A FURTHER INVESTIGATION OF URBANIZATION AND INDUSTRIALIZATION IN PRE-REVOLUTIONARY RUSSIA*

Robert A. Lewis
Columbia University

Richard H. Rowland
Rutgers University-Newark

IN a recent issue of *The Professional Geographer*, Roger L. Thiede investigated the relationship between urbanization and industrialization in pre-revolutionary Russia and concluded that "data strongly suggest that such a relationship definitely existed," and "that the conclusion arrived at herein throws considerable doubt on the findings of Lewis and Rowland who firmly closed the door on the possibility of any significant relationship existing between urbanization and industrialization in old Russia." *(1)* We do not feel that we firmly closed the door on this issue in one paragraph of a larger study. In fact, we have continued our investigation of this relationship, and, in general, the results of our deeper investigation do not differ appreciably from our earlier conclusions. The purpose of this paper is to evaluate briefly the data that Professor Thiede based his conclusion on and to present the findings of our further investigation.†

In his conclusion, Professor Thiede acknowledged the difficulty of measuring town growth and industrialization in pre-revolutionary Russia, but we feel that he underestimated the difficulty and that data do not exist to measure with any reasonable degree of accuracy changes in industrialization and urbanization in Russia in the last half of the nineteenth century.

Professor Thiede considered the measurement of the increase of workers in factory manufacturing a task that "was easily accomplished." *(2)* He used the 1908 census of industry and found "comparable data" for 1854 in a recent book by R. S. Livshits. *(3)* The 1854 data are highly suspect and certainly not comparable with the 1908 data. Statistical reporting and collection in the middle of the nineteenth century was unsatisfactory to say the very least, and the factory data have been frequently criticized. V. I. Lenin presents the most extensive critique of factory data for the last half of the nineteenth century. *(4)* He states that "there is no precise definition of the term 'factory-and-works' and consequently gubernia and even uezd authorities employ it in the most diverse ways. There is no central body to direct the proper and uniform collection, and verification, of returns. The distribution of industrial establishments among various departments (Mining, Department of Commerce and Manufacture, Miscellaneous Taxes Department, etc.) still further increases the confusion." *(5)* He also reviews the statements of the compilers of factory statistics for the 1860's, who indicate that there is no uniform definition for what is a factory and that windmills, brick-making sheds, handicraft establishments, etc. are included as factories. Some factory owners reported as factory workers only those workers who lived on the factory premises, while others included those who worked at home. *(6)* A compiler of the Ministry of Finance Yearbook is quoted as saying that "there are no correct official statistics on manufactory and factory industry and there will be none until there is a change in the main principles on which the primary material is gathered." *(7)* Because of their lack of confidence in these data, the editor of this yearbook refused to summarize the printed data. There is no reason to believe that the earlier 1854 data are of any better quality. Livshits acknowledges the deficiencies in the early factory data, but uses them only as a "representation of the distribution of pre-revolutionary industry in Russia" and frequently expresses reservations about them. *(8)*

Questions of accuracy and comparability aside, if one uses work force data to measure industrialization, great concern should be given to defining the employment categories that comprise industrialization. Cottage textiles, smithies, carpenter-benches,

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† For Professor Thiede's response to this present article, see pp. 212–214 of this issue.

hand-operated grindstones, windmills, brick-making sheds, etc. are not reasonable measures of industry. In addition, data should not be overused. If the data are defective or not comparable, one must limit their use to answering questions appropriate to the accuracy of the data. In short, that these data can be used to measure industrialization for the last half of the nineteenth century in Russia is highly questionable.

As to the urban data that Professor Thiede uses, these too seem to be too crude to measure urbanization over time with any reasonable degree of accuracy. He uses V. P. Semenov-Tyan-Shanskiy's functional classification of towns and his estimates of their growth between 1860 and 1900. *(9)* Professor Thiede admits that these estimates are crude but gains confidence in them by comparing them partially with 1859 urban data and thus accepts them "as sufficiently reliable." As with factory data, urban data before the 1897 census are highly suspect, as Semenov-Tyan-Shanskiy acknowledges. *(10)* Any correspondence with the limited 1859 data proves little because they are not reliable. Furthermore, Semenov-Tyan-Shanskiy where possible corrected his estimates with early existing data; *(11)* therefore it is very likely that the 1859 data are not an independent source of data. Even as late as 1885, N. Troynitskiy, Director of the Central Statistical Committee, in his preface to the statistical volume for Russia in the 1884–1885 period, does not express much confidence in the population, including urban, data presented in that volume, because of the variety of sources from which they came and the inadequate methods used to gather them. He further states that without a census of the population, the question as to the size and distribution of the population of the Russian Empire cannot be solved. *(12)* After 1897, the Central Statistical Committee was frequently criticized for not taking into consideration migration in their estimates for the total and urban population. *(13)*

Because of the absence of more precise data, Semenov-Tyan-Shanskiy made very crude estimates of the growth of his economic towns from 1860 to 1900 based on a constant growth rate derived from their growth in the first decade of the twentieth century, even though he acknowledged that their growth was not constant. However, he labeled his estimates as "*ves'ma gadatel'nyye*," which can best be translated as highly conjectural or guesstimates, in that this adjective is from the verb "to guess" or "to tell fortunes (*gadat'*)." He further states that no precise conclusions can be based on these data and his purpose was only to use them to categorize roughly cities as to their size. *(14)* Like Livshits, he did not overuse his data.

Because the early factory and urban data are so defective, in our analysis of urbanization and industrialization in late nineteenth century Russia, we used almost exclusively the 1897 census, which is generally acknowledged to be a reliable source of data. Furthermore, if these processes were indeed in operation over this period, at the very least, the 1897 data would reflect the results of the urbanization and industrialization processes that had taken place.

The central question remains: can such obviously defective factory and urban data be used to measure urbanization and industrialization with sufficient precision to claim that there was a significant relationship between them. We agree with Professor Thiede that it would be desirable to measure this relationship over time, but we think that it cannot be measured with any degree of accuracy with the existing data and that his correlations are therefore not valid.

Another aspect of the studies worthy of mention is the fact that Professor Thiede's results were based on a different temporal and spatial framework. Whereas his work is concerned with the period 1854 to 1910, our investigation is centered on 1897. Secondly, our spatial framework was more comprehensive than Professor Thiede's. Whereas he was only concerned with the 49 *gubernii* (provinces) in European Russia, we were concerned with the entire national territory of the present-day USSR, which in general was roughly comparable to the Russian Empire in 1897 in terms of population and area. In particular, Professor Thiede excludes such areas as Siberia, the Far East, much of the North Caucasus, and the Transcaucasus, each of which had some rapidly growing towns and each of which were not areas of significant industrialization. For example, one of the most rapidly growing cities in Russia was Novor-

ossiysk, a major grain-exporting port on the Black Sea in the North Caucasus region. In fact, the whole Black Sea littoral is perhaps the best testimony to the fact that urbanization was not that highly tied to industrialization. As was noted in our earlier study this area contained the most urbanized region in 1897 Russia; namely, the South region of the Ukraine (comprised primarily by the Odessa area and the Crimea). Urban life here, however, was based especially on nonindustrial activities. For example, Odessa, and Nikolayev were major grain-exporting centers, and Odessa and Sevastopol' were naval bases.

The fact that urbanization in late nineteenth century Russia was still highly tied to non-industrial functions is further supported by an additional correlation. On the basis of our 19 regions in 1897, we have run a rank correlation between (1) the level of urbanization (i.e., the percent of the total population residing in settlements of 15,000 and over); and (2) the percent of the total population comprised by workers in the tertiary sector, here defined as those workers who were not in agriculture or manufacturing as defined in a previous work. *(15)* Although this tertiary sector includes construction workers, it is still largely dominated by service occupations. The emergent rank correlation coefficient here was .738. In contrast, as we found in our earlier study, the rank correlation coefficient between urbanization and industrialization was only .416. Therefore, these correlations further support the fact that urbanization in late nineteenth century Russia was still highly tied to tertiary activities.

Another difference between our studies was the fact that Professor Thiede's urban definition was different from the definition we utilized, as he pointed out. In our study, we defined urban centers as those settlements which had a population of 15,000 and over. He is correct in saying that our definition excludes some industrial centers with a population of less than 15,000. However, it appears that the addition of these smaller centers would make little difference, because the vast majority of any urban population in 1897 would still be in centers of 15,000 and over. For example, of the total urban population of the Russian Empire in 1897 based upon the census definition of urban, nearly three-fourths (74.2 percent) resided in centers of 15,000 and over. Thus, even if smaller centers were included, the vast majority of the urban population would still be in centers of 15,000 and over. Therefore, even if we used a different definition of urban, we would probably still obtain the same general results.

Like Professor Thiede we were also troubled by the inclusion of handicrafts in our "industrial" work force. Consequently, we have attempted to delete handicrafts from our industrial category in order to derive an estimate of factory workers per se by region. The first step was to delete those in *kustarnoye* industries (handicrafts) according to the census. *(16)* However, this procedure suggested that there was an underestimate of the total number of handicraft workers in the census, because the residual category (i.e., factory workers) for the empire as a whole was still about twice as large as the total number of factory workers according to factory-and-works statistics for 1897 and other census data. *(17)* Deeper investigation revealed that one reason for this situation was the fact that the large apparels sector was not listed under the *kustarnoye* categories. Because this sector consisted particularly of small workshops in Jewish areas, it seemed reasonable to include it in the handicraft (i.e., nonfactory) category. Therefore, for the 89 *gubernii* of Russia we subtracted the workers in the *kustarnoye* and apparels sectors from the total number of industrial workers according to the census. The result was an estimate of the total number of "factory workers" (i.e., the residual) by *guberniya.* Subsequently, we allocated these data into the 19 economic regions utilized in our study. *(18)* After making adjustments for those few areas outside Russia in 1897 but within the present-day national territory of the USSR, we derived an estimate of the number of "factory" workers for each of the 19 regions. On the basis of these regions we then ran a rank correlation similar to that in our original study; namely, between (1) the level of urbanization and (2) the percent of the total population comprised by "factory workers." As in our original study, the correlation was still low and insignificant at the 5 percent level ($r_s = .307$). Thus, the low

relationship between urbanization and industrialization emerges regardless of whether industry includes or excludes handicrafts.

The same conclusion generally emerges from other perspectives on the urbanization-industrialization relationship. In particular, we have examined the relationship between urban in-migration and various work force sectors, including total industry and "factory" industry. Investigation of urban in-migration per se is of special relevance, because, not unexpectedly, it was the major immediate factor in urban growth and urbanization in Russia at this time. For example, we have estimated that (1) more than one half (52.5 percent) of the 1897 urban population were in-migrants; and (2) approximately four fifths of the urban growth between 1885 and 1897 was due to net in-migration. *(19)* These results are not surprising, especially in light of the fact that many cities were still experiencing little or no natural increase because of high urban mortality rates. Therefore, urban in-migration was the primary immediate factor in urban growth and urbanization.

Investigation reveals, however, that in accordance with our previous results there was also not a strong positive relationship between urban in-migration and industrialization. Leasure and Lewis discovered this in their study of internal migration as a whole in late nineteenth century Russia. *(20)* Rowland investigated the relationship in greater depth for 223 urban centers from the 1897 census throughout the entire empire. *(21)* As part of a factor analysis he has received rank correlation coefficients between the level of urban in-migration (i.e., the percent of an urban center's population comprised by in-migrants, here measured by place-of-birth data) and the percent of the population of an urban center comprised by various work force sectors. Results reveal (Table 1) that urban in-migration was most highly related to tertiary occupations in general and personal services (e.g., domestic service, day-labor, etc.) in particular. Therefore, an urban process typical of many underdeveloped areas seemed also to be occurring in late nineteenth century Russia. *(22)* Namely, rural-to-urban migrants, being largely unskilled peasants, especially partook in various menial occupations upon arrival in cities.

TABLE 1

RANK CORRELATIONS BETWEEN URBAN IN-MIGRATION AND VARIOUS WORK FORCE SECTORS FOR 223 CITIES IN 1897

Work Force Sector	R_S with Level of Urban In-Migration
Personal services	.671
Tertiary occupations in general	.654
Total trade	.555
Institutions and free professions	.502
Transportation	.490
Construction	.453
Armed forces	.269
Industry	.104
Agriculture	−.388

Source: Calculated from: Russia, Tsentral'nyy Statisticheskiy Komitet Ministerstva Vnutrennikh Del, *Pervaya Vseobshchaya Perepis' Naseleniya Rossiyskoy Imperii, 1897 G.*

Table 1 reveals that there was apparently no strong tie between urban in-migration and urban industrialization as a whole. However, because this industrial work force includes handicrafts, an attempt was made once again to delete this sector from the industrial work force. Using a procedure similar to that mentioned before, an estimate of the number of factory workers was made for 142 of the 223 cities. Although the number of apparel workers could be derived for all 223 cities, the source containing the number of *kustarnoye* workers, unfortunately, did not provide appropriate data for the other 81 centers. *(23)* Nevertheless, this was no major problem since the 142 towns contained the vast majority (88.1 percent) of the population in all 223 cities. Therefore, a rank correlation based on these 142 centers was run between (1) their level of in-migration; and (2) the percent of their total population in the "factory" work force (i.e., their industrial work force minus apparels and the *kustarnoye* category). Although a significant and positive relationship emerged ($r_s = .311$), it is still relatively low. In fact, a comparison with data for all 223 centers in Table 1 suggests that most other sectors were still more highly related to

urban in-migration than was the "factory" sector. In summary, rural-to-urban migration was not that highly oriented towards industrial centers, further indicating the weak relationship between urbanization and industrialization in late nineteenth century Russia.

Statistical correlations by themselves tend to be arid and require a conceptual basis before valid relationships can be inferred. The pertinent question then is, judging from experience elsewhere, are the relationships that we found in the early stages of modernization in Russia reasonable? The answer appears to be affirmative. First, the character of industrial work is often repelling to potential rural-to-urban migrants, especially because of the different skill requirements and more regimented nature of industrial work as opposed to agricultural work. In addition, Adna Weber states that, regarding nineteenth century urbanization, "as a class, the country immigrants do not at once assume the higher positions in the economic organism, but enter the unskilled occupations where muscular strength and vigor are in demand. . . . The immigrants at first take up with such menial occupations as domestic and personal service, work in hotels and restaurants, postmen, cab-drivers and truckmen, and in some cases, with the building trades. It is only gradually that they work their way into the skilled industries, in which the city-born have a far larger representation." *(24)* Also, A. J. Jaffe suggests that in an underdeveloped situation, industrialization results in the utilization of unemployed labor, and in shifts in employment within urban centers from sectors with much underemployment to manufacturing. *(25)* Consequently, an urban center can become more industrial without necessarily increasing its population.

In the early Russian context, even if the peasant might have been attracted to industrial work, his opportunities were reduced. First, Russian industry in the late nineteenth century was characterized by a relatively high degree of capital intensiveness. *(26)* In addition, in 1897 a very high percent of Russian industry was located in rural areas; for example, 52.7 percent of the industrial work force was located in rural areas as defined by the census. Therefore, this alternative destination undoubtedly diverted many peasants who might have otherwise been attracted to urban industry. This pattern of industrial location appears to have been partly related to the fact that there were a number of legal restrictions upon peasant out-migration from the rural commune. *(27)*

In conclusion, a substantial amount of evidence suggests that there was not a high relationship between urbanization and industrialization in late nineteenth century Russia. Based upon the experience of other countries in the early stages of modernization, this low relationship is not too surprising.

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(1) Roger L. Thiede, "Urbanization and Industrialization in Pre-Revolutionary Russia," *The Professional Geographer*, Vol. 25 (1973), pp. 16–21.
(2) Thiede, op. cit., p. 16.
(3) R. S. Livshits, *Razmeshcheniye Promyshlennosti v Dorevolyutsionnoy Rossii* (Moscow: Akademiya Nauk SSSR, 1955), pp. 131–134.
(4) V. I. Lenin, *The Development of Capitalism in Russia* (Moscow: Progress Publishers, 1967), pp. 460–472.
(5) Lenin, op. cit., p. 460.
(6) Lenin, op. cit., pp. 461–462.
(7) Lenin, op. cit., p. 461.
(8) Livshits, op. cit., reference 3, pp. 9, 93, and 130.
(9) V. P. Semenov-Tyan-Shanskiy, "Gorod i Derevnya v Yevropeyskoy Rossii," *Zapiski Imperatorskago Russkago Geograficheskago Obshchestva,* Vol. 10 (1910), 212 pp.
(10) Semenov-Tyan-Shanskiy, op. cit., p. 78.
(11) Semenov-Tyan-Shanskiy, op. cit., p. 79.
(12) Tsentral'nyy Statisticheskiy Komitet, *Statistika Rossiyskoy Imperii, Sbornik Svedeniy po Rossii za 1884–1885 GG.* (St. Petersburg, 1887), pp. 11–111.
(13) A. G. Rashin, *Naseleniye Rossii za 100 Let* (Moscow: Gosstatizdat, 1956), pp. 20–23 and V. V. Pokshishevskiy, "A. G. Rashin: 'Naseleniye

Rossii za 100 Let (1811–1913 GG)'" *Istoriya SSSR* (1959), p. 190.

(14) Semenov-Tyan-Shanskiy, op. cit., reference 9, p. 79.

(15) For a discussion of the appropriate work force definitions, see J. William Leasure and Robert A. Lewis, *Population Changes in Russia and the USSR: A Set of Comparable Territorial Units* (San Diego, Calif.: San Diego State College Press, 1966).

(16) A listing of these workers by *guberniya* and major cities can be found in a supplementary set of volumes to the 1897 census: Russia, Tsentral'nyy Statisticheskiy Komitet Ministerstva Vnutrennikh Del, *Pervaya Vseobshchaya Perepis' Naseleniya Rossiyskoy Imperii, 1897 G. Raspredeleniye Naseleniya po Vozrastnym Gruppam po Otdel'nym Territorial'nym Rayonam, Tablitsa XX.*

(17) For factory-and-works data, see Peter I. Lyashchenko, *History of the National Economy of Russia* (New York: The Macmillan Company, 1949), p. 526. For a detailed discussion of these comparisons, see Richard H. Rowland, "Urban In-Migration in Late Nineteenth Century Russia," unpublished Ph.D. dissertation (Department of Geography, Columbia University, December, 1971), pp. 185–195.

(18) For a discussion of the allocation procedures, see Leasure and Lewis, op. cit., reference 15.

(19) Rowland, op. cit., reference 17, pp. 115–117.

(20) J. William Leasure and Robert A. Lewis, "Internal Migration in Russia in the Late Nineteenth Century," *Slavic Review*, Vol. 27 (1968), pp. 389–394.

(21) Rowland, op. cit., reference 17.

(22) For example, see Adna F. Weber, *The Growth of Cities in the Nineteenth Century* (Ithaca, N. Y.: Cornell University Press, 1899), pp. 390–391; and Gerald Breese, *Urbanization in Newly Developing Countries* (Englewood Cliffs, N. J.: Prentice-Hall, 1966), pp. 77–78.

(23) Russia, op. cit., reference 16.

(24) Weber, op. cit., reference 22.

(25) A. J. Jaffe, *People, Jobs, and Economic Development* (Glencoe, Ill.: The Free Press, 1959), pp. 14–18.

(26) Alexander Gerschenkron, "Problems and Patterns of Russian Economic Development," *The Transformation of Russian Society*, ed. Cyril E. Black (Cambridge, Mass.: Harvard University Press, 1960), pp. 49–50.

(27) Geroid T. Robinson, *Rural Russia Under the Old Régime* (New York: The Macmillan Company, 1932), pp. 73, 76, and 91–93.

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