should not be seen in the stubbornness of rural producers resisting useful improvements of their products; it seems that the merchants were demanding higher qualities requiring higher investments in raw material by the weavers without offering sufficient economic incentives while the rural producers were not dependent on selling their linen in Münster.

At the core of this conflict were the consequences of an economy of scale. The profit of the merchants depended on the volume of the linens they could sell. Therefore they were interested in buying the highest qualities available for the lowest price possible. With their low production volume of single pieces the rural producers could not follow the logics of an economy of scale, by offering the highest output possible at the lowest quality that would be accepted, as it was practiced in other regions like Silesia (Boldorf 2006, 128-132). They had to calculate on the single pieces they offered and many of the weavers obviously did not consider the production of improved qualities profitable and kept offering their usual qualities or abandoned the linen market of Münster. But not all producers seemed to follow this kind of calculation. Although most of the weavers were only producing single pieces they were not operating a *world of interpersonal production*. Their relations to the merchants did not seem to be very close and the quality of the linens was designed to meet at least the minimum requirements of the standards necessary for passing the inspections on the *Legge*. But the different sorts of linen may also have offered restricted opportunities to follow the logics of an economy of variety within a framework of different levels of product standards. Some of the producers were delivering linens that met higher standards of quality, because they could choose the product standard that would be most profitable for them.

This kind of *world of serial production* was not the only *world of production* being practiced in early modern Münster, with its decline during 17th century others established. These new *worlds of production* were operated by different groups of actors aiming at other markets and they were not immediately related to the established *world of serial production*.

4.2 Contract Work of Urban Weavers in Early 17th Century

Since late 16th century the Eighty-years' War in the Netherlands affected the neighbouring Western Münsterland and some of the inhabitants migrated to the city of Münster. Among these migrants, the largest professional groups were the linen weavers (Hövel 1936). In 1602 a group of weavers submitted a supplication to the city council with some complaints. They described themselves as citizens having settled down in Münster and who were producing broad and small linen (*breiden und kleinen doeck*). They complained of being about twelve weavers who had taken the pains to obtain citizenship and who would bear the burdens and duties of a proper citizen, while about 30 persons producing linens and inhabiting the city without citizenship would be of disadvantage to their business, since these would not share the same duties. They also felt a lack of authority with their journeymen, who in case of conflict would just leave and despite of their lacking experience hire a loom, since they could not afford buying one. These practices would cause serious damage to their business, because citizens would take care to collect the finest (*aller kleineste*)

yarns, that would be spoiled or embezzled by inexperienced and unreliable weavers. The supplicants explicitly stated that fabricating narrow (*schmale*) and *Legge* linens should remain open to all men and women, but claimed that making 'small fine broad' linen (*kleinen feinen breiden tugh*) would be something different and constitute an important business within the city. Finally they asked the city council to accept a brotherhood for their trade and claimed that in other places the establishment of guilds or brotherhoods would have been of great advantage.¹³ The weavers referred to an established convention for organizing artisans, but the city council decided to reject the demand.

Ten years later, in 1612, the weavers submitted another supplication repeating the same complaints and asking for an administrator from the side of city council for their brotherhood, which they seemed to have founded informally, to improve their authority facing their apprentices and journeyman. While the weavers had based their organization on a convention, they were now asking for an institutional framework to participate in the authority of the city council. This time the weavers attached a list of weavers they suspected not to be citizens. In his reactions the city council did not care about the brotherhood, but started to investigate those inhabitants who were accused of not being proper citizens. In 1613 the weavers reminded the city council by submitting a draft for a rule of their brotherhood and with a few changes it was accepted. The rule and the supervision of the city council provided the institutional framework for the brotherhood as an organization to govern their production market. The first part of the rule regulated the access to mastership and to the brotherhood. It remains unclear how the founding weavers legitimized their masters' title since in most places of origin the weavers organized themselves later in 17th century. The major part of the articles regulated the employment of apprentices and journeymen. The final articles were dealing with the attendance at the funerals of the members. The product which gave the weavers the reason to establish their brotherhood, the small, fine and broad linen and its specific qualities, did not find any closer description in the rules (Krumbholz 1898, 297-304).

The process of immigration the weavers were referring to can be traced in the registers of citizens (Hövel 1936). After having established the brotherhood, it does not seem that the organization was engaged in excluding weavers from the trade. Moreover many weavers acted as guarantors that were necessary for acquiring the citizenship for other weavers. As they indicated, the suppliants saw themselves in a competitive disadvantage with the weavers that would not carry the burdens of citizenship and they were satisfied in this re-

¹³ In Münster some of the trades were organized in 17 guilds that were part of the political system until 1661 (Kirchhoff 1988). Besides these guilds artisans could organize themselves in secular brotherhoods which were restricted to the internal organization of the trade and its representation at the city council by which they were supervised (cf. Krumbholz 1898, 3-12).

spect when these burdens were equally being carried by all weavers they considered as their competitors. In the few documented cases of rejecting weavers, the city council ordered the brotherhood to accept these as members. With the exception of a few amendments to the rule, the brotherhood did not leave many traces of their activities until the 1630s. In 1635 a new article was amended to the rule ordering the masters to keep the proper measures of the linens of seven and a half quarters of an ell in breadth and 48 ells for the length of each piece. The masters were obliged to attach their marks which had to be registered in the book of the brotherhood. The principals of the brotherhood had to inspect and measure the linens. In case of prosecutions of the rules they had to fine the weavers. Since the principals were not ordered to attach any certificate after inspection, this procedure of quality control remained invisible for the buyers and did not constitute a brand.

This article does not seem surprising, but in the view of the developments that were following it indicates a turning point in the way the members of the brotherhood produced their linens. Therefore the *world of production* the weavers of the brotherhood operated will be discussed now. In their supplications the weavers claimed to produce linens of a certain quality with yarn provided by citizens who also received the finished work. They also emphasized that unqualified work would damage their trade and as the articles of the rule show, the brotherhood tried to ensure a certain professional qualification of the producers. Interpreting these findings suggests that these weavers were producing *Lohnwerk* (Karl Bücher 1922) on contract in an interpersonal relationship with the contractors. They seemed to have operated an *interpersonal world of production* (Salais and Storper 1993, 45). This could also explain why the specific qualities of the linens produced by the members of the brotherhood were not regulated until 1635 because the specific qualities of the linens could be negotiated between the weavers and the contractors. The weavers had to guarantee for the quality of their work; therefore their personal reputation was of great importance. Since there were about 90 to 100 households of linen weavers within the city, not all contractors seemed to find reliable or sufficiently qualified weavers as the founders of the brotherhood claimed. Unfortunately data on the membership of the brotherhood is lacking, but it probably never had much more than 30 members. Most of the names of the weavers turning up with the establishment of the brotherhood were not mentioned in the registers of the *Legge*, indicating that they were producing some other sorts of linen than those being sold there. The supplications suggest that the suppliants were competing with other weavers within the city. In this situation the founders of the brotherhood decided to maintain a certain quality frame directed to an improved level of quality and the brotherhood was designed to improve their reputation in face of their contractors (De Munck 2007b). Their production market was directed upstream (White 2002), since the weavers were competing for contractors that would provide them with raw material for the production

and would take back the finished product. In an environment where weaving linen was a common competence practiced by many people they faced the problem of distinguishing and securing the quality level of their quality frame. To prevent their production market from the domino effect of unravelling caused by producers on the edge that did not have the means to invest into proper quality standards according to the quality frame, the founders of the brotherhood chose the option of a guild counteraction op-out to stabilize their production market (White 2002, 84-87).

This *interpersonal world of production* with its protected production market seemed to provide a stable environment for establishing a professionalized production of linens. In the late 1630s this development seems to have reached a state where this established *world of production* was transformed into another one.

4.3 Shifting to the Urban Production of Standardized Linens

The amendment to the rule of 1635 shows that the weavers of the brotherhood were now fabricating a sort of linen that was much more standardized than the other sorts of linen traded in Münster and the necessity had turned up to make sure that the proper measures were kept. Here again the correct volume of material is being inspected, not the quality of the fabric. The inspection remained invisible for the customers and the linens were only labelled with the mark of the weaver. The brotherhood still seemed to draw on the personal reputation of their members (De Munck 2007b). These findings indicate a shift of the weavers from their *interpersonal world of production* into a variety of a *world of serial production*. There is almost no historical material on the activities of the brotherhood available and the reasons for this shift can only be assumed. Probably the demand for linen fabricated on contract for citizens was too restricted for providing sufficient income to all weavers of the brotherhood in the long run and the weavers tried to access the export markets for linens. Obviously they decided to offer a quality of linen that was usually not traded on the established markets attached to the *Legge*. A few remarks in the documents of the city council indicate an increasing commerce with broad linens (*breitem leinen*) and the council was already considering to enforce the inspection of these linens on the *Legge*. Who the actors on the merchant's side in the commerce with linens produced by the brotherhood were remains unknown. The process of transformation gets more obvious with a reform of the *Legge* the city council imposed in 1638.

During the Thirty-years' war the city of Münster had defended itself with its own troops and the high costs led the city council to improve any possible source of income. Caused by the decreasing volume of inspected linens, the fees of the *Legge* did no longer provide the income expected and in the council decided to reorganize the *Legge* by introducing the obligation to deliver the

broad linens for inspection. Since the early 17th century the city council had recognized the flourishing trade with broad linens and it had already considered to make the inspection obligatory. For some reasons it hesitated and even accepted to amend the article to the rule of brotherhood instructing their principals to inspect the linens without the explicit requirement of bringing them to the *Legge* despite the general obligation claimed by the rules of *Legge* since it had been established that all linens being traded within the city had to pass it.

With the new rule of 1638, (Krumbholz 1898, 311-312) the council tried to establish a regime of control to ensure that all linens would be delivered for inspection. The rule did not provide any description of quality standards, but the inspectors of the brotherhood were supposed to label the pieces with numbers according to the weaving combs being used. What seems to be a simple issue was subject to prevalent conflicts in almost all regions of textile production, because weavers almost generally denied the possibility of qualifying linens according to the kind of weaving comb they had used (Peyer 1960, 14; Boldorf 2006, 124-125). While the inspection of the narrow linens had taken place publicly almost every day, the new inspections took place twice a week and the linens had to be delivered the day before and to be collected afterwards. The inspection was no longer open to the public. When the linens conformed to the quality standards they were stamped with the seal of the city. When imposing the reform of the *Legge* the city council seemed to be directed by his interest of improving the fiscal income of the city while there are no indications that merchants tried to take influence on the commerce with linens.

The city council seemed to have introduced the new rules without consulting the brotherhood in advance although the brotherhood was supposed to provide two inspectors for assisting the *Legger*. The brotherhood reacted with sharp protest and tried to prevent the new inspection regime. The city council threatened the weavers with severe punishment and finally succeeded. In the following years more than 3,600 pieces were inspected annually. Despite of this success the city council was not completely satisfied with the operations of the *Legge*. Some of the regulations of 1638 probably turned out to be impractical and the city council decided in 1642 to reorganize the *Legge* again. The new rule was now much more directed to the standards of quality that had to be inspected. A new table with the length of eight ells was installed and the linens had to be folded with layers of eight ells. This way the length could be measured by setting the folded piece on the table while it was inspected by turning through the layers. The weavers were supposed to clean their pieces by cutting off threads and knots. They still had to attach their mark, but now it had to be sewn in for preventing any prejudice at the inspection. For classifying the linens by numbers secure samples had to be provided on the *Legge*. The linens had to be delivered the day before inspection, while the inspection remained without public. Concerning the organization the city council decided to delegate two of its members for supervising the inspection. These delegates kept

the key to a new box for locking in the seals to ensure that the *Legge* would only be operated in their presence.

The weavers seem to have accepted this rule and the incoming fees indicate that in some years almost up to 6,000 pieces of linens were passing the *Legge*. This was probably more than the members of the brotherhood could produce themselves. Despite of that, conflicts seem to have occurred between the brotherhood and other weavers, because the city council mentions conflicts as a reason for negotiating a contract between the brotherhood and the weavers of narrow linen (for whom the new term *Schmalweber* was introduced). The contract was set up together with the new rule of 1642 and amended to the rule of the brotherhood. Weavers outside the brotherhood were prohibited to operate looms allowing the production of broad linens. They had to keep the breadth of their linens one quarter of an ell below the standard of the broad linens. The brotherhood was allowed to search the narrow weavers and prosecutions had to be fined. Since there are not many cases in which the brotherhood complained about irregular producers, it seems that it did not use the contract for extensively persecuting other weavers. The contract is another indicator of the changes that had taken place. After the weavers of the brotherhood already had started to produce linens confirming to rather rigid standards of quality, the obligation to have their linens inspected and labelled on the *Legge* transformed it into a branded good. After the procedures of inspecting and labelling the linens were concentrated on the *Legge*, the brotherhood seemed to have seen the necessity of restricting the access to the *Legge* for keeping weavers producing broad linens without joining the brotherhood from receiving the same certificates like its members. There is not much evidence for a restrictive strategy of rent seeking since only a few cases of persecuting weavers are documented while the volume of inspected linens and other indications give reason to assume that there were producers outside the brotherhood.

The *world of serial production* for broad linens operated by the weavers of the brotherhood was quite different of the one being established before. While the yarn was bought on local markets, the linens were finally sold to merchants in Amsterdam, one of the largest markets for linen in Europe. As a conflict in 1670 shows, the weavers had precise ideas how their linen should be sold and they knew some of the Dutch merchants who were buying their linens. How the chain of distribution was organized between Münster and Amsterdam remains unclear. The brotherhood could maintain this business quite successfully until the 1660s. Afterwards the wars prince bishop Christoph Bernhard von Galen led against the Netherlands impaired the linen trade for several years. As a consequence the members of the brotherhood probably diversified their production in the late 17th century and the trade with the branded linens was continued on an annual level of 1,000 to 1,200 pieces until early 18th century. Later on during the 18th century only a dozen urban weavers remained and these had returned to weaving on contract for local citizens.

With their move from one *world of production* to another one, the structures of the production market (White 2002) also changed. It was now directed downstream and it also switched from a kind of business-to-customer market providing a certain kind of service (*Lohnwerk*) to a business-to-business market where linens produced by the weavers on their own (*Preiswerk*) were being sold to merchants. There are no indications whether the production of linens followed any fashions within the given conventions. The production of the brotherhood probably rather served a long term demand for standardized basic fabrics that were not subject to fashions, but were expected to meet the anticipated quality conventions.

At the same time the weavers shifted from an economy of variety to an economy of scale. The logic of an economy of scale might also be the reason that the members of the brotherhood were not too rigid with restricting the access to the *Legge* and the persecution of other weavers, because some of the members of the brotherhood seem to have traded linen and employed other weavers to a degree that other members brotherhood tried to restrict these tendencies. Strictly enforcing the rules would have limited the capacity of production and the profits gained by selling as many pieces of linen as possible.

This *world of serial production* was based on two organizations, the brotherhood and the *Legge*, that were combined, though some conflicts between the brotherhood and the city council on the governance of linen trade remained. The obligation to bring the linens to the *Legge* and to delegate the inspectors restricted the independence of the brotherhood to govern the whole process of production on its own. Despite its resistance in the beginning, the brotherhood quickly seemed to have realized that the distribution of the linens as branded goods was of advantage for selling their linen. With maintaining their quality standard the weavers as an extremely small group of producers could establish their product on one of the largest European market places.

In the long run the enduring conflicts the brotherhood had with the city council were therefore not directed against the *Legge* as such, but against the way how it was governed. With the exception of the two supervisors of the city council not only the inspectors but also most of the *Leggers* originated from the brotherhood. After prince bishop Christoph Bernhard von Galen had conquered the city in 1661 and tax farming for many sources of municipal income was introduced, the *Legge* was set on lease in annual auctions for several years and most of the leaseholder also seemed to be linked to the brotherhood. Several times the brotherhood offered to operate the *Legge* on its own, if the city council would withdraw its delegates which the brotherhood considered as an unnecessary cost factor since they were receiving significant parts of the incoming fees. Until the 18th century the brotherhood claimed their interest to keep the *Legge* in operation. Despite these personal links there are no indications that the inspection was done inaccurately to the advantage of members of the brotherhood. The brotherhood seemed to have known quite well that it had to

maintain a certain quality standard for selling the linen on the very competitive markets of Amsterdam.

When during the late 1660s merchants from Southern Westphalia claimed to keep the labelling with numbers, the brotherhood tried to convince the city council with the help of merchants in Münster and Amsterdam to give up this kind of labelling, because it would harm their business in Amsterdam. The weavers declared they would not care for the needs of inexperienced merchants from the countryside. Within the quality frame guaranteed by the inspection of the *Legge*, weavers and merchants wanted to restrict the labelling on the volume and the quality of the material, while the evaluation of the fabric should to be left to connoisseurship.¹⁴ Indicating the quality of the fabric with numbers would be of disadvantage to both sides. The merchants that were demanding the labelling with numbers were suspected of trying to sell low quality rural linen under the brand of the *Legge* and to use the numbers to upgrade the level of quality in a fraudulent way that would damage the reputation of the brand. When the brotherhood was founded, the weavers intended to reduce uncertainty of interaction with their customers with the reputation of their brotherhood, now the reputation of the brand was decisive. While it seems likely that the weavers were maintaining personal relations with some of the merchants buying their linen, the particular quality of these relations remains unknown. The conflicts on the labelling of the linens show that the brotherhood relied on the reputation of the labels while it did not consider its reputation as the organization of the producers and its interpersonal relations sufficient for successfully selling their linen in Amsterdam.

The assumed strategy of the merchants was directed to draw further profits based on the logic of an economy of scale by lowering the quality standards for increasing the volume of cheap linens. To prevent this kind of strategies the weavers, but also many merchants, opposed classifying the quality of workmanship. The merchants claimed that this kind of classification would not be reliable and therefore of disadvantage for their business. For this kind of classification weavers and many merchants explicitly referred to the connoisseurship of the buyers, who had to decide for themselves how they would estimate and evaluate each piece. The conflict also makes obvious that the weavers had to keep up a certain balance between the volume of their production and preserving their quality standards. The share of the market of the broad linen of Mün-

¹⁴ Connoisseurship has to be considered as a basic competence of any participant in pre-industrial commerce (Grenier 2003). It does not necessarily implicate interpersonal relations. Connoisseurship lost its general relevance in the 19th century, when firms as legal persons had to guarantee for the quality of their products and replaced the conventions of highly differentiated sorts and their labels of origin as guarantors for certain quality conventions (Reddy 1986).

ster was very small and could only be maintained by keeping up an above average standard of quality.

With the brotherhood and the *Legge* two organizations based on two institutional frameworks were dedicated to maintain two different conventions of quality. As an organization of producers the brotherhood claimed to establish a certain degree of training and qualification of the weavers to provide professional standards of workmanship.¹⁵ At the same time it refrained from labelling its linen with an own mark. Since it never used such a label before 1638 and does not seem to have even asked for such a permission, the brotherhood considered the labelling of the *Legge* as sufficient. With the contract with the narrow weavers of 1642 it rather drew on the option of excluding other weavers from the access to these labels. Their specialized product, the broad linen, had to conform to a rather precisely defined convention of quality and pieces that would not meet the convention could not pass the inspection nor receive the label. The established procedures on the *Legge* were changed and the new rules were directed to the requirements of this more precisely defined quality of only one standardized sort of linen. The linens could be traded beyond the reach of the personal relations and the reputation of the brotherhood as branded goods with a guaranteed standard of qualities. In this *world of serial production* a small organized group of producers had to be coordinated with unknown buyers, probably a small number of merchants, who sold the linen on the Amsterdam market. In the view of the weavers this was their target market and the design of their products had to meet the requirements of the merchants on this market. In this respect the linen market of Amsterdam has to be recognized as part of this particular *world of serial production*.

5. Conclusion

These examples show that product qualities are closely linked with forms of social order in production processes and on markets. The common base for the different forms of fabricating linen in the region may be seen in the wide spread competences of an industrial district covering most parts of Westphalia, where local social figurations generated and operated a variety of *worlds of production* for fabricating linen. There never existed a kind of ‘Westphalian’ linen as such, but a region of origin for different kinds of linen. The *économie des conventions* offers models for analyzing these different social figurations. Originally developed for the analysis of industrial societies, the approach of the *économie des conventions* is also well suited for the interpretation of pre-industrial economies because it is not based on premises which would limit its application to particular forms of societies. Moreover the *économie des conven-*

¹⁵ On the relation of the production of the brotherhood and labour markets Jeggle (2009b).

tions are asking how actors were organizing social interaction and offers models with propositions for complex repertoires of economic action. These models allow interpreting the often desperate findings in historical documents. The quality of products as a point of departure has turned out to be very useful, because these qualities are of great importance in the discourses documented in the historical material. The case studies have shown that the *économie des conventions* offers tools for a differentiated analysis of pre-industrial production and distribution processes. They show that economic interaction is an expression of culture emerging from certain social figurations and go beyond the accumulation of social, cultural and economic aspects.¹⁶ The Historical School of Economics introduced a lot of analytical models for particular forms of economic interaction like *Lohnwerk*, *Preiswerk* (Bücher 1922) and *Kaufsystem* (Schmoller 1900). While the historic-teleological frameworks within these models were developed have been omitted and these terms are now used for describing certain features of economic practices without constituting a particular framework, a new comprehensive framework for analysing pre-industrial economies as a result of structured social interaction has been missing. During the last 20 years the New Institutional Economics have been discussed by economic historians as such a framework. Not only the theoretical premises of the New Institutional Economics remain debatable, the approach cannot deal sufficiently with the different qualities of actors and products. These qualities are of great importance for the economic actors, therefore the discussion of the *économie des conventions* as comprehensive framework for economic history should be intensified.

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¹⁶ See also Diaz-Bone (2010b, 117-136), (2009b) and for the history of luxury and consumption Jeggle (2010).

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