INTRODUCTION

This essay has two aims. First I will attempt to analyze the construction and functioning of the proto-industrial model; to this end it is necessary to examine each of its components, and to account for its consolidation and historical relevance in different regions of the world; then I will try to evaluate its limits and advantages as a methodological approach. In spite of the widespread of the proto-industrial paradigm, the concepts that have emerged from it are sometimes used indiscriminately when applied to societies that went through an industrialization process, especially peripheral societies.

Secondly, I will look into how close a fit there is between the proto-industrial model and concrete empirical evidence from a specific case: the 8th and 13th cuarteles of the city of Guadalajara in Mexico, registries of which were drawn up in 1821. These documents are part of the collection of the city’s population registries (padrones) taken between 1813 and 1822. Therefore, I consider it feasible to codify this information in order to construct a series of simple and compound demo-economic relationships of the inhabitants of Guadalajara. On this basis I will try to determine whether the proto-industrial proposal is capable of generating coherent explanations of the first manifestations of the industrialization process in a peripheral society where small production units (SPU’s) have predominated, as in Western Mexico.

I. THE PROTO-INDUSTRIAL THEORY

Construction and Functioning

The phenomenon called the Industrial Revolution has been regarded as the starting point of a process that eventually led to the consolidation of industrialized societies, England being the
earliest national model (O’Brien, 1986: 293). Some authors have defined the phenomenon as a complex background of technical changes in the means and modes of production (Landes, 1961: 6). But the original causes of the process have been explored from a wider perspective. Classic studies focus on the irreversible social, political and economic changes, while the German Historical School stressed the transcendence of household industrialization. Still others analyze the Industrial Revolution as a phase in the development of the capitalist production system (Marx, 1993; Mantoux, 1905; Ashton, 1983; Landes, 1975 and 1999; Hobsbawm, 1971; Kriedte, Medick and Schlumbohm, 1986; Braudel 1979; Dobb, 1988; Pipitone 1995).

Seen from the Marxist perspective, the Industrial Revolution was the last transition stage between feudalism and capitalism, a time when characteristics of both systems co-existed (Sweezy et al., 1954). At first, scholars detected certain factors of change: the pursuit of production surplus led to the transformation of an economy traditionally linked to land ownership, the increase in agricultural productivity triggered population growth, and the gradual emergence of worker-owners created an allocation of labor. The linkages among these factors stimulated market expansion, which led to an increase in manufacturing production.

Nevertheless, the influence of the Industrial Revolution was not limited to the countries where these changes occurred. While some regions of the world underwent a process of economic growth and development, others experienced a process of underdevelopment. The need to find raw materials for production, along with buyers of manufactured goods, was the driving force behind the creation of a world market, which inevitably affected other industrialization processes that were gradually getting underway, subject to their own internal limitations and problems. In the case of Latin America, some authors regarded the economic backwardness and technological inequality as elements that were inherent to the global historical process of capitalist development, situations that led to the formation of semi-

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2 The city of Guadalajara was divided in 24 cuarteles in 1821 (neighborhoods usually linked with the catholic parish).

Even though certain elements are generally recognized as having triggered the Industrial Revolution, the debate is far from over. One of the most promising paradigms for confronting the flood of issues was proposed by F. Mendels (1972: 242-262); his suggestions were then taken up and expanded by other researchers. In their monumental work, Kriedte, Medick and Schlumbohm (1986) wrote of «the industrialization before industrialization». According to proto-industrial theory, agricultural surplus led to constant population growth; in addition, people started marrying at an earlier age, which raised fertility rates and the productive potential of households, due to the increase in the number of their members. This led in turn to the growth of manufacturing production in rural areas, and stimulated trade and urban development. This incipient industrialization made itself felt in generalized economic growth, and according to the model, provided sufficient elements to set off the process of full-fledged industrialization (Cailly, 1993: 19-20; Desama, 1981: 147-8; Deyon, 1979: 9). The novel argument of the proto-industrial theory was to regard the extension of domestic industry as a preliminary stage of the Industrial Revolution, which was seen as one of the consequences of a dying feudal system. P. Jeannin (1980: 52) considers the proposal ambitious, but recognizes that it has opened the way for methodical research into a generally confusing area of economic history.

The Consolidation of the Model

According to the model and its empirical evidence, a labor surplus arose in the proto-industrial phase due to demographic growth, for which the lowering of marriage age and the reproduction of artisan households were crucial. One sector of the workforce began to engage in manufacturing activities in rural areas, to the point of specializing in them and thus complementing the family income. This phenomenon represents one of the basic hypotheses
of proto-industrialization: temporary employment in manufacturing gave rise to a proletarianization of peasants, who had to adapt to new work rhythms, while the market-bound manufacturing production was controlled by a Verlager. In the proto-industrial model, complementarity among specialized regions is indispensable for economic growth; in fact, this relationship can be found between urban and rural areas of a single region (Deyon and Mendels, 1981: 11; Ho, 1984: 894; Chao, 1984: 958; Ogilvie, 1993: 159-179; Mendels, 1972: 252; Mendels, 1984: 945; Ciriacono, 1996: 317 and 394; Gutmann, 1996: 154 and 156; Honenberg, 1996: 9). What has sustained the consolidation of the proto-industrial model is its multi-variable analytical structure for transition periods when stages of the capitalist system overlap. It is true that case studies reveal the limitations of the approach, but it is no less true that they also contribute new elements that end up reinforcing it (Leboutte, 1996: 7; Berg, 1996: 213). So the question arises: Could the proto-industrial model have the same explanatory power for peripheral regions like Western Mexico, which has seen its industrialization process truncated?

An Evaluation of the Model

The proto-industrial theory suffers from considerable limitations, which generate difficulties and challenges for the objectives that this study has set out to reach. Therefore, I will point out only three basic restrictions. First, undue attention was initially paid to the agricultural context, while urban activities were shunted to the background. Mendels (1981: 11), however, recognized this limitation and tried to rectify the omission of the city by proposing a new interpretation. In this way it became clear that the rural environment did not necessarily represent the ideal setting for the proliferation of these activities. The fact that some productive sectors developed essentially with rural labor was not sufficient cause to disregard other cases where cities offered suitable conditions for the multiplication of family-run and non-family SPU’s, which is what happened in Mexican cities, including Guadalajara, in the
first half of the 19th century (Illades, 1996: 23-66; Gómez, 1985: 13; Illades, 2001: 29-45). Thus, the urban-rural divide has not been universally relevant to this analysis. M. Berg (1996: 214) has in fact come to the conclusion that it a false dichotomy, in which dynamic and static variables also have an influence (Maitte, 1997: 181 and 201).

Second, the paradigm must also tackle the problem of boundaries between pre- and proto-industrial, which implies different time frames, logics and institutional contexts. Even though Mendels tried to clarify what he meant by proto-industrial, uncertainty has persisted. The debate has once again taken a turn toward the articulation between urban and rural activities, but the most significant aspect has been the types of accessible markets, and not the antagonism by definition among their actors. This latter focus has led to a simplistic or exaggerated vision, whereas the empirical evidence paints a more complex picture of changing contexts. Now an urban proto-industry has been posited, which in the 70’s would have been received as an incoherency in the debate.

Third and last, historical research has had trouble to point out precisely the type of articulation that occurred among the actors, given the model’s rigid criteria. The links are usually mixed in with other forms and characteristics; the only way to make these abstractions would be through continuous, long-term research. The activities of peasant-artisans were not limited to land work or manufacturing; it was feasible for them to become marketing agents. Strict adhesion to the model impedes a full appreciation of the empirical evidence. There is even divergence in the paths taken by specific industrialization processes. One example was the transformation of proto-industrial areas into industrial regions as a regional peculiarity, or the type of insertion in world trade at early or later stages. The co-existence of different productive units has been a recurring theme in studies of industrialization processes. Mention can also be made of the persistence of SPU’s in Latin America as a long-term phenomenon.

Discrepancies notwithstanding, at least three results are clear: 1. The proto-industrial vision stimulated regional studies in different historical periods, which has continually
reframed the discussion and shed light on the complexity of the phenomenon. 2. It has taken its place as a demo-economic model that identifies key variables, and as a legitimate heir to historical demography with its own supporting empirical evidence. And 3. Once the generalization of the proposal is established, the challenge has been and will continue to be the incorporation of both evidence and critiques of the model in a logical structure, for the purpose of elaborating a more complete interpretation.

III. THE THEORETICAL RELEVANCE OF WESTERN MEXICO IN THE EARLY 19TH CENTURY

Problems Inherent to Industrialization in Peripheral Societies

By looking for explanatory elements of an internal nature, situated in a specific regional time and space, it may be possible to increase our knowledge about the factors that had an impact on industrialization in peripheral societies. The most influential schools of economic thought in Latin America insistently pointed out the historical factors behind this problem (Prebisch, 1996: 175-245; Chiaramonte, 1984), and yet, when pressed to account for specific cases, their explanations were not entirely convincing (Bernecker, 1992: 11-14; Haber, 1999: 9-46; Stern, 1988: 828-872). Mexico is no exception: the arguments that attempt to explain the difficulties in achieving the economic growth have focused stubbornly on the external context (Ferrer, 1996: 9-50; Jaguaribe, 1970: 3-85). Other visions have looked for the causes of the country’s stagnation in the Colonial period, using a neo-institutional approach (Coatsworth, 1990: 325; Haber, 1999: 9-46). Still others have insisted on a classical vision of industrialization in Mexico in the 19th century, based on the formation of large-scale productive units as the only feasible strategy (Cardoso, 1980: 155-156; Olveda, 1991: 139; Beato, 1985: 190). A vision of SPU’s as decadent element has become widespread not only for peripheral societies; it has also become commonplace in Europe. A counterproposal has been made that admits a world of possibilities for industrialization, emphasizing the multiple forms of productive structuring

At the beginning of the 20th century, Max Weber (1991:176) pointed to household industry with non-free labor as a universal phenomenon. Regardless of the universality of the phenomenon, research with a proto-industrial focus has been done that accounts for the existence of this production unit in different regions of the world (Rudolph, 1985: 47-69; Saito, 1996: 537-553; A’Hearn, 1998: 734-762; Ahmad, 1997: 315-323; González, 1984: 11-44). The simple presence of household industry, however, does not guarantee the emergence and functioning of a proto-industrial system. As far as Mexico is concerned, the model has been used partially to study demographic dynamics in the late Colonial period: the proliferation of manufacturing, artisans’ workshops and their links to agriculture (Miño, 1993: 227; Miño, 1989: 793-818; Ouwenneel, 1989: 399-417; Thomson, 1991: 257; Thomson, 1989: 62; Salvucci, 1992: 287; Coatsworth, 1989: 538-545; Coatsworth, 1989a: 549-557; Ouwenneel, 1991: 531-577). Nevertheless, I think the proto-industrial concept has been used indiscriminately, without rigor or prior analysis, which means its methodological value has been overlooked. If this trend continues, the risk is that proto-industrialization will turn into nothing more than an easy concept for referring to the pre-industrial stage; it will also become more difficult to study the ages of SPU’s, and to make a relevant international comparison.

Studies like the one done by Miño (1989: 808) have used the proto-industrial perspective to draw attention to early manufacturing activities in Guadalajara and other parts of New Spain in the 18th century. I believe that their proposals, with all due respect for their originality, need to be re-examined. The proto-industrial perspective is attractive, but insufficiently explored with regard to Mexican cases. Comparing the manifestations of industrialization in peripheral societies not only enriches the discussion, but also quite likely will bring out new objects of study concerning the peripheral regions, especially if light is shed on the factors that have blocked their development and the differences in the type of

**The City of Guadalajara in 1821 as Empirical Evidence**

Other studies that have looked at 19th-century Western Mexico have detected certain elements in common with European proto-industrial areas of the 18th century: specialized agricultural production, population growth, an increase in manufacturing activities, ties between merchants and artisans, etc., (Riojas, 2000: 221-247; Riojas, 2003 and 2003a). Some of these elements have appeared implicitly or explicitly in other studies of the same region (Anderson, 1983; Brading, 1993, Van Young, 1989; Lindley, 1987; Serrera, 1991). There are many other decisive aspects that we know nothing about, or that we need to study in more depth: the make-up of artisan households, concrete forms of financing offered by merchants to artisans, demographic indicators of production units, etc.

SPU’s are crucial to this kind of research, regardless of the problems they faced over the course of the 19th century (process of independence, political destabilization, economic crises, foreign intervention, coups d’état, etc.). SPU’s have also been associated with backward economies characterized by property fragmentation and an army of poor small landowners (Cardoso, 1980: 155-156; Olveda, 1991: 139; Beato, 1985: 190; Bernecker, 1992: 23; Salvucci, 1992: 98). In fact, historical studies of 19th-century Guadalajara often use the words “artisan” and “poor” as synonyms (Anderson, 1983: 20 and 31-2; Olmedo, 1997: 42 and 179), which I believe reflects a partial understanding of the problem and an ignorance of the logic of the city’s artisan economy. SPU’s have also been regarded as a diffuse form of industrialization, with a certain flexibility and adaptability to adverse conditions, which did not keep them from attaining levels of competitiveness that factories rarely achieve (Alba, 1987: 50-60; De la Peña,
The key to industrialization is the formation of a more diversified economy and a culture of ongoing technical change.

The persistence of SPU’s in the regional manufacturing context has not been appreciated in its real dimensions, basically because of the complications involved in measuring its macroeconomic impact and the few elements that exist for examining their microeconomic performance. If we bear in mind the fact that industrialization and proto-industrialization are processes that take shape in a regional context, then it becomes necessary to define an area that will serve as empirical evidence for verifying the model’s usefulness. To this end I have based my study on Western Mexico in the early decades of the 19th century, specifically on Guadalajara, the main regional center and one of the most populated urban areas in the country, with a dynamic economy where artisan-manufacturing activities occupied a significant place in the productive structure of the country, to such a degree that they challenged traditional manufacturing centers like Mexico City, Puebla, Querétaro or León. It is also imperative to remember that this historical period was marked by the bloody struggles for Independence’s wars, the consequences of which were felt throughout the rest of the 19th century.

The study of certain sections of Guadalajara has been made easier thanks to the existence of detailed demographic registries that were made for taxation and military purposes. These documents cover roughly the period from 1813 to 1822. From these documents I generated a series of simple and compound demo-economic relationships that as a whole help to explain certain characteristics of family-run SPU’s from the proto-industrial perspective (Table 1). Before going on, I must point out that these registries have been systematically studied in various stages by Rodney Anderson and his team of collaborators,

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3 Municipal Historical Archives of Guadalajara (AHMG, in their initials in Spanish), Cs.3/ 1821 Ant. Paq.38 Leg.17; Cs.3/ 1821 Ant. Paq.38 Leg.8.
but none of their studies have made use of the proto-industrial model or any theoretical approach beyond the classical premises of Peter Laslett (2000).  

Table 1. Fundamental Demo-economic Relations

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Notation</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Size of household (H)</td>
<td>T</td>
<td>Frequency of H by size</td>
</tr>
<tr>
<td>2</td>
<td>Occupations registered for H</td>
<td>O</td>
<td>Characterization of H as artisan/manufacturing or non-artisan/manufacturing</td>
</tr>
<tr>
<td>3</td>
<td>Status of H members (HM’s)</td>
<td>Si</td>
<td>Listed as doña, don or doncella</td>
</tr>
<tr>
<td>4</td>
<td>Age of HM’s</td>
<td>Exi</td>
<td>X according to family relationship, e 0 &gt; i &lt; 99</td>
</tr>
<tr>
<td>5</td>
<td>Sex of HM’s</td>
<td>Sxi</td>
<td>Sexes</td>
</tr>
<tr>
<td>6</td>
<td>Marital status of HM’s</td>
<td>C</td>
<td>Marital status, and family relationships</td>
</tr>
<tr>
<td>7</td>
<td>Origin of HM’s</td>
<td>P</td>
<td>Where they are from, immigrants or locals</td>
</tr>
<tr>
<td>8</td>
<td>Urban location of DG</td>
<td>U</td>
<td>Location within the city</td>
</tr>
</tbody>
</table>

b) Compound Variables

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Notation</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>( f(O) ) Artisan/Manufacturing</td>
<td>( f(O) )</td>
<td>Occupation as related to artisan / manufacturing activities, where ( f(O) = 1...n )</td>
</tr>
<tr>
<td>10</td>
<td>Size of H and Occupation</td>
<td>T ( f(O) )</td>
<td>The size of the H as related to occupation</td>
</tr>
<tr>
<td>11</td>
<td>Social status as related to occupation</td>
<td>Si ( f(O) )</td>
<td>Social status as related to the occupation of the HM’s</td>
</tr>
<tr>
<td>12</td>
<td>Average age of H</td>
<td>( \bar{E} f(O) )</td>
<td>Average age of H as related to artisan/ manufacturing occupation</td>
</tr>
<tr>
<td>13</td>
<td>Mother’s age when her first child is born and the occupation of the HM’s</td>
<td>( \bar{E}m- \text{Em} = \text{Elm} ); ( \text{Elm} )</td>
<td>Mother’s age when her first child is born (initial age) as related to the occupation of the HM’s</td>
</tr>
<tr>
<td>14</td>
<td>Fertility variance in years</td>
<td>( s^2 ); ( \bar{E}im ) ( f(O) )</td>
<td>Variance in mother’s fertility age where ( i = 1...n ), as related to occupation</td>
</tr>
<tr>
<td>15</td>
<td>Initial Age as related to Status</td>
<td>( \bar{E} f(S) )</td>
<td>Mother’s initial age as related to status</td>
</tr>
<tr>
<td>16</td>
<td>Place of origin and Occupational Trade</td>
<td>( P f(O) )</td>
<td>The place of origin as related to the registered occupational trades of the HM’s</td>
</tr>
<tr>
<td>17</td>
<td>Sex of the HM’s and the occupational trade</td>
<td>( Sx f(O) )</td>
<td>The relationship between the sexes of the HM’s and the occupational trades performed</td>
</tr>
<tr>
<td>18</td>
<td>Urban location and occupation</td>
<td>( U f(O) )</td>
<td>Relationship between the urban location and the occupational trade to detect neighborhood specialization</td>
</tr>
</tbody>
</table>

Source: This series of relationships was built up on the basis of data presented in the registers of Guadalajara, specifically from Cuarteles 13 and 8 in 1821.

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4 Both Anderson and some of his collaborators (Lindsay and Matt Harrington, whose work was presented in the seminar Registries and Censuses of Guadalajara, 18th to 20th Centuries, Guadalajara, April 28-29, 2004), when studying these registries, used the classic family-history approach derived from Laslett (2000). Even though these studies could show some connections to elements derived from proto-industrialization, they are far from presenting an overall or partial vision of the phenomenon, as I attempt to do here. In the discussion of the proto-
Their analyses have focused more on the city’s social history and its ties to the wars of Independence, a phenomenon that I do not overlook, but which is not an essential part of our object of study. The first stage of the study of the Guadalajara registries (1821-1822) was carried out on a sample of the registries. At that point Anderson (1983) raised a series of doubts regarding the mode of production and the articulation between household units engaged in artisan work and the productive system, but was unable to offer satisfactory answers about these phenomena. The second stage was more complex; almost all the information contained in the registries was systematized in electronic format, thereby generating a multi-variable database (Anderson 2004), that made it possible to establish a series of analyses with different objectives. I am not aware, however, of any published work based on this database; attempt to go beyond Laslett’s ideas.

Even though the database put together by Anderson and his colleagues has been enormously helpful for this study, it was necessary to re-captured and recodify the information for some city cuarteles, because the data as presented did not lend themselves to analysis within the theoretical framework of proto-industrialization. The two databases were put together using the same documents, and yet they are qualitatively different. What I did was make use of the demo-economic relationships that appear in Table 1 to codify the information in such a way that if we consider the elements from my own database, by means of a particular research method and with specific questions, it becomes feasible to answer the questions raised by Anderson over 20 years ago. Allow me to present an exercise along these lines.

The cuarteles that were systematized for this study were the number 8 and 13. The first was located in district seven, on the north side of Guadalajara, within the Analco parish. This cuartel was large in terms of both territorial extension and population (3892 inhabitants with
939 households), with a significant number of Indians and high concentrations of poor people, according to Anderson (1983: 20). Cuartel 13 offered a sharp contrast to cuartel 8: it covered less territory and thus had a smaller number of inhabitants (1277, and 262 households). This cuartel was located in district five, known as El Carmen. Overall we have a total universe of 5,169 persons and 1201 households recorded (the empirical evidence constitutes 11.63% of the total population in 1821, while the total number of households is unknown at present).

I will begin with the frequencies of household size. The most frequent households fell in the range of two to four members (59.1%, Graphic 1); the most representative was the two-member household (24.9%). Neither Analco nor El Carmen can be catalogued as the home of Guadalajara’s elite, if this status is related to the use of the title doña or don, because 82% (4249) of the inhabitants appeared without any sort of title (Graphic 2).

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5 One of the limits of my interpretation is the determination of households, which admittedly is a somewhat arbitrary undertaking. In some cuarteles, the registrar clearly indicates where each one begins and ends, while in others the information is listed continuously and without any separations, making it necessary to carefully examine the composition of the members in order to define where the household begins and ends. But once work was done on different cuarteles, the division of these groups became easier to see.

6 The basic unit of analysis will be the household, although reference will still be made to individuals as a function of the demo-economic relationships presented here. This impacts directly on the results and their interpretation, because different conclusions can be drawn from a quantitative perspective depending on whether totals of individuals or households are taken (frequencies are a good example of these discrepancies).
Furthermore, the households were classified in three groups depending on the type of activity the members mainly engaged in: artisans, non-artisans and not specified. In both cuarteles, artisan households predominated (554: 46%), second place being taken by households where it was impossible to determine the main activity (351: 29%), followed by
those associated with non-artisan activities (296: 25%). Although these indicators do not reveal an overwhelming specialization in artisans’ occupations, these activities are certainly important (Graphic 3).

As for population structure, there are no significant differences between the two cuarteles: in both, women constitute the majority (57%). The most representative age groups were those that fell between 20 and 34 years of age (34.1%), where women contribute a good number of cases. The population pyramid bears witness to irregularities in demographic growth (Graphic 4).

![Graphic 4. Population Pyramid of cuarteles 8 and 13, (1821)](source:AHMG,Cs.3/1821 Ant. Paq.38 Leg.8 and Leg.17)

It is important, however, to take these figures with a certain amount of skepticism: probably not all the men were registered, because of the special circumstances Western Mexico was going through in connection with the movements for Independence, and because of the military nature of the padrón, as well as the practice of age-rounding, always inherent to this kind of source.
Originally, the padrones consulted did not report marital status; this variable was inferred from the phrase that indicated “su muger” (sic). Nevertheless, the categories married, single and widow(er) were created. When it was practically impossible to infer marital status, it was left unspecified. Both in Analco and in El Carmen the numbers of single and married people was very similar (1968 and 1807, in that order), with a small number of widow(er)s (480); for the rest, no marital status was specified (Graphic 5).

**Graphic 5.** Marital status of inhabitants of cuarteles 8 and 13 (1821)

Source: AHMG, Cs.3/1821 ant.paq. 38, Legs.8 and 17.

These figures must be taken with circumspection, however, because the source was not sufficiently clear. Finally, concerning to the description of simple relationships, we have the

**Graphic 6.** Inhabitants’ Place of origin, cuarteles 8 and 13 (1821)

Source: AHMG, Cs.3/1821 ant.paq. 38, Legs.8 and 17.
place of origin. We find that Guadalajara natives outnumbered the so-called immigrants (47% and 37% respectively); for the rest (812), their place of origin is unknown (Graphic 6).

Up to here I have set forth the simple demo-economic relationships, which are merely descriptive references that neither contradict nor support any hypothesis about the manifestation of proto-industrialization in Guadalajara in the early 19th century. And yet they are essential for constructing compound demo-economic relationships, which might reasonably show whether proto-industrial theory is capable of explaining coherently whether or not the first manifestations of the industrialization process actually occurred in terms of the demo-economic functioning of the society in question. Concretely, I am referring to the role played by artisan households; another key variable will be the age of the household’s mother when she had her first child (as a variable that is meant to substitute marriage age). It is also interesting to have information about birth intervals measured in years, for the purpose of verifying whether the reproductive rhythms of artisan households were higher than those of non-artisan households, as the theory anticipates when the first manifestations of industrialization occur.

With respect to household size as a function of the type of economic activity, we find that 61.7% of households classified as artisan fall in the two- to four-member range, with two-member households as the most common (28.2%), while those classified as non-artisan were more evenly distributed, i.e., 50.7% of the cases fell within these ranges, and the two-member household was the predominant range (20.3%). This is reflected in the accumulated frequency curves, where the artisan household curves evolve more quickly than their non-artisan counterparts (Graph 7).
Graphic 7. Households’ accumulated frequencies as function of economic activity, cuarteles, 8 and 13

Next I will examine one of the issues that constantly come up in the historiography on urban artisans in Mexico: the supposedly direct and unambiguous relationship between the categories “poor” and “artisan”. Specifically I raise the question of whether there was any direct relationship at all between the social status of household members and their main occupation. The evidence uncovered up to now is less than compelling to reach a conclusion in this regard, because the number of people registered with the titles don or doña was not significant with respect to the total population (17.8%); and yet 91 people (out of 920 cases) with the titles don or doña were engaged in artisans’ activities, while 21% of the dones and doñas had a main occupation of a non-artisan nature, (Table 2). I therefore think it rash to associate artisans unequivocally with low or poor social classes in the city of Guadalajara in 1821, although one must not overlook the institutional instability that society was facing due to the insurgent movements, which had especially deep roots in Western Mexico. The empirical evidence presented here would indicate that the urban artisan universe was far more complex than this simple determinism.
Table 2. Social Status as a function of economic activity, cuarteles 8 and 13 (1821)

<table>
<thead>
<tr>
<th>Economic Activity</th>
<th>Non specified</th>
<th>Don / Doña</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Non specified</td>
<td>2933</td>
<td>69%</td>
<td>632</td>
</tr>
<tr>
<td>artisan</td>
<td>910</td>
<td>21%</td>
<td>91</td>
</tr>
<tr>
<td>Non artisan</td>
<td>406</td>
<td>10%</td>
<td>197</td>
</tr>
<tr>
<td>Total</td>
<td>4249</td>
<td>100%</td>
<td>920</td>
</tr>
</tbody>
</table>

Source: AHMG, Cs.3/1821 Ant. Paq.38 Leg.8 and Cs.3/1821 Ant. Paq.38 Leg.17

A key element in this essay is the behavior of birth intervals given the impossibility of detecting marriage age with these documents. According to the fundamental premises of proto-industrialization, marriage age went down in households engaged in artisans’ activities, and with it the birth interval as well. This reproductive behavior would lead to an increase in the household’s workforce and offer the chance to organize a division of labor within the household. Let us look at the results.

Graphic 8. Mother initial age’ frequencies when her first child was born, cuarteles 8 and 13 (1821)

The documents that we examined contained records of 644 mothers in 1821 for Analco and El Carmen. In most cases (50.16%), the first child was born when the mother was between 15 and 22 years of age (Graphic 8), the most representative period being between 19 and 20 years.

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7 Birth interval here is taken to be the average period measured in years between the birth of the first child and the second, and so on.
years of age (16.9%). These results included all mothers; however, it is possible to classify them by social status and their relevance to the activities carried out by the household members. When we apply the first of these criteria, one result that stands out is that on average, doñas had their first child at an earlier age (21.6 years) than non-doñas (21.8 years); among doñas, in 36.7% of the cases the first child was born when the mother was between 17 and 22 years of age, while the percentage for the same age range among non-doñas was 33.3% (Graphic 9).

![Graphic 9. Frequencies of the mother’s initial age, when her first child was born, cuarteles 8 and 13 (1821)](source:AHMG, Cs.3/1821 ant.paq.38 Leg.8 and 17)

However, this reproductive behavior seems to waver among doñas over the course of their birth intervals. The documents show that on average, the first interval was slightly shorter among doñas (3.49 years) than among non-doñas (3.65 years), which confirms the fact that doñas undertook motherhood at an earlier age. On the second interval, however, the non-doñas reproduced faster (3.55 vs. 4.02 years for doñas). On the third interval it is the doñas

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8 It is important to point out that birth interval also gives us a rough approximation of fertility, because the children who were counted were those that actually appeared in the registry. This document, given its nature, makes no reference to infant mortality, which might change the mothers’ age when first giving birth. It will thus be necessary to consult other sources (parish or church records, for example) in order to obtain a more exact approximation of infant mortality rates and to form a more precise idea of the age at which women became mothers for the first time in early 19th-century Guadalajara.
once again who have the lower numbers. It must be pointed out that the non-\textit{doñas} who had three intervals reduced their length consistently (Table 3).

| Table 3. Birth intervals, mothers of \textit{cuarteles} 8 and 13 (1821) |
|------------------|------------------|------------------|
| \textit{Doñas}   |                  |                  |
| First            | Second           | Third            |
| Average          | 3.49             | 4.02             | 3.21             |
| Variance         | 7.56             | 11.10            | 4.21             |
| Standard deviation | 2.69             | 3.32             | 2.04             |
| \textit{Non Doñas} |                 |                  |
| First            | Second           | Third            |
| Average          | 3.65             | 3.55             | 3.49             |
| Variance         | 5.67             | 6.65             | 2.11             |
| Standard deviation | 2.34             | 2.57             | 1.39             |

Source: AHMG, Cs.3/ 1821 Ant. Paq.38 Leg.8 and Cs.3/ 1821 Ant. Paq.38 Leg.17

Another key element was the greater reproductive constancy among non-\textit{doñas} as compared to \textit{doñas}, which invites us to reflect on the impact that social status has on reproductive patterns. This specificity is not taken into account by the proto-industrial model.

When the type of activity in the mother's household is considered, we found that 291 (45.2%) of the mothers registered belonged to artisan households. These mothers on average had their first child at the age of 21.66 years; the 15- to 22-year-old age range concentrated 49.1% of the total group. The birth interval results indicate that the second child was born on average 3.68 years later. The following interval was lower: 3.50, but the third was higher: 3.81. On the other hand, 165 (25.6%) were mothers from non-artisan households; on average they had their first child at the age of 21.93 years, and the 15- to 22-year-old range concentrated 53.9% of the observations. The average first birth interval was 3.83 years, and the other two were 4.04 and 2.32, in that order (Graphic 10 and Table 4). Overall, it is important to observe that the average age, as well as the accumulated frequencies, showed a similar pattern of behavior: the differences showed up in the first two birth intervals. Moreover, the mothers from artisan households on average had their first child at an earlier age than the other groups,
and their first two birth intervals were generally shorter than those of mothers from non-artisan households.

**Graphic 10.** Frequencies of the mother's initial age, when her first child was born according to economic activity, cuarteles 8 and 13 (1821)

[Graph showing frequencies of mother's initial age]

This evidence shows a certain coherence with the manifestations anticipated by proto-industrialization in other societies, inasmuch as the younger age of mothers from artisan households when their first child was born supports the theory, if only slightly, but the behavior shown over the birth intervals is ambiguous on this point. However, the coherence

<table>
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<tr>
<td>Average</td>
<td>3.68</td>
<td>3.50</td>
<td>3.81</td>
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<td>Variance</td>
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<tr>
<td><strong>Non-artisan household</strong></td>
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<tr>
<td>Average</td>
<td>3.83</td>
<td>4.04</td>
<td>2.32</td>
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<tr>
<td>Variance</td>
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<td><strong>Non specified household</strong></td>
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<tr>
<td>Average</td>
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<td>3.84</td>
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<tr>
<td>Variance</td>
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<td>Standard deviation</td>
<td>2.72</td>
<td>3.58</td>
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</tr>
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</table>

Source: AHMG, Cs.3/1821 ant.paq.38 Legs.8 and 17.
tends to disappear when the results are referenced to social status, because the *doñas* had their first child at an earlier age than the non-*doñas*, while the birth intervals of the former were longer than those of the latter. These findings and the demo-economic relationships presented here point to a weak and hesitant proto-industrialization. These *cuarteles* may be representative of Guadalajara’s demo-economic structure in 1821, but it will be important to compare the results presented here with those of other sections of the city, and to explore other elements of the proto-industrial approach in order to have a more comprehensive vision of the phenomenon. These, however, are tasks for another paper.

**FINAL CONSIDERATIONS**

The Industrial Revolution impacted peripheral countries essentially on two fronts. On the one hand, these countries served as markets for the economies that industrialized quickly, and on the other, their early manifestations of industrialization were hampered. The proto-industrial theory has been one of the most refined interpretations concerning the causes of the Industrial Revolution, and it offers vast analytical potential, which at the same time, paradoxically, has generated different kinds of limitations. In spite of the restrictions inherent to the approach, it is feasible to generate more specific explanations about the factors that have influenced the process of industrialization. Proto-industrialization has also evolved thanks to new regional studies and to an increase in demo-economic tools available, especially those used to study transformations that originate in households. In this approach, SPU’s have been key elements; I have tried to analyze them from this perspective, without overlooking the socio-economic specificities that emerged from our empirical evidence.

At the end of the 1980’s, the proto-industrial paradigm began to divulgate in studies on industrialization processes and regional economic history. This situation led to an unwarranted use of the paradigm without prior reflection or analysis, often resulting in an
impoverishment of debate. Mexico is a good example of this.⁹ I consider it useful to reflect on the paradigm’s instrumental value on the basis of concrete cases. The fundamental demo-economic relationships presented in this study were drawn from a detailed reading of the documents and reflection on the proto-industrial proposal. The study’s numerical nature is intended to measure the information gathered from Guadalajara’s population registries in 1821. Thus our empirical evidence was constructed on the basis of documents from cuarteles number 8 and 13 (Analco and El Carmen, respectively). The study revolved around a universe of 5,169 individuals and 1,201 households. The results having been analyzed, we can say that the most important finding was the manifestation of a weak and hesitant proto-industrialization, reflected in the fact that the initial childbearing age of mothers from artisan households was lower (21.66 years) than that of mothers from non-artisan households (21.94 years). The difference may be slight, but this behavior is in keeping with the predictions of proto-industrial theory. As for birth intervals referenced to type of activity, the first two for mothers from artisan households were lower than those of their non-artisan counterparts, exactly as proto-industrialization anticipates, but in the case of the third intervals, the results are inverted.

In the same way, the results were inconclusive with regard to the ages of mothers when they had their first child, and to the birth interval as a function of social status. Doñas on average became mothers at an earlier age (21.67 years) than non-doñas (21.81 years). The first birth interval ratified this tendency (3.49 years for doñas vs. 3.65 for non-doñas), but the second interval was lower for non-doñas, while the third showed an inverted relation. This situation also reflects the importance of social status on reproductive patterns, and bears witness to a traditional society where social relations are deeply rooted with respect to economic strategies. On this basis, we can call early 19th-century Guadalajara a traditional society with a weak and hesitant proto-industrialization. Finally, it is important to emphasize

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⁹ This observation was pointed out by Carmagnani and Romano (1999: 233).
the fact that it will be essential to increase our universe and the timeframe of our study in order to obtain more conclusive results. I believe that if we do not adhere too strictly to the proto-industrial model, it could be feasible to use some of its tools to explain the early manifestations of industrialization in Western Mexico at the beginning of the 19th century. In the same way, it is possible to detect certain traits that are specific to the society in question, by means of this type of exercise.

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