

## Local actors and their incipient integration in the automotive industry in Aguascalientes. The case of glove washers

### Los actores locales y su incipiente integración en la industria automotriz de Aguascalientes. El caso de los lavadores de guantes

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#### Abstract

The objective of this article is to explain the integration of glove washers within the local productive system, how the association between micro and small suppliers occurs and the networks they weave from their integration with the automotive industry, as well as the role played by governmental and non-governmental institutions in the local productive fabric. The underlying hypothesis is that the integration of local companies with transnational capital is minimal. There are companies established in the area, but their integration is not properly constituted with local capital. The case of studying the glove washers arises from the need to visualize those actors that do not play a leading role in the assembly of cars but do have a fundamental participation, although they generate very little added value, but their importance is unavoidable. For the methodological process, a semi-structured interview and non-participant observation were used. Five surveys were applied to managers or owners of companies specializing in glove washing in the locality. Interviews were also conducted with four types of actors: glove washers, managers of subcontracting service companies and representatives of Tier 1 and Tier 2 companies, until the categories were exhausted. The sample is qualitative and representative. The particularity is the non-existence of a specific classification for this type of activity. According to the informants, there are 60 industrial laundries in the State, but only 10 are registered with the Tax Administration System and SEMARNAT. However, upon corroborating the SEMARNAT: Registro de generadores de residuos del Estado de Aguascalientes (Registry of waste generators in the State of Aguascalientes), only three establishments were found: Ricardo Xicotécatl Vega Jasso; LP. Confección y lavado, S.A. de C.V. (located in Aguascalientes) and Lescen, S.A. de C.V. (located in Jesús María). To operationalize the variables through the semi-structured interviews, discourse analysis was applied as a technique. Information was obtained on three aspects inherent to local development: trust, cooperation and competition, as well as expectations and the role of the government.

**Local development, Glove washers, Automotive industry, SMEs, Case study**

#### Resumen

El objetivo de este artículo es explicar la integración de las lavadoras de guantes dentro del sistema productivo local, cómo se produce la asociación entre micro y pequeños proveedores y las redes que tejen a partir de su integración con la industria automotriz, así como el papel que juegan las instituciones gubernamentales y no gubernamentales en el tejido productivo local. La hipótesis que subyace es que la integración de las empresas locales con el capital transnacional es mínima. Hay empresas establecidas en la zona, pero su integración no está debidamente constituida con el capital local. El caso del estudio de las lavadoras de guantes surge de la necesidad de visualizar a aquellos actores que no tienen un papel protagónico en el ensamblaje de los automóviles pero sí una participación fundamental, aunque generan muy poco valor agregado, pero su importancia es ineludible. Para el proceso metodológico se utilizó la entrevista semiestructurada y la observación no participante. Se aplicaron cinco encuestas a gerentes o propietarios de empresas especializadas en el lavado de guantes en la localidad. También se realizaron entrevistas a cuatro tipos de actores: lavadores de guantes, gerentes de empresas de servicios de subcontratación y representantes de empresas de nivel 1 y 2, hasta agotar las categorías. La muestra es cualitativa y representativa. La particularidad es la inexistencia de una clasificación específica para este tipo de actividad. Según los informantes, existen 60 lavanderías industriales en el Estado, pero sólo 10 están registradas en el Sistema de Administración Tributaria y en la SEMARNAT. Sin embargo, al corroborar la SEMARNAT: Registro de generadores de residuos del Estado de Aguascalientes, sólo se encontraron tres establecimientos: Ricardo Xicotécatl Vega Jasso; LP. Confección y lavado, S.A. de C.V. (ubicado en Aguascalientes) y Lescen, S.A. de C.V. (ubicado en Jesús María). Para operacionalizar las variables a través de las entrevistas semiestructuradas, se aplicó como técnica el análisis del discurso. Se obtuvo información sobre tres aspectos inherentes al desarrollo local: la confianza, la cooperación y la competencia, así como las expectativas y el papel del gobierno.

**Desarrollo local, Lavadores de guantes, Industria del automóvil, PYME, Estudio de caso**

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## Introduction

Analyzing discourses is a trend that has gained significant acceptance in the Social Sciences. The conviction of considering it useful to read discourses in order to interpret social reality is directly related to the discursive turn, which proposes a new and alternative perspective to that of the philosophy of consciousness with respect to the objects of study and the objectification of what is known. It could be said that with the discursive turn we move from a paradigm that placed ideas and rational introspection at the center of the observation more attached to reality. These discourses, in addition and unlike ideas, are observable and, therefore, constitute a more accurate empirical basis.

Regarding the observation of spaces, tours were made with a previous observation guide and information was collected directly from the supplier companies on forms of organization, hierarchies, leadership processes, frequency of interactions, characteristics of groups, key actors, leaders and decision-makers, forms of product sales for Nissan and purchase of inputs for its production. The analysis of documents allowed finding the forms of articulation of interdependencies between the different actors in Aguascalientes such as Nissan, government and suppliers, the bases of the design of the industrial and institutional policy of the state in accordance with local development.

The case study was considered as a kind of design to be used with which quantitative, qualitative or mixed research processes deeply analyze a unit to respond to the problem statement and develop some theory. In this topic, the case study was used to distinguish and select the key actors. A distinction was made between the supply chain and Nissan's indirect third-level service providers, whose characteristics were defined in terms of the form and type of service they offer. The units of analysis that were included in this study are those referring to industrial and institutional groups, in a first approach. These represent groups of people interacting for an extended period, who are linked to each other by a goal.

The procedure to complete the sample of suppliers and government informants was as follows: "gatekeepers" were the product of close personal social networks, which had the function of approaching the key actors who collaborate in the network of the most important suppliers for Nissan and who are based in the state. The latter have the role of sponsors, since they were used to form the final sample for the project.

The document is structured in three sections: the first one discusses the main postulates regarding local development and its implications through the introduction of transnational activities. Subsequently, the public policies that revolve around the dynamic activity are visualized and, finally, the participation of the glove washers is contextualized in terms of the role they play in the productive framework of the leading company, in this case the automotive company NISSAN.

## Theoretical framework. The local productive system and public policies

Local development is framed within the prevailing conditions of each place, be they physical, economic, political, cultural or environmental. Therefore, the concept is not applicable in a generalized manner. It requires particular analysis taking into account the dimension of the problem in its own context and the time in which it develops and involves various aspects that converge at a turning point.

It is possible to find integrating concepts such as that of Cravacuore et al (2004), who defines it as a construction of a set of alternative networks to those of the market and those centered on the State. These relationships need to be configured at a broad level of agreements and commitments between private and public actors, whose actions and omissions condition the territorial dynamics of development, determining for each site a particular configuration and assuming that in every local process the visions, demands and expectations that the strategic actors bring to the negotiation arena are categorical in the articulation and definition of the policies to be implemented. The extraterritorial component should be included here.

This is framed by globalization, which is emerging as the phenomenon that transmutes the processes that can condition the particularities of the regions. In view of the imminent presence of dynamic companies such as the automotive industry, this is considered a globalized industry since in many cases it requires various components with high added value. And of services in two dimensions: highly specialized and others not so much, the latter being those that could be provided by small and medium-sized companies located in the localities where the foreign direct investment is located.

Globalization has widened space, as mentioned by Beck (2000), which implies an increase in the density of exchange in the global financial market and in the power of multinationals and, on the other hand, the information revolution and communication technology has led to a shrinking of space. This means that a delimited local event tends to affect the whole world, forming a local-global link; globalization is thus a process that creates links in transnational social spaces. Its dimensions are greater space, stability in time and social density in its networks of local and global relations.

Therefore, "the local" is a concept relative to a broader dimension. It cannot be analyzed without reference to the broader space in which it is integrated. They interact in such a way that the global. It does not replace the local, but each takes on the role that corresponds to it in the spatial dimension in which it is immersed. The local, then, is the subnational entity of analysis, planning and action for development, which implies a series of common relationships, behaviors, patterns and conventions. The municipality is usually placed as the natural agent of development; others prefer to speak of "local society". This concept is therefore a construction based on the characteristics of its behavioral dynamics. It is a coming and going of external events and how they affect the interior.

There are several attributes that confer a positive perspective to the term globalization, among those who consider it as a factor that favors the promotion of local development through accessibility to opt for the commercialization of local products and services, access to information and attraction of investments that, in turn, exert a multiplying effect on the local economy.

The cities are the ideal place for interactions, constituting attractive poles for investments that companies take advantage of through the economies of agglomeration and scale that are available.

While different conceptions have been reached on local development, it has been reflected upon as a process of growth and structural change leading to an improvement in the standard of living of the local population (Vázquez-Barquero, 1999; 2000; Albuquerque, 2003), which contains collective learning processes that allow it to respond to changes through labor mobility in the local market, exchanges of product, process, organizational and marketing technology, the provision of specialized services, information flows of all kinds or the strategies of the actors.

Thus, local development includes a socio-political strategy of change that must be approached simultaneously from the processes of local economic development, government institutions and social capital. In addition, Boisier (1999) argues that local development is a permanent and massive decision-making process of local actors and requires horizontal coordination networks. This implies the interaction of governmental, social and productive forces in a local context, but related to a global productive scenario. The concentration of all the elements, as well as the promotion through local policies and history, propitiates the impulse towards the creation of creative innovative elements in the productive and entrepreneurial sphere.

Local development depends on the degree of articulation within the local socio-economic base. This considers the demands posed by the structural change from "Fordist" forms of production to forms of production based on the incorporation of knowledge on market segmentation, quality and differentiation of the productive offer and improvement of territorial networks of support for production and cooperation of local public and private actors (Albuquerque, 2003).

A meticulous analysis should consider the fundamental elements that Albuquerque (2004) and Arocena (2002) suggest should be integrated as basic elements of local development initiatives, such as the proactive attitude of local government, elaboration of a territorial development strategy, promotion of micro-enterprises and SMEs, coordination of programs and the fragility of these initiatives, which can be identified by the absence or weakness of any of these components.

These actions must be developed by the local actors themselves in order to establish a scaffolding of common interactions that give them identity, creating a culture of cooperation-competition: everyone participates in one way or another for the benefit of a collective that in turn fosters new forms of support.

### **The design of local development policy through the automotive industry**

The challenge for local governments is focused on finding answers to capital mobility, territorial reconfiguration and new forms of flexible accumulation, as Vázquez-Barquero (1999) points out, stating that local development processes are the result of a strategy emanating from within the territories through local entrepreneurship, business creativity and employment-oriented policies. In itself, through the integration of public and private actors.

Keeping the community active and the existence of strong cultural identities led to the search for locally controlled processes, what Arocena (2002) calls "from the cultural to the economic" where "the need to create wealth and the need to safeguard natural resources converge; the urgency to generate jobs and the urgency to respond to the needs of the population". The answers are given and acquire new forms according to the situation, place, type of organization.

Mexico in the product/employment ratio is placed next to highly productive countries, but the difference with South Korea, Japan and Germany are the asymmetries valued through the high technological level and growing per capita income. Currently, the development of the automotive industry in Mexico is manifested through the investment of Japanese and German firms, consolidating clusters.

Labor competitiveness with technological learning and the expansion of demand in the most dynamic regions are key elements to understand the development of the industry (Basurto, 2013).

Everything seems to indicate that government institutions are betting on the automotive sector for local development, especially in Aguascalientes, which although it has generated benefits, it also implies the generation of high levels of pollution, economic costs and social risks that are just beginning to be identified. Regarding labor resources, the growth of investments, companies and jobs in this industry, far from promoting the improvement and uniformity of workers' income, has been greatly depressing and dispersing them. It is a situation that accompanies the fragmentation of labor and union relations in the sector, while making them more complex (Covarrubias, 2014).

Vázquez-Barquero (2000) argues that it is important to find an explanation of how the political-administrative part has supported the conception of local development. In the case of Aguascalientes, at least from the presence of the automotive sector, in the specific project of Nissan, how was local development conceived? The local level is placed as the main level for the search of convergence between economic objectives and those related to citizenship, increase of popular participation and improvement of quality of life. There is a call for development policies to be designed and adopted at the local level, and the search for social justice and a better quality of life would be united and superimposed on the objectives of economic growth.

Of all these aspects, the one that is most related to Nissan's presence in the state would be the economic objectives, given that the governmental discourse is always focused on the search to position the state as the most productive, without putting the well-being of the citizens first and, in the understanding of local development, they should go hand in hand.

In view of this accumulation of theoretical observations on what local development is, its guidelines and how to achieve it, specific questions remain: What are the main public policies to strengthen the economic growth of the territory? In order to be complete, a public policy must contain planning, programming, budgeting and evaluation. What is the role of the state government in relation to policy intervention in local development aimed at the automotive industry?

To understand what kind of development has been planned by the Government of the State of Aguascalientes in terms of policy design for productive development focused on the automotive sector, the State Development Plan 2004-2010, government report of the same period and State Government Plan 2010-2016 and partial government report of the current administration were inquired in order to know the design of these policies.

In the 2004-2010 State Development Plan, the Government proposed to generate and define projects aimed at the development of economic activities and only reached the elaboration of the State Urban Development Program, where the decentralization of the concentration of social and economic activities in the metropolitan area of Aguascalientes was proposed. Three objectives were proposed: a) to promote competitiveness and technological development; b) to develop innovative financing mechanisms and guarantees for the modernization of MSMEs; and c) to promote a policy of entrepreneurial culture in MSMEs.

As a result, 22 new companies were set up with the support of the Program for the Development of the Software Industry PROSOFT, with an investment of 200 million pesos, which in turn generated 10,000 high value-added jobs, but it is not specified in which companies. High value-added products were exported, from hardware to software. Of note were 2 billion microchips for cell phones from Flextronics and Sensata for the automotive, aeronautical and medical sectors. We promoted the creation of a cluster policy for the automotive and auto parts industry in collaboration with international organizations (FOMAUTO), in the electrical and electronics industry (CELESA) as well as in innovation technologies (INNOVATIA).

Creation of the Aguascalientes Robotics and Automation cluster. Support for MSMEs was capitalized through regulatory improvement, reduction of administrative procedures, low-cost financing, training and positioning of own brands.

Investment increased: there were 349 investments of more than one million dollars, of which 248 were newly created and 101 were expanded, for a total of 4.4 billion dollars, which was reflected in the creation of 56,000 jobs. NISSAN Mexico and Jatco Mexico invested 1.1 billion dollars.

It was not until the following 2010-2016 administration that they reconsidered a similar project to achieve leadership in planning. The project crystallized until 2013 with the publication of planning instruments and was linked to the state territorial and environmental planning systems. What happened? Planning without linking it to the innovation industry? Or in any case, when planning, what type of productive branch was being thought of? What type of development are we talking about?

In the 2010-2016 state development plan, the Government proposed to consolidate corridors of economic and social activities communicated through an efficient system by consolidating the automotive, metal-mechanic, electronics, textile and clothing industries in a specific space (Peñuelas-Cosío corridor). The result was the modernization of highways and works in industrial parks that placed Aguascalientes, according to the Government, in a regional logistics center for the manufacture, distribution and export of new automobiles.

Among the results, emphasis is given to job creation and investment in the automotive sector. For example: the Tachi-S DSP plant began operations with an investment of 143 million pesos and the generation of 700 jobs, which is dedicated to the manufacture of front and rear seats for Nissan and Honda vehicles and will be a supplier of the "JIT" and "PIVA" plants. Several companies were inaugurated: Distribuidora Volvo, with an investment of 26 million pesos; the third plant Cables de K&S Mexicana, with an investment of 182 million pesos, which represents the generation of 104 new permanent jobs; Shoshiba has as its main activity the stampings for air bags and seats and will supply its different customers, such as Tachi-S, Honda, Calsonic Kansei, Takata and Sumitomo Electric; Riken, which is mainly dedicated to the manufacture of piston rings, valves and valve seats, with an Investment of 30 million dollars. This company will generate 200 new direct jobs.

It was proposed to continue supporting micro and small industries in order to promote and strengthen the value chain through local supply, as well as to establish training programs for entrepreneurs. However, there are no results in these areas. It seems that economic policy is mainly focused on attracting foreign capital, which in reality function as an enclave, since the local benefit is only reflected in the creation of jobs and minimal income for local MSMEs.

In this same 2010-2016 administration, it was proposed to position Aguascalientes in the regional context as a knowledge center that would project it as the best educational option in the region. The Japan International Cooperation Agency recognized the school-business linkage model at a national level. It is expected to be a model for all Japanese automotive companies.

An incipient symbiosis between the culture of origin of the main companies is beginning to be observed in the locality. Capital and socio-cultural aspects converge in a transnational space. In the tour of the main avenues of Aguascalientes, sociocultural aspects were observed that were not present 10 years ago. For example, the Alameda promenade was designed to transit between huge trees and there were benches for people to allow themselves to interact.

At least between 2016 and 2018 the spaces were transformed, in such a way that, depending on the season of the year, changes are observed where people coexist with Japanese designs such as figures of lights, small trees designed with paper and metal material that evoke Christmas, but do not represent any essence related to the hydrocalides scenarios, which are alien to this culture. There is a wall where children can interact by moving plastic pieces of Japanese design. In the spring, some paper plants are placed, which again obey the designs of this country.

Little by little, spaces ceded by the State are being located for the exhibition of figures that do not belong to the State. This does not affect socialization, but rather the population identifies less with its own culture and scenarios and more with those of the Japanese country.

Undoubtedly, the Government of Aguascalientes has always contemplated, in one way or another, to include local development, since this is dictated by national guidelines and suggested at the international level within the design of governmental policies. However, the industrial development process in the state of Aguascalientes lacks an articulated, consensual and lasting public policy on industrial development.

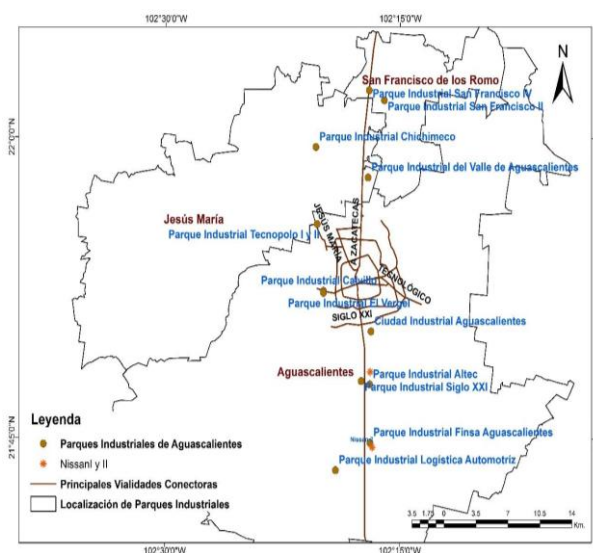
There is also no programming and articulation between the different industrial sectors and branches that would allow productive linkages in which local companies participate. Although the establishment of industrial companies increased the levels of investment, production and employment, it did not raise the wages of the working class, so it cannot be said that regional development has been achieved.

More questions remain unanswered than answered: are the companies that exist in the state, in any case SMEs operating in the state, able to link up with the automotive industry and thus achieve local development? How does the state government support SMEs so that they can participate and link up with large companies and thus achieve local development?

## The integration of glove washers into the local dynamizing industry

The concept of productive networks confers two guidelines: local and international. Albuquerque (2003), Camagni (1991) and Arocena (2002) coincide in highlighting the importance of the interaction between institutions and agents emanating from the place itself in the creation of the local environment. The creative capacity of companies, through their adaptability to different scenarios, creates the phenomenon of collective efficiency, which can generate a competitive advantage in the face of external economic scenarios.

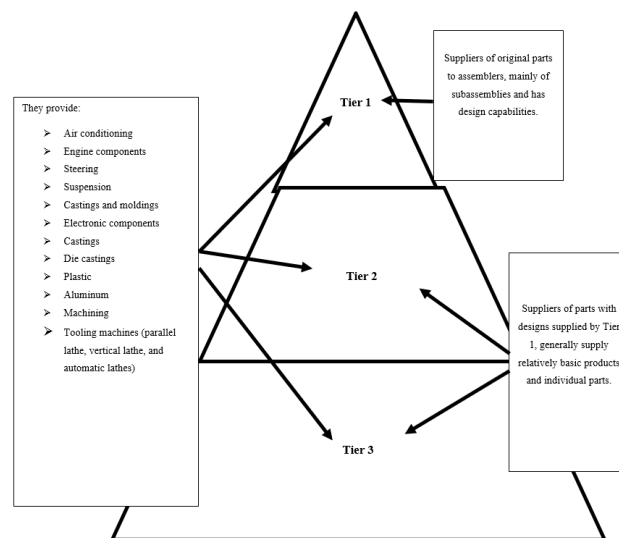
The direct supplier companies for the automotive industry located in the state of Aguascalientes, according to activity, supply the productive structure as required, given that these companies not only supply Nissan but also other automakers. They are located along the Pan-American Highway that runs from north to south of the state of Aguascalientes. They are concentrated within the industrial parks shown on the map (see Figure 1).



**Figure 1** Location of companies supplying parts for Nissan I and II

Source: Own elaboration with data from INEGI. Census 2010

Nissan's supply chain includes an organization called Tier 1, which is responsible for supplying complete parts (suspensions, transmissions, steering). Tier 2 and 3 are responsible for supplying different inputs and parts for the manufacture of complete parts (see Figure 2).

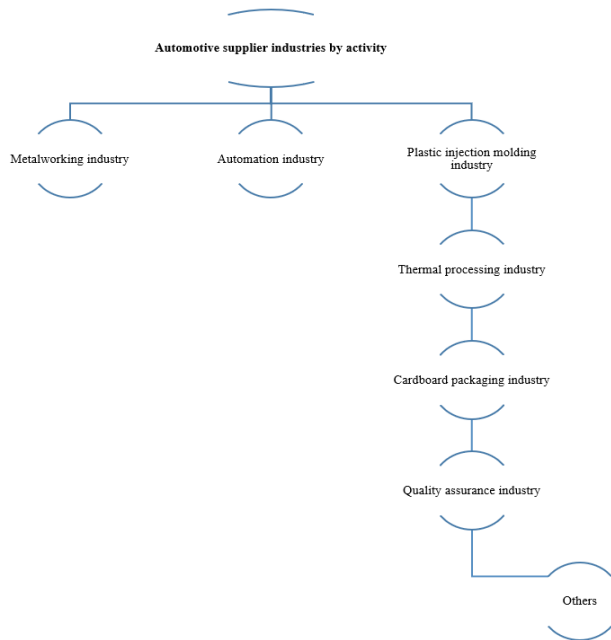


**Figure 2** The supply structure for Nissan

Source: Own elaboration with data from: Ministry of Economy. 2013. "La industria automotriz mexicana"

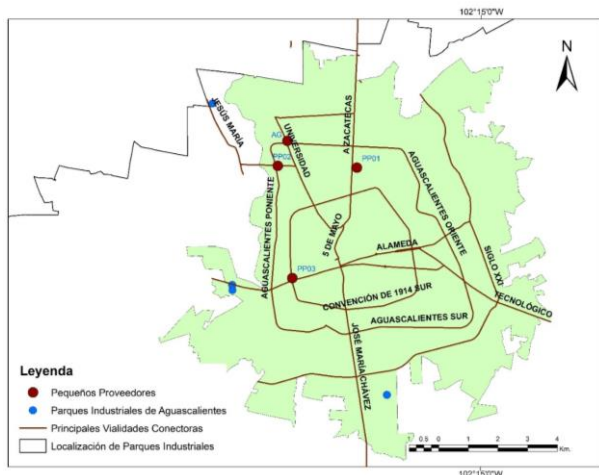
In fact, Nissan's relationship with suppliers is only direct with Tier 1 because they receive complete parts for the assembly of the car. With Tier 2 and 3 the relationship is indirect because the latter only work directly with Tier 1 and not with Nissan. This is the beginning of the supply chain. These companies are located in different points in the state of Aguascalientes.

The automotive industry in general requires, for the manufacture of vehicles, the participation in the supply of different industries according to their activity, such as those shown in the diagram. In the case of Nissan, it also needs suppliers from these companies, which are located in Aguascalientes. The processes carried out by these companies are of low added value compared to the final product required by the large company. Each of these activities has different companies that supply different services and products, which are not among Nissan's large direct suppliers, but are indirect suppliers (see Figure 3). These companies supply products that are required to manufacture complete parts.



**Figure 3**

Even though Nissan has changed from one type of production to another, i.e., from the manufacture of parts to the assembly of automobiles, it has always required safety equipment for its workers, so among the service providers, those who persisted in the face of the changes were selected. These are the glove washers, who wash and deliver gloves for Nissan's direct suppliers that are locally based and invested (see Figure 4). They are not part of the large Tier 1 companies, which supply complete parts to the transnational. Nor are they part of Tier 2 and 3, but they do provide gloves for workers at these three levels. Some work directly with these companies and others work through other transnational service providers.



**Figure 4** Location of glove-washing SMEs

Source: Own elaboration with data from INEGI. Census 2010

The interrelationship mechanism that these small entrepreneurs have is the provision of indirect services to the automotive industry, specifically to the Nissan I and II plants. The emergence of this type of service has many elements in common: they all worked at NISSAN; they already owned a laundry; the provision of the service is relatively recently created and they did not have experience in glove washing; they do not have family ties within the sector; they have between 10 and 15 years of having started activities, none of them have a kinship (they are only close friends because this activity has made them coincide); They do not use banking institutions because of the high interest costs, and they have been acquiring training in the management of washing through the transmission of empirical knowledge through trial and error, which they then incorporate as an added value in the provision of the service.

In the words of the glove washers, the mechanisms of interrelation began with the history of the construction of this productive network. The first of the interviewees and pioneer of this productive activity, currently owner of an industrial laundry, related that he first worked at Nissan I, left and then joined a laundry that only washed denim. There he learned about waste management, industrial soaps and fabric treatment. He was then approached by an automotive seating company to ask for glove washing. He took care of them on behalf of the laundry he worked for. This one had too much work with denim washing, so he followed up with the firm for glove washing and, further on and being in the same industrial laundry business, he found out that a laundry had "gone bankrupt" and they were selling their machines. He was "entrusted" with them and little by little he was paying for them with the profitability of his business and that is how the business started in 1995<sup>1</sup>. Later, and with the portfolio of clients he had already gathered with the seating company, he got in touch with two of the other interviewees, Lavanderías Camacho<sup>2</sup> and Lavanderías Poseidones<sup>3</sup>.

<sup>1</sup> Interviewee number 1. Glove washer and laundry owner.

<sup>2</sup> Interviewee number 2. Lavanderías Camacho, which started in 2003.

<sup>3</sup> Interviewee number 3. Lavanderías Poseidones, which started in 2014.

The use of gloves in the automotive industry is currently gaining relevance. Previously, the glove washing activity was not so important due to the management of quality standards. Workers could take the uniform along with the gloves home and wash them, but nowadays gloves may only last one shift because there are gloves with burrs or residues (Figure 5).



**Figure 5** Gloves laundered to required quality standards  
Source: The purpose of this image, was to show the change between a dirty glove used by company workers, and one already washed in their own laundry, you can see the quality of washing that are required to be able to access the work of washing them. The interviewee referred that, in order to reach these results, several washing tests are made and shown to the customer until they are certified. March 28, 2018.

Their use is indispensable for the prevention of accidents resulting from the handling of sharp tools or materials, cutting edges, metal shavings, certain blows and other physical hazards. There are different types of gloves made of various materials adaptable to the requirements of occupational health and safety standards.

Depending on the type of material, different types of gloves can be used. For handling rough or sharp-edged materials, they can be made of leather or canvas. In welding or foundry work where there is a risk of burns with incandescent material, the gloves must be heat resistant and insulating. In electrical work with insulating material. When handling chemical substances, the use of long rubber or neoprene gloves is recommended.

Safety gloves must be worn by all company personnel, whether production or supervisory, who are exposed to the risks listed above. One third of industrial accidents involve the fingers, hands and arms. Due to the great vulnerability of fingers and hands because of their constant action on tools, machines and elements, they require continuous protection.

Depending on the use of each type of glove, it is decided whether to replace them or clean and reuse them. There are gloves that last up to sixty washes, which are antistatic, used for assembly or final inspection. There are seven or eight types of gloves: welding, stippling, assembly, machining, assembly and quality gloves. The businesses that sell gloves are microenterprises that have often expanded their business offerings, ranging from 0 to 5 workers, and have been in business since the 1990s (see Table 1).

Company	Staff employed	Activity type code
Glove factory	6 to 10 people	316999
Unnamed glove factory	0 to 5 people	315999
Guantes Canito	0 to 5 people	316999
Guantes Guerrero	0 to 5 people	316999
Guantes Industriales del Centro, S. De R.L. Mi	6 to 10 people	316999
Guantes Industriales EPPI	11 to 30 people	316999
Guantes Industriales RC	6 to 10 people	316999
Guantes Industriales Rodríguez	0 to 5 people	315999
Guantes Industriales Salas	0 to 5 people	316999
Guantes LI	0 to 5 people	316999
Guantes Vargas	101 to 250 people	316999
Unnamed glove manufacturing	0 to 5 people	315229
Industrial Gloves and Safety Equipment Production (Suministros Industriales Faves, S. De R.L. de C.V.)	0 to 5 people	316999
Industrial Glove Manufacturing Workshop No Name	6 to 10 people	316999
No Name Glove Workshop	0 to 5 people	461110
PROTEGGA	0 to 5 people	435419

**Table 1** Glove Manufacturers Currently Established in Aguascalientes

Source: Own elaboration based on DENEUE: <https://www.inegi.org.mx/app/mapa/denue/>

#### Code of activity type:

- 435419: Wholesale of other general-purpose machinery and equipment.
- 316999: Manufacture of other leather, fur and leather substitute products.
- 315999: Manufacture of other wearing apparel and accessories not elsewhere classified.

- 315229: Manufacture in series of other outerwear of textile materials.
- 461110: Retail sale in grocery stores, grocers and miscellaneous stores.

On average, the glove washers employ between 5 and 15 workers. These workers earn between 1,000 and 1,800 pesos per week; their contracts are for an indefinite period of time, they are hired directly by the company owners, and they receive legal benefits. In order for these workers to be able to work in these companies, they are trained in the use of machinery and the handling of chemicals.

The main benefit of these glove washers is the client network they establish, in which they not only wash gloves, but also provide their services to different companies, both for the automotive industry and for others who request their services, such as clubs and ranches, for the washing of towels, uniforms and other types of fabrics, for example. If this service is not provided then they diversify their activities with the industrial maquila, as does the pioneer of glove washing based in the state of Aguascalientes.

For local development to really take root among the glove washers and bear fruit in the state, committed government participation is needed. For example, that the courses offered by the Chamber of Commerce are directed to the businessmen of this line of business, so that they are registered as a portfolio of clients for the growing industry that is the automotive industry, but also for other types of industry. This would also offer these small businessmen the possibility of accessing knowledge and financing for other types of machinery to help them respond more quickly and in quantity to the type of glove washing so that these businessmen are not limited to participating only in some quantity, since they do not have the capacity to comply with a greater volume of washing.

It would also be necessary to group them together and represent them before institutions and companies. Without the association of these glove launderers, it is impossible to move forward. With this, they would be gaining ground against companies such as Vallen, which has the knowledge and equipment to respond immediately to their requirements.

The process for the provision of the service is mechanized in a personalized way: they collect the gloves at the doors of the companies for which they perform this activity, select the gloves according to the level of soiling, wash them and pack them in bags of 200 pairs. Only one of the glove washers mentioned that he establishes a contract for one year, thus committing himself with dates, day and time of delivery and establishing a commitment on the part of the company to give him work with this activity.

One of the key actors interviewed is a glove washer. He started in 1995<sup>4</sup> and is referred to by all the small entrepreneurs as the one who washes large quantities of gloves and as the initiator of this activity, since he washed 2000 pairs per day until he completed 7000 pairs per week. When this dynamism overtook him, he began to invite other launderers (not specifically glove washers) to also start this activity in the service sector and trained them. He noted that he once sold new gloves instead of laundering them, which at the time was profitable, but he gave up because it was more profitable to launder them than to sell them. Even if there are fewer or more gloves to be washed per day, they are expected to collect around 800 to 1,000 pairs. This way they are washed according to the capacity of the machines. The commitment established with the companies to provide this service must be fulfilled in due time and form, since if any production area must stop for lack of this safety equipment, the same company penalizes the glove washer with 600 dollars per hour of lost production.

<sup>4</sup> The story of how this washer started his business began when a person for whom he worked and who owned the business, closed the business, and passed the machines to the glove washer and paid little by little for each of the industrial machines that were sold to him without resorting to any institution. He assures that he was afraid to go to the banks because they asked him to have a million pesos in real estate to lend him \$300,000. That is why he decided not to resort to any other means of financing since the interest rates were very high, he mentioned; "that is why I am not rich" because I never ask the banks to grow as I should be.

Cost they assume. Some of them do not want to sign contracts that oblige them to work for a specific period with Tier 1 and 2 companies because many times the companies take between three and six months to pay them and this causes them problems in running their business.

Most of the companies for which they offer this glove-washing service are suppliers of Nissan or other companies in the automotive industry. They are located in Aguascalientes and Guanajuato. They are not exclusive for glove washing but take on other types of activities depending on market demand. In times of elections, they are asked to machine aprons or other garments, or they wash other types of material for other companies, for example, washing towels for a spa or "rags" for a ranch<sup>5</sup>.

Collaboration processes are observed through the subcontracting of the service. There are companies that subcontract the glove washing service. They offer to pay them at a price that in their version "enslaves them" because they cannot aspire to earn a little more with this activity and then they are subordinated to the amount of work that they grant them and the price that they offer them, that is to say, fixed. When one of the laundries has a larger workload, they double subcontract to other smaller laundries in order to comply in a timely manner (Figure 6).



**Figure 6** Pioneer glove washer in the state of Aguascalientes

*Source: Laundry interior. March 28, 2018. This small company is located in the municipality of Jesús María. It currently washes gloves for Yorozu mexicana planta Aguascalientes, Yorozu Celaya, Guanajuato, dsk, Prodomex, and resorts mexicanos, all of these companies operate with transnational capital and are suppliers of Nissan I and II*

In the same way, collaboration is associated with the quality of service among the companies dedicated to glove laundering. The owners of the laundries themselves teach how to select gloves, which, depending on their condition, can be washed and which should be discarded. Also, how they should be washed and what types of chemicals to use. Without this filter there are no working agreements. They support each other when someone wants to start a laundry business, they communicate with each other if they have an "old" machine, but it still works, and there are those who definitely "trust" the machines to others, not because they have growth projects, but they do not lend the machines because they cannot be easily disassembled; it takes a whole engineering to do it and this happens only if they are already going to be sold.

The origin of the inputs for glove washing is the same for small entrepreneurs: neutral soaps, degreaser, soda, soda neutralizers, sodium hypochlorite and softener. These are purchased in Aguascalientes from a store called "Don Pulcro" and from other basic chemical distributors located in the state. Although there are different materials used to manufacture the gloves (yarn, vinyl, flesh, acrylic, cotton and leather), they only wash with yarn, cotton and acrylic.

It is important to emphasize the importance of this store dedicated to selling cleaning supplies. It began offering products in 1987 in Celaya, Guanajuato. It offers cleaning products for the home, business, car care and personal care, and distributes them to laundries, hotels and restaurants. It is located in the states of San Luis Potosí, Guanajuato, Querétaro and Aguascalientes. It maintains its own brand, so its products are a chemical combination that it has designed and patented. It not only sells products to companies in the service sector but also in the industrial sector. Nissan and some others in the automotive sector consume degreaser<sup>6</sup>.

The types of incentives for suppliers from the government do not exist; they have started their businesses supported by themselves.

<sup>5</sup> This glove washer washes "rags" for different ranches, these correspond to small wipes used by cow milkers, who use rags in order not to rip off their udders.

<sup>6</sup> Telephone interview conducted with the Aguascalientes branch manager. Friday, August 25, 2018.

One of the interviewees points out that if they were supported there would be less pollution and fewer problems because "instead of the companies throwing away what they are no longer going to use, they could give it two or three uses by washing it, but the government does not put pressure on the companies". He assures that "if they washed more, they would grow more, and the large companies would pollute less". They have not been able to consolidate as an association. He comments that they have not made this proposal formally to the Government because they do not have a society as glove washers. He says that the government has put many obstacles in their way. For example, the Government sold him a piece of land for one and a half million pesos, but he had to make monthly payments of 15,000 pesos and he could not pay them. He does not even have that amount as a free profit because, in addition, he must pay Semarnat<sup>7</sup> to analyze his wastewater and let him work.

The disagreements that have existed among the glove washers are related to prices. They pointed out that some of them washed gloves at "free"<sup>8</sup> prices to gain market share, and they say that this is "not acceptable" because it is a matter of surviving in the market, but quality should not be compromised because they all get "burned". That is why the companies for which they washed gloves began to distrust the low price. So, they returned to these large companies to require the service with the glove washers with whom they started this activity.

Today they contract integral suppliers such as Vallen, which can supply everything the company needs. Nissan is supplied with 50,000 pairs of new gloves per month, and they wash between 15 or 20% of the gloves that they supply. Only Vallen supplies safety equipment to Nissan in the state. In the past, the glove was disposable and that is why they did not wash them.

<sup>7</sup> Glove washers, whether or not they are registered with the Secretaría de Hacienda y Crédito Público, must pay Semarnat \$2800 every two months for Semarnat to take a sample of their company's wastewater and determine whether it is harmful or if it is dangerous to discharge it into the public sewage system.

## Conclusions

This is an incipient local development in which a disarticulated local productive system has manifested itself. Incipient because it is a productive activity of glove washing that, although it started more than two decades ago, has not yet taken off due to the structure of the organization and the subcontracting system. The emergence is due to a need, through local initiatives that generate little added value and work in uncertainty.

The provision of the glove washing service is mainly governed by subcontracting and has been observed since the 1990s. Its productive base is made up of local capital, driven by the configuration of social networks linked to relationships of trust. The knowledge and management of the laundering processes is sustained through empirical practices. The transformation of knowledge occurs through and by means of traditional and generic knowledge, passed by word of mouth and trial and error. This has created an atmosphere of exchanges of past "trade secrets" between families and collaborating partners in the system.

There is no mutually beneficial policy between Nissan and the small suppliers because, in the first instance, they would not be able to supply the entire plant on their own, either with glove washing or with the sale of safety equipment. They would need government support to organize themselves as a network of small entrepreneurs and the support of large companies.

Government participation is indispensable for local development to be conceived as such. According to Boisier (2005), Vázquez Barquero (2000), Cravacuore et al (2004), government involvement is essential to create solid productive ties.

Therefore, it is also a type of local productive system, because governmental support in terms of dissemination, technological knowledge, transfer of theoretical knowledge, among others, such as administration, are not present on the part of the government.

<sup>8</sup> Regalado means that they have to charge much cheaper for each pair of laundered gloves, and this leads to a lack of profit and sometimes an inability to cover payroll.

Although there is a struggle to stand out as small entrepreneurs on the part of the glove washers, but without the governmental part, the support to articulate with the other companies that demand their service is limited in the face of this accumulation of theoretical observations about what local development is, its guidelines and what should be considered to achieve it. Specific questions remain: What are the main public policies to strengthen the economic growth of the territory? In order to be complete, a public policy must contain planning, programming, budget and evaluation. What is the role played by the state government in relation to the intervention of the policy in local development, aimed at the automotive industry and other activities that dynamize the environment?

One of the aspects to be reviewed in this governmental structure is in relation to the transnational and is that most of the jobs with the highest added value are those that occupy the lowest percentage in Nissan's companies, so it does not happen that salaries increase for all workers. The other aspect is that there is no productive chaining, so it is also difficult for this structure as such to produce results, so we should question where local development begins and ends in the state.

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