COMMENTARY

John H. Coatsworth

These three papers demonstrate the fragility and backwardness of Latin America's textile business in the late colonial era. In Peru, the manufactories *(obrajes)* of Huamanga employed debt peons *(yanaconas)* to produce rough woolens with backward implements for a market that depended on forced sales to unwilling consumers by corrupt officials. In Bolivia, the Cochabamba boom in cottage cottons relied on wartime conditions to open markets that would otherwise have found better quality products at lower prices from foreign suppliers. In Mexico, the woolen industry virtually disappeared over the course of the eighteenth century, while the revival of cotton textile production in Puebla depended on poverty, rather than technological advance, and nearly succumbed to peace and free trade well before Independence.

The case of the Huamanga *obrajes*, ably sketched by Salas, may be the most depressing of all. The decline of the industry in the seventeenth century provided ample opportunity for closing these enterprises once and for all. Data are lacking on the dimensions of the eighteenth century revival before the 1760's, but the importance of bloc sales to the *corregidores* (which Salas' data may underestimate, since a portion of the market sales may also have gone to these officials) brought the boom to an end when the Túpac Amaru revolt forced the abolition of the *repartimientos*. In Mexico, where forced sales were less common, the woolen industry died a natural death much earlier, as Salvucci's recent study has shown.[1]

The cotton boom in Cochabamba, by contrast, did not depend on official favor. Indeed, as Larson shows, colonial governments could not be persuaded to help the industry at all. Permission to grow cotton in the area, to free the industry depended at least as much on government decisions taken in Madrid, for it boomed only when Spain blundered into war with Britain in 1796. Unlike Huamanga, however, *tocuyo* production remained a cottage industry that purchased inputs, hired labor, borrowed capital, and sold products in competitive markets without the aid of political controls and coercion.

Taken together, these two case studies demonstrate the hopeless malaise of Andean industry. Neither official favor, nor market forces proved sufficient to stimulate the development of an enduring industrial base. Primitive technology produced goods of inferior quality and higher cost than foreign competitors. Woolens could even be displaced by decently made domestic cotton cloth, as Salas points out. Cochabamba cotton cloth had difficulty competing with imports from Quito, let alone Britain. Together, these studies highlight the fate of marginal industries in the more backward regions of Spanish America.

The case of Mexico is more complicated. As Thomson's superb case study shows, Puebla's cotton textile production lasted longer, developed a more complex division of labor, and produced goods of higher quality than Huamanga or Cochabamba. Although cotton production declined when peace broke out in the 1810's, and declined further during the first decades of Independence, it did not disappear. Factory production began to displace artisans as early as the 1830's and boomed during the Porfirian era. In Peru, the first cotton factories were not set up in Lima untii the 1850's, and quickly went bankrupt when the government abandoned protectionist tariffs.[2] Puebla's advantages over Huamanga and Cochabamba merit more extended discussion.

Although Thomson cites the limitations of the market for Puebla's cottons as a factor in its unsteady growth and late colonial decline, Mexico's market appears to have been far larger and much more stable than in the two Andean cases. At least part of the reason for this contrast may lie in the different levels of productivity of the two regions. While precise data for Peru are lacking, qualitative evidence suggests that per capita product was substantially lower in the Andes than in Mexico in the eighteenth and early nineteenth centuries. Andean textile industries thus faced a much smaller market, consisting mainly of urban laborers earning cash incomes until forced sales (Huamanga) and war (Cochabamba) created temporary booms. In Mexico, on the other hand, Puebla marketed its products throughout the colony to a more numerous clientele and the industry's success promoted textile development in competing centers like Querétaro, Guadalajara and Mexico City. In short, the greater productivity of the Mexican economy and the consequent higher per capita income of its population, helped to stimulate a larger and more stable industry.[3]

It is also possible that Puebla's cotton textile industry made more productive use of its resources. Unfortunately, none of these studies present sufficient data for measuring industry productivity. Thus, it is impossible to compare them to each other or to the European textile industries of the same period. While both Larson and Thomson may be on solid ground when they cite foreign competition as a critical variable in determining the success or failure of the industries they study, a quantitative test of this proposition could produce interesting results. Neither study provides a detailed analysis of the cost structure of cotton production. The conventional inference – that backward technology was at fault (and thus shortage of capital or entrepreneurial unreason) – does not, however, explain much. Walker's brilliant study of the Miraflores factory in the 1840's and 1850's demonstrated that the high price and uncertain supply of cotton (and political conflicts over import prohibitions on the raw material) were mainly to blame for this pioneering failure in Mexico.[4]

While none of these papers depart radically from conventional accounts of the failure of industry in colonial Latin America, together they assault a number of commonly-held beliefs about the causes of that failure. Most interesting in this regard is Larson's perceptive analysis of the Cochabamba case. Cotton production in this area expanded dramatically after 1796. No lack of capital, manpower, equipment or even raw material impeded the expansion. Government support was lacking, but then so was government interference. In the case of Puebla Thomson's study demonstrates a similar elasticity. Opportunities to expand production found avid entrepreneurs, abundant capital, and a plentiful supply of labor. Even in Huamanga, the owners of the *obrajes* managed to increase production rapidly, within fixed limits at each installation, beginning in the 1760's. All this suggests that some of the constraints on industrial growth, alleged in the literature, especially lack of capital, entrepreneurship, managerial skill and labor, need to be substantially revised.

Thomson offers an interesting alternative model to explain the failure of the Puebla industries to continue growing after the war years. He follows other analysts in linking textile production to factors affecting the competitiveness of Puebla's industry in the face of foreign competition. In periods when silver exports increased the colony's capacity to import and when peace faciliated foreign trade, Puebla's production fell. When silver production declined or international war prevented its export and simultaneously impeded imports, Puebla grew. In this, Puebla shared with Cochabamba an inability to face British competition (though the Cochabamba industry was much less durable).

Thomson adds two other elements to the model: physical and human geography. The physical geography of Mexico impeded trade and fragmented markets by making long-distance commerce costly. By human geography Thomson means the poverty of the mass of the population. These two factors operated as constants to depress the general level of the economy and therfore of Puebla's production possibilities. Here, too, Mexico's fate was shared by that of the Andean colonies, though it appears that transport costs and general poverty were greater in the Andes (and industry, therefore, more fragile and backward).

Thus to explain the relative backwardness of the Puebla cotton industry Thomson cites two constants that put a ceiling on expansion possibilities and two variables that explain fluctuations over the short term in the industry's fortunes. The relationship between Thomson's two constants is problematical, however, because transport costs contributed to the low level of productivity of the economy, and thus to the poverty of the population. That is, human geography derived in part from physical geography. But geography alone cannot explain the relative backwardness of the economies of colonial Latin America. And the problem is not solved, of course, by adding foreign competition. A full theory would need to explain why Spanish colonial industries were vulnerable to foreign competition in the first place, why Manchester led the industrial revolution, not Puebla. Geography (human or physical) is a start, but it is not sufficient. Perhaps, although Thomson rejects the notion explicitly, the archaic institutional famework of colony and mother country alike can add a critical element to the analysis.

Thomson argues persuasively that Puebla's textile production was favored, rather than harmed, by the policies of the colonial state in the eighteenth century. Prohibitions on the import of Asian cotton and silk, the removal of the *alcabala* on raw cotton, and the prohibition on the import of cotton cloth from other European countries helped to protect the Puebla industry, though they simultaneously encouraged competition from Catalan cottons. Thomson offers no measure of Puebla's net benefits from these policies, so it is possible, if unlikely, that Puebla's gains were more than offset by those of Catalonia (indeed, that was the objective of the policies). But the only evidence Thomson cites of state intervention in the industry that did not encourage output involved the arrest of a few weavers for violating guild rules that usually went unenforced.

On the other hand, since his argument depends so critically on the assumption that narrow consumer markets retarded the industry, Thomson now needs to examine more fully the relationship between poverty and the full range of public policies before passing final judgement on the importance of the state in impeding industrial growth. The

Bourbon state, for example, used colonial revenues to promote the mining industry in a period of rising marginal costs. The effect was to drain resources from other sectors of the economy to keep mining output rising.[5] And the effect, Thomson says, of high silver production in peacetime was to favor foreign competition and depress Puebla. Suppose the viceregal government had ended subsidies to the mining industry and used fiscal revenues to improve the deplorable condition of the colony's highway network instead of exporting the surpluses to subsidize Spanish rule in the Caribbean and the Phillipines. Thomson's analysis suggests that such policies would have encouraged cotton textile production. If the colonial state systematically distorted resource allocation, as I believe it did, and in so doing diminished productivity and thus depressed incomes in its colonial possessions, then one need not find police smashing looms to conclude that industrial development suffered as a result.[6] After Independence, as Walker has shown, "what might have in other circumstances marked the birth of a Mexican [industrial] bourgeoisie resulted stillborn - the *empresarios* and their enterprises were caught up and strangled by the contradictions of an enduring superstructure that refused to be superceded."[7]

In all three cases, these studies emphasize the technological backwardness of colonial industry. Production methods in Huamanga and Cochabamba scarcely changed over the eighteenth century (although the Cacamarca *obrajes* abortive attempt in the 1760's to increase the quality of its product is suggestive), while cotton ginning lost out to traditional carding in Puebla because ginned cotton was less suited to the backward spinning techniques of the industry. In short, new methods remained either untried or rejected in all three cases.

This technological backwardness of these three textile industries, especially in contrast to the British, continental and North American cotton textile industries, deserves a final comment. None of the three operated at, or even near, contemporary world technical standards. The most advanced of the three was the Puebla industry, but the changes wrought there involved organization rather than technique, as Thomson points out. Puebla rejected mechanically ginned cotton at a time when the continental industries used nothing else. Mechanized spinning had replaced cottage and hand work in Europe and the United States decades before Antuñano created Mexico's first spinning factory in the 1820's. By the time he did, the New England mills had already adopted the power loom and mechanized weaving, a development that did not occur in Mexico until the 1840's (and did not become widespread and successful, according to Thomson, until the 1890's). In short, the most advanced of the three industries studied here operated at roughly two decades to a half century behind the world standard.[8] The reasons for this technical backwardness require investigation separate from the analysis of the rate of growth in production. Increases in output without technological advance do not make for successful industrializations. The reverse is also true: despite their presumed advantages, both in costs and in the quality of output, most of the early factories established in Mexico in the 1830's and 1840's went bankrupt. Importing new technologies did not guarantee success.

Nonetheless, the continuity in the location of textile production in the Puebla region from the era of cottage spinning and hand looms to the factory installations of the late nineteenth century suggests a major difference between this industry and that of the Andean cases. The Huamanga and Cochabamba industries were marginal operations that could only flourish in the artificial hot houses created by forced sales and international war. The Puebla industry, however, was more than that. Thomson does not make the standard infant industry argument in his account of Puebla, and quite rightly. Infant industries in the modern era are those that require protection both to increase output and to achieve technological parity with foreign competitors. Puebla's output rose in wartime and mining depression (inadvertant protection, to be sure), but technological advances failed to materialize. This case, then, resembles more the European phase of "proto - industrialization," characterized mainly by organizational rather than technological change, than it does the infant industry phase of modern factory development where technological advances march hand in hand with increases in output. The history of textile industry development in Mexico thus suggests points of comparison and contrast with the European experience that would richly reward the historian, though such an effort would require a separate study of quite different scope. The three studies in this volume, by suggesting comparisons across regions withing Latin America, contribute in important ways to advancing prospects for broader work.

NOTES

1. Richard J. Salvucci, "Enterprises and Economic Development in Eighteenth - Century Mexico: The Case of the Obrajes" (Unpub. dissertation, Princeton University, 1982).

2. See Paul Gootenberg, "The Social Origins of Protectionism and Free Trade in Nineteenth - Century Lima," *JLAS*, 14:2(1982), 329 - 358.
3. Two indicators that support this comparison are mining output and fiscal revenues. See the essays by Coatsworth, Fisher and TePaske in this volume.
4. David W. Walker, "Kinship, Business and Politics: The Martínez de Río Family in Mexico, 1824 - 1864" (Unpub. dissertation, University of Chicago, 1981), chap. 6.
5. See my essay on the Mexican mining industry above, pp.26 - 45.
6. See John H. Coatsworth, "The Limits of Colonial Absolutism: The State in Eighteenth - Century Mexico," in Karen Spalding, ed., *Essays in the Political, Economic and Social History of Colonial Latin America* (Newark, Delaware, 1982), pp.25 - 51.
7. Walker, "Kinship, Business and Politics," p.287.
8. For a detailed account of the development and application of new techniques in textile production, see Walter English, *The Textile Industry: An Account of the Early Inventions of Spinning, Weaving, and Knitting Machines* (London, 1969).