IRSH 50 (2005), Supplement, pp. 65–91 DOI: 10.1017/S0020859005002075

"We Have No Proletariat": Social Stratification and Occupational Homogamy in Industrial Switzerland, Winterthur 1909/10–1928*

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Summary: The aim of this study is to examine, by analysing marital origin-related homogamy and mobility, the fluidity of a system of social stratification marked by a heterogeneous working class and likely to lead to increasing social-group solidarity during the phase of a more active labour movement in the early twentieth century. Data from Winterthur, a Swiss town characterized by the expansion of an important engineering industry, reveal that occupational homogamy was most pronounced at the top, among higher managers and professionals, and at the bottom of the social hierarchy, among unskilled factory workers. There is no empirical evidence of increased homogamous behaviour after the nationwide general strike of 1918, which is said to have had a long-term impact on workers' class-consciousness. Our analyses show, however, that the association between the social background of spouses depended on their geographical origin. This result may point to a regionally determined class-consciousness.

INTRODUCTION

Inspired by sociological research, during the last few decades social historians have widely explored processes of social stratification and class formation in the past. In this regard, analyses of the patterns and dynamics of partner choice have played a crucial role. Whereas high degrees of homogamy have been interpreted as an indicator of a social group's closeness, frequent heterogamy has often been seen as a sign of relative fluidity within the system of social stratification.

The question whether this mobility between social groups was affected by industrialization has proved to be of particular interest among historians and sociologists and provoked a longstanding debate. In the abundant literature, the opposition between pre-industrial society, characterized by its highly static and closed social hierarchy, and the industrializing world, marked by a rapidly changing occupational

* This paper is part of the "Histoire de la population en Suisse, 1815–1945" research project, funded by the Swiss National Science Foundation (no. 1114–058899/1).

structure and a regime of almost unlimited social mobility,[1] most often represented little more than a caricatured starting point that was either completely rejected by some or qualified by others. Among the former, sociologists have often had doubts about the reality of any gradual trend towards increasing mobility during industrialization,[2] while among the latter, historians have tried to distinguish different stages of industrialization. In a theoretical article on social mobility, Franklin Mendels concluded that "interactions between mobility and economic change vary according to the type or phase in which a given local, regional, or national economy finds itself",[3] and assumed that during the phase of proto-industrialization downward mobility must have been stronger than upward mobility.[4]

Hartmut Kaelble, in turn, has distinguished three eras of social mobility in the period of industrialization.[5] He determined that social mobility must have been increasing, especially during the second industrial revolution (which was characterized by the rise of large-scale enterprises), and he argued that the growth of white-collar work and improved access to higher education created numerous opportunities for upward social mobility among the working class.

The debate regarding the impact of industrialization on the degree of openness of systems of social stratification has, however, essentially focused on the temporal dimension of economic modernization. Where different phases of this process, such as the proto-industrial period and the first and second waves of industrialization, have been distinguished, industrialization has often been taken as a standardized independent variable of social fluidity. In other words, the variety of specific regional itineraries that this process could follow has regularly been neglected. Nonetheless, the course and the characteristics of this evolution were mainly country-specific and dependent on the availability of different factors of production, such as labour and physical and financial capital, as well as on existing pre-industrial economic organization.[6] The develop-

1. Ilja Mieck, "Wirtschaft und Gesellschaft Europas von 1650–1850", in Wolfram Fischer *et al.* (eds), *Handbuch der europäischen Wirtschafts- und Sozialgeschichte*, 6 vols (Stuttgart, 1987), vol. 5, pp. 1–234, 192.

2. Robert Erikson and John H. Goldthorpe, *The Constant Flux: A Study of Class Mobility in Industrial Societies* (Oxford, 1987); Ivan K. Fukumoto and David B. Grusky, "Social Mobility and Class Structure in Early Industrial France", in Andrew Miles and David Vincent (eds), *Building European Society: Occupational Change and Social Mobility in Europe 1840–1940* (Manchester, 1993), pp. 40–67.

3. Franklin Mendels, "Social Mobility and Phases of Industrialization", *Journal of Interdisciplinary History*, 7 (1976), pp. 193–216, 216.

4. *Ibid*., p. 202.

5. Hartmut Kaelble, *Social Mobility in the Nineteenth and Twentieth Centuries: Europe and America in Comparative Perspective* (Leamington, 1985).

6. Patrick Verley, *L'échelle du monde* (Paris, 1997), pp. 69 ff.

ment of and changes in industrial occupational structures were therefore heavily dependent on the specific national model of industrialization. In that sense, the process of social-class formation was subject to national and even regional characteristics of economic modernization.[7] In particular, the composition and consciousness of the so-called working class, as well as its relationship to the non-industrial population, must have been dependent on the type of industrialization, its leading sectors, and their dominant organizational structures.

In a European comparative perspective, the Swiss case is particularly interesting because it represents a variation on the British model of industrialization. Switzerland's route to economic modernization followed the path predetermined by the proto-industrial development of the eighteenth and early nineteenth centuries and was characterized by the dominance of geographically delocalized manufacturing industries. As a consequence, the Swiss working class never formed a proletariat analogous to that of other countries and therefore also developed a different, less clear-cut form of class-consciousness.[8]

The main objective of this article is to analyse the internal coherence, evolution and regional specificity of the Swiss working class. Based on data from Winterthur, one of Switzerland's most industrialized towns at the beginning of the twentieth century, this article suggests an examination of the fluidity and rigidity of the system of social stratification in that peculiar context by analysing origin-related marital homogamy before and after World War I. In order to refine the main characteristics of Switzerland's occupational and social-class system in general and of the Swiss working class in particular, we will first outline this country's specific model of industrialization and the related process of social-class formation at the end of the nineteenth and the beginning of the twentieth centuries. After presenting Winterthur as representing a specific type of industrialization in Switzerland, we will analyse marital homogamy and mobility patterns using log-linear modelling.

INDUSTRIALIZATION AND SOCIAL-CLASS FORMATION IN SWITZERLAND

In Switzerland industrial development had always been subject to specific geographical and demographic constraints. On the one hand, geographical space is limited; Switzerland is characterized by an important alpine and pre-alpine area representing about 60 per cent of its territory. There is no direct access to the sea, which limited access to international markets. But most importantly, the country is lacking in raw materials.

7. Mieck, "Wirtschaft und Gesellschaft Europas von 1650–1850", p. 188.
8. Jean François Bergier, *Histoire économique de la Suisse* (Lausanne, 1984), p. 239.

The demographic situation, on the other hand, has been determined by substantial population growth during the entire nineteenth century. This growth provoked not only emigration, but also had a decisive impact on economic development. Specializing in cattle-breeding and hence available for additional activities, the mainly rural population constituted an abundant and inexpensive labour force that contributed to the development of an important proto-industry.[9] Spinning and weaving had been widespread activities on the plateau between the Alps and the Jura Mountains since the first half of the eighteenth century, whereas the watch-and-clock proto-industry was concentrated in Geneva and, since the 1830s, in the French-speaking Jura Mountains too. The highly specialized production was organized on the basis of the putting-out system,[10] and was essentially destined for the international markets.

Since the first decade of the nineteenth century, mechanized spinning companies were created mainly in the northeast of Switzerland. The development of the engineering industry since the middle of the nineteenth century was closely related to the rapidly expanding textile sector. Implemented mainly in the northeast of the country, this sector produced spinning frames for local industries but quickly diversified its fabrication: heating installations for the internal market, steam engines, steamships, and diesel engines destined for the export market. At the beginning of the twentieth century, Switzerland was one of the world's most industrialized countries.[11] During that period, the three main sectors were the textile manufacturing industry, the engineering industry, and the watch-and-clock industry. They employed approximately 70 per cent of the industrial labour force and 30 per cent of the economically active population.[12]

With respect to the development of the occupational structure and the process of social-class formation, the following specific characteristics of the Swiss model of industrialization[13] have to be emphasized. First of all,

9. The concept of proto-industry was developed by Franklin Mendels, who used it to describe the first stage of the industrialization process. Mendels and Deyon cited three main characteristics of this phase of economic development: (1) production output destined for national and international markets; (2) a mainly rural labour force which, in addition to its agricultural activities, worked temporarily for an urban merchant on the basis of the putting-out system; and (3) the regional development of a commercialized agriculture. See Franklin Mendels and Pierre Deyon, "La proto-industrialisation: Théorie et réalité", *Revue du Nord*, 53 (1981), pp. 11–16.

10. The putting-out system, or *Verlagsystem*, was a proto-industrial form of production in which an urban entrepreneur sent raw materials to rural home workers and brought the finished product back to town. This organizational form can be distinguished from the *Kaufsystem*, where home workers were independent and commercialized their products on their own, and from the factory system, which concentrated the workers in large units of production; Patrick Verley, *La Révolution industrielle* (Paris, 1997), pp. 82, 87 ff., 408.

11. *Ibid*., p. 463.

12. Francesco Kneschaurek, "Wandlungen der schweizerischen Industriestruktur seit 1800", *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, 100 (1964), p. 155.

13. Bergier, *Histoire économique de la Suisse*, p. 182.

the lack of raw materials largely determined the organizational form of production. Since it was too expensive to import coal for the newly born textile manufactures, steam power was replaced by hydraulic power. The factories were therefore localized along rivers, most often in rural areas. As a consequence, industrial activity remained geographically de-localized. This distinctive characteristic of the Swiss model of industrialization prevented the development of larger industrial agglomerations as well as the formation of a proletariat comparable with that of other countries. Furthermore, the enterprises remained relatively small-scale. In 1911, 49 per cent of all factory workers were employed in enterprises with fewer than 100 employees and only 17 per cent worked in factories with more than 500 employees.[14]

Secondly, given the absence of raw materials, Swiss industries were inevitably processing industries, processing and finishing imported and often expensive materials. The only source of success on the international market was therefore the added value resulting from work, and this added value had to be higher than elsewhere. To achieve such added value, products had to be specialized and of good quality. However, only skilled workers could produce such sophisticated goods. Drawing on a long-standing proto-industrial tradition, this qualification was maintained by a high degree of education and literacy, notably in Protestant areas, where most industrial activity was concentrated. The phenomenon of "relegating" the industrial labour force to mainly unskilled work, as happened in countries with an important heavy industry, was unknown in Switzerland.

Finally, this country experienced what can be called *dualist* industrialization.[15] Until the beginning of the twentieth century the factory system cohabited with the proto-industrial putting-out system. Especially in the watch-and-clock sector, the role of home workers remained important. Until 1910, a minority of the industrial population were factory workers: home workers, craftsmen, and construction workers still accounted for over 50 per cent.[16]

These specificities of the Swiss model of industrialization directly affected the process of social-class formation in general and the development of the industrial labour force in particular. The coexistence of the factory system, the putting-out system, and traditional crafts meant that the working class never formed a homogenous social group with a commonly shared class-consciousness and solidarity.[17] Factory workers,

14. Erich Gruner, *Arbeiterschaft und Wirtschaft in der Schweiz 1880–1914*, 3 vols (Zurich, 1987), vol. 1, p. 141.
15. Verley, *La Révolution industrielle*, p. 461.
16. Kneschaurek, "Wandlungen der schweizerischen Industriestruktur seit 1800", p. 139.
17. Hans Jörg Siegenthaler, "Die Schweiz 1850–1914", in Fischer *et al.*, *Handbuch der europäischen Wirtschafts- und Sozialgeschichte*, vol. 5, pp. 443–473, 455.

home workers, and artisans lived in different economic and social realities and must have developed different class identities.

The diversity of orientation among trade unions testifies to this heterogeneity. While home workers, who numbered about 100,000 in 1900,[18] were almost completely devoid of any organization, craftsmen defended their interests mainly through the Schweizerische Gewerbeverein, founded in 1879. This organization basically represented independent master craftsmen as well as employed masters in smaller industrial enterprises. Their standard of living probably did not differ considerably from that of ordinary factory workers, and in highly industrialized regions where they had a subcontracting relationship with larger enterprises their independence was more formal than real. Nevertheless, these craftsmen and masters generally felt closer to the *Bürgertum* than the working class.[19]

In 1880 the factory workers formed the Schweizerische Gewerkschaftsbund. Inspired by the international labour movement, towards the end of the nineteenth century this umbrella organization of industrial trade unions increasingly adopted the discourse of a class struggle. Even if in 1908 the "proletarian class struggle" became the declared objective, its main concern during the first decade of the twentieth century remained opposition to higher food prices. After 1905 strikes became more and more frequent and coordinated. The nationwide general strike (*Landesstreik*) of 1918 represented a culminating point for the labour movement in Switzerland. The mobilization of the army against protesting workers, a symbol of the "class struggle from above",[20] intensified class-consciousness among workers and the conflict between them and the liberal establishment. In that sense, those few days had a lasting impact on the sense of class affiliation among workers as well as on society's perception of this social group.

Throughout the first three decades of the twentieth century, farmers comprised Switzerland's second most important social group. Until 1930, their proportion of the active population never fell below 21 per cent, and it was only in the biggest towns that they had almost completely disappeared. The main characteristic of the Swiss farming community was the small size of the units of production. Thus, in 1905, 41 per cent of all farms worked less than three hectares.[21] In spite of the heavy mortgage debts owed by farmers, at the beginning of the twentieth century an agricultural origin no longer signified a socially and economically under-

18. Kneschaurek, "Wandlungen der schweizerischen Industriestruktur seit 1800", p. 139.
19. Gruner, *Arbeiterschaft und Wirtschaft in der Schweiz 1880–1914*, vol. 2, p. 1386.
20. Hans-Ulrich Jost, "Menace et repliement, 1914–1945", in *Nouvelle histoire de la Suisse et des Suisses*, 3 vols (Lausanne, 1983), vol. 3, pp. 91–178, 124–129.
21. Gruner, *Arbeiterschaft und Wirtschaft in der Schweiz 1880–1914*, vol. 2, p. 1399.

privileged situation.[22] The social status of farmers must actually have been similar to that of skilled workers and craftsmen. Yet the relationship between the farming and working classes changed decisively around the turn of the twentieth century.

During the 1890s these two social groups were relatively close, not only because most workers originated from peasant families but also because their political interests were similar. Anti-capitalistic tendencies within farmers' associations became manifest, and real "farmers' and workers' unions" were founded.[23] However, the debate on protective tariffs and inflation during the first decade of the twentieth century led to an estrangement between farmers and workers. While the first, represented by the Schweizerische Bauernverband, favoured a protectionist policy aimed at higher agricultural incomes, the latter deplored the rising prices of basic foodstuffs and held farmers responsible. The more frequent incidence of strikes especially provoked vehement reactions among the farming population, who bemoaned what they regarded as the breakdown in law and order and who increasingly considered themselves to be the only group still representing the interests of the state.[24]

As in many other industrializing countries, the number of white-collar workers or salaried employees[25] had been steadily increasing in Switzerland since the late nineteenth century: the ratio of non-manual to manual workers in the industrial and commercial sectors rose from 1:6.6 in 1900 to 1:3.8 in 1920.[26] This increase in the proportion of commercial employees, accountants, and office workers was related to the expansion of administrative units in large-scale enterprises as well as to the growth of the banking and insurance sector. In the engineering industry, in particular, this rise was also connected with the appearance of a new professional group, namely the "technicians". Though their education, received in technical schools, did not correspond to a university degree, it was graded higher than an apprenticeship. Their non-manual work, their educational background and, at least initially, the presence of

22. *Ibid*., p. 454. The relatively high standard of living can also be explained by government subsidies for the farming population; Roland Ruffieux, "La Suisse des Radicaux. 1848–1914", in *Nouvelle histoire de la Suisse et des Suisses*, vol. 3, pp. 7–90, 71.

23. Gruner, *Arbeiterschaft und Wirtschaft in der Schweiz 1880–1914*, vol. 2, p. 1393. One example is the Bauern- und Arbeiterbund in the canton of Baselland.

24. *Ibid*., p. 1409. In this regard, a comment by Ernst Laur, secretary of the Schweizerische Bauernverband, is instructive: "Ohne Bauernstand ist die Eidgenossenschaft dem Untergang geweiht".

25. In the German-speaking countries the most often used term was the *Angestelltenschaft*. See Jürgen Kocka, "Einleitende Bemerkungen", in *idem* (ed.), *Angestellte im europäischen Vergleich. Die Herausbildung angestellter Mittelschichten seit dem späten 19. Jahrhundert* (Göttingen, 1981).

26. Mario König, Hannes Siegrist, and Rudolf Vetterli, "Zur Sozialgeschichte der Angestellten in der Schweiz", in Kocka, *Angestellte im europäischen Vergleich,* pp. 169–195, 178.

management at their workplace gave white-collar workers a certain prestige and created a social distance between them and skilled workers and craftsmen.

With the radicalization of the labour movement during the first decade of the twentieth century, the distance between salaried employees and industrial workers became even more evident. The explicit approval of the capitalistic economic system by white-collar associations was just one sign of this increasing distance.[27] Even if, after World War I, the reduction in real wages and especially the expansion in scientific management in larger enterprises[28] modified the consciousness of white-collar workers, their interest groups continued to hold liberal positions.

Switzerland's social and economic elites were the main winners in the industrialization process. Since the period of proto-industrialization, the entrepreneurs of the leading exporting industries, who often combined commercial and financial activities as *marchands-banquiers*, had acquired most of the socio-economic and political power. In the second half of the nineteenth century, the industrialists constituted a loosely jointed ruling class, sharing pronounced meritocratic and liberal values and remaining open to entrepreneurial newcomers.[29] As many of them were members of the federal parliament, where they represented the dominant Radical Democratic Party, their claim to leadership was also democratically legitimized. Most of them were members of the Schweizerische Handels- und Industrieverein, an influential interest group that defended liberalism and the concerns of exporting industries.

At the beginning of the twentieth century, Swiss society was therefore characterized by an increasing contrast between its different components. The largely heterogeneous, mostly skilled working class began to radicalize in a context of increasing inflation and international unionism. Various authors have claimed that the labour movement in general, and the events of 1918 in particular, had an integrating effect on workers' class-consciousness.[30] Where diverse types of worker were still living in different realities, they might thereby have developed a shared sense of belonging. The farming community developed a marked self-confidence and feeling for political action, which was directed at the labour parties as well as the established Radical Democratic Party. At the same time, white-collar workers began to shape their own consciousness and defend their interests against the working and entrepreneurial classes. Given these

27. König, "Zur Sozialgeschichte der Angestellten in der Schweiz", p. 181.

28. Rudolf Jaun, *Management und Arbeiterschaft: Verwissenschaftlichung, Amerikanisierung und Rationalisierung der Arbeitsverhältnisse in der Schweiz, 1873–1959* (Zurich, 1986).

29. Siegenthaler, "Die Schweiz 1850–1914", p. 453.

30. Bernard Degen, "Arbeiter", in *Historisches Lexikon der Schweiz* [electronic publication HLS], version dated 28 September 2004; Philippe Kaenel, "L'histoire et les images. La figure de l'ouvrier en Suisse", *Revue Suisse d'Histoire*, 54 (2004), pp. 20–56, 28.

social transformations at the beginning of the twentieth century, we might suppose that marital homogamy increased after World War I.

WINTERTHUR: CENTRE OF THE SWISS ENGINEERING INDUSTRY

Winterthur was one of the leaders of industrialization in Switzerland. Throughout the second half of the nineteenth and the beginning of the twentieth century, it was also the town whose development was most closely connected with its industrial growth. For these reasons Winterthur is often taken as representative of industrial Switzerland.[31] During the first half of the nineteenth century, economic development was determined by the expansion of the textile manufacturing industry, while the second half was characterized much more by the implementation and growth of the engineering industry. The expansion of this latter sector also constituted the main impetus of demographic growth in the late nineteenth and early twentieth centuries. The population of the town and its agglomeration rose from 26,000 in 1880 to 46,000 in 1910 and 54,000 in 1930.

As Table 1 demonstrates, the engineering industry was the main economic sector of the town and therefore also its most important employer. The majority of workers were employed by one of the three leading firms. Founded during the first half of the nineteenth century, Gebrüder Sulzer AG was by far the biggest employer at the beginning of the twentieth century. The number of employees at Gebrüder Sulzer AG rose from 1,200 in 1880 to 3,200 in 1900 and 5,850 in 1920.[32] Production was mainly centred on diesel engines and ships, and on the engines used in the construction of railway tunnels. J.J. Rieter & Cie was the oldest of the three firms, and until the 1860s it was primarily a textile manufacturing company. By the turn of the century it had been converted into an engineering company; by then the construction of electric engines, bridge-building, and railway engineering constituted its main activities. Between 1880 and 1920 the number of workers stagnated at around 1,000. The Schweizerische Lokomotiv- und Maschinenfabrik was founded in the 1870s and focused on constructing steam engines and electric locomotives. The number of workers at this firm rose from 450 in 1880 to 1,300 in 1900 and 1,900 in 1920.

These three main engineering firms constituted the core of Winterthur's industry. They also shaped the town's appearance as a result of their industrial landscape and the housing estates built for their workers according to the principles of the French *cités ouvrières*. The most important estate was built by the Lokomotiv- und Maschinenfabrik, to the

31. François Walter, *La Suisse urbaine 1750–1950* (Carouge, 1994), p. 105.
32. Werner Ganz, *Geschichte der Stadt Winterthur* (Winterthur, 1979), p. 177.

Table 1. *Occupational structure of Winterthur (agglomeration), 1910–1930*

Sector (%)	1910	1920	1930
Agriculture	7.1	5.9	4.7
Food industry	4.8	4.7	3.9
Construction industry	10.9	8.5	11.6
Textile and clothing industry	18.6	15.7	11.3
Engineering industry	28.9	35.1	24.2
Other industries	4.0	4.3	3.0
Commerce, administration, services	20.4	20.4	35.3
Transport	5.3	5.5	5.9
Total	100	100	100

Sources: Bundesamt für Statistik, *Eidgenössische Volkszählungen* 1910, 1920, and 1930.

plans of its founder, Charles Brown. The terraced houses all had front and back gardens. As a consequence, at the beginning of the twentieth century Winterthur was one of Switzerland's rare garden cities.[33]

An investigation conducted in 1907[34] gives more detailed information on the workers employed in Winterthur's engineering industry. First of all, its findings show that at that time the engineering sector was a national employer of mostly skilled workers. Over 80 per cent of those working in Winterthur's engineering sector were skilled workers. Only 16 per cent of these workers came from Winterthur and its surroundings, whereas 31 per cent originated from the rest of the canton of Zurich, and 47 per cent from other Swiss cantons. Accounting for less than 6 per cent of the total, foreign workers were not numerous, though at more than 10 per cent they were over-represented among unskilled workers.

Broken down according to age and qualification, it appears that among skilled workers young people were much more numerous than among the unskilled workforce. One can thus assume that access to qualified work was guaranteed by a professional and vocational education rather than by accumulated experience. Gebrüder Sulzer ran its own educational establishment and employed about 340 apprentices in 1910.[35] Finally, the wage structure showed that skilled workers were better rewarded than unskilled employees. While only 37 per cent of skilled workers earned less than 1,500 francs per year, more than 87 per cent of unskilled employees did. A comparison with other industries and other Swiss regions at that time reveals that engineering workers had the highest real wages of all factory workers.

33. Walter, *La Suisse urbaine 1750–1950*, p. 412.
34. Heinrich Lothmar, "Die Lohn- und Arbeitsverhältnisse in der Maschinenindustrie zu Winterthur", *Zeitschrift für Schweizerische Statistik*, 43 (1907), p. 87.
35. Ganz, *Geschichte der Stadt Winterthur*, p. 174.

Figure 1. A foundry hall of Sulzer AG around 1900, Winterthur's most important employer at the beginning of the twentieth century.
Sulzer Archive

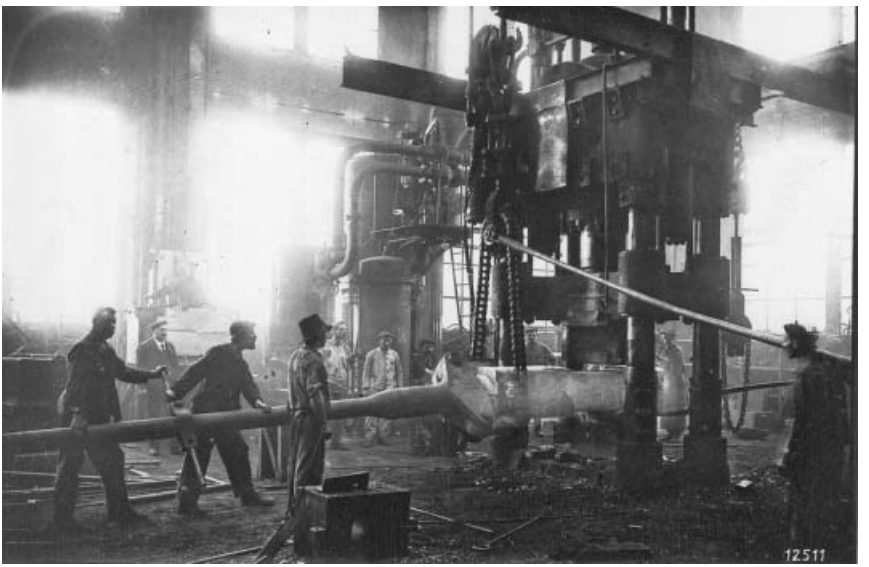

Figure 2. Workers operating the forge in a factory hall of Sulzer AG around 1900. In the early twentieth century, about 30 per cent of Winterthur's active population worked in the engineering industry.
Sulzer Archive

However, these relatively high wages and good housing conditions could not prevent class conflicts, even if at the beginning of Winterthur's period as the main centre of the Swiss engineering industry the relationship between workers and entrepreneurs was rather easygoing. The leaders of the three principal engineering firms in particular had moderate and almost paternalistic traits. Sulzer was one of the first to implement worker representation on its executive board, and it also introduced pension schemes and widows' and orphans' benefits. It is therefore not surprising that there were no strikes in this firm between 1869 and 1910.[36] It is also noteworthy that many industrialists, professors, and teachers joined the local section of the Schweizerische Gewerbeverein, the craftsmen's main interest group.[37] Furthermore, the local Labour Party had been represented in the municipal parliament since 1898. By creating an arbitration board for labour disputes, the town authorities also contributed to better mutual understanding between workers and entrepreneurs.

Yet the high inflation during the first decade of the twentieth century and the radicalization of the national and international labour movement also affected the local relationship between social classes. In 1909 Italian masons working at the Gebrüder Sulzer plant initiated a strike against Winterthur's industrialists. The movement spread to other professions when Sulzer accepted an order placed by an engineering firm in Geneva whose moulders had gone on strike. Sulzer's workers regarded the firm's decision as a provocation and interpreted it as part of a "conspiracy against the working class".[38] The strike was thus increasingly viewed within the international context of the class struggle. By October 1910 more than 2,000 workers at Sulzer and Rieter had come out on strike in sympathy with the masons. In 1918 Winterthur was one of the main centres of the *Landesstreik*, even though the agitations were less pronounced and violent than in Zurich.

In some respects Winterthur was representative of industrialized Switzerland at the beginning of the twentieth century. The mostly skilled and specialized workers clearly outnumbered the non-industrial labour force. As elsewhere in Switzerland, tensions between employers and the working class had been increasing since the first decade of the twentieth century, and at the end of World War I they had reached unparalleled levels. We can therefore expect occupational homogamy to have been higher in the 1920s than before the war. In some respects, however, Winterthur differed from other industrialized Swiss regions. Probably nowhere else in Switzerland was the spatial concentration of workers as

36. Peter Pfrunder and Giorgio von Arb, *Fabrikzeit. Spurensicherung auf dem Sulzer-Areal* (Winterthur, 1992), p. 53.

37. Ganz, *Geschichte der Stadt Winterthur*, p. 179.

38. The phrase appears in a letter written by a worker and quoted in Pfrunder and Von Arb, *Fabrikzeit. Spurensicherung auf dem Sulzer-Areal*, p. 45.

high as it was in Winterthur. Moreover, the relative proportion of factory workers within the industrial labour force was exceeded scarcely anywhere else in the country. Hence, one can expect homogamous behaviour to have been more pronounced among Winterthur's workers than among those elsewhere in Switzerland. For that reason, it will be necessary to analyse the impact of geographical origin on the marital behaviour of workers.

DATA

The data used in this paper are drawn from civil marriage certificates for the municipality of Winterthur. Marriage registers are an often-used historical source to study occupational homogamy and intergenerational marital mobility since they usually indicate the professions of the two spouses and their fathers. In Switzerland, however, such "complete" certificates were exceptional. Even if the federal law on civil registration led to a degree of uniformity as from 1876, its application still differed substantially between cantons, towns, and from one period to another. As a consequence, the professions of brides and fathers were often lacking. That may be one reason why historical studies of marital homogamy in Switzerland are still very rare.[39]

Unlike the marriage certificates for late nineteenth-century Winterthur, those for the early twentieth century are of exceptionally good quality because the professions of the fathers of the two spouses are most often mentioned, even if the fathers were deceased when their children married. Our dataset contains all marriage certificates for the years 1909, 1910, and 1928. A total of 845 out of 989 certificates for both periods include the professions of both fathers and can therefore be used for analyses of origin-related occupational homogamy. All professions were first coded according to the Historical International Standard Classification of Occupations (HISCO).[40] On the basis of these profession codes and any further information that the marriage certificates might contain, such as the individual's position in a firm (master, subordinate, apprentice, for example) or other details which might indicate social position (proprietor, doctor, for example), twelve occupational classes (HISCLASS) were

39. To our knowledge, the three studies on nineteenth-century Geneva are the only systematic investigations of partner-choice patterns in Switzerland: Eric Widmer, *De coeur et de raison. Le choix du conjoint à Genève au 19e siècle* (Geneva, 1993); Reto Schumacher, "De l'analyse classique à l'analyse différentielle. Nuptialité, fécondité et mortalité à Genève pendant la première moitié du 19e siècle" (MA thesis, University of Geneva, 2002); Grazyna Ryczkowska, "Accès au mariage et structures de l'alliance à Genève, 1800–1880" (MA thesis, University of Geneva, 2003).

40. Marco H.D. van Leeuwen, Ineke Maas, and Andrew Miles, *HISCO: Historical International Standard Classification of Occupations* (Leuven, 2002).

defined.[41] For the purpose of our study, the HISCLASS categories were then further amalgamated into seven occupational class groups, each containing one, two, or three categories.

Table 2 gives an overview of the distribution by class of grooms and their fathers for the years 1909/10 and 1928. The table shows, first of all, that for both periods and among the grooms, as well as their fathers, skilled workers constituted the most important class group. In all cases, lower-skilled and unskilled workers were clearly less numerous. This result confirms, for Switzerland in general and Winterthur in particular, the high degree to which the working class had a professional education. It also appears that lower managers and professionals, clerical, and sales were more frequently represented among grooms than among fathers, even if the relatively small numbers of observed cases do not permit us to be certain about this conclusion. This is true too for the farmers, much more numerous among fathers than among grooms. The farm workers, finally, were by far the smallest group, which can be explained by the particular structure of Swiss agriculture, characterized by small and often independent farms.

The differences in class distribution between grooms and fathers reflect not only intergenerational changes in the occupational structure but also the spouse's geographical origin. Only 27 per cent of grooms and 26 per cent of brides were actually born in Winterthur. As a consequence, most of their families lived elsewhere, often in the canton of Zurich and the German-speaking part of Switzerland. These differences can thus also be related to regional variations in the occupational structure. The distribution of spouses by place of birth also shows that Winterthur was part of a regional or even national marriage market, including cantons in northern and northeastern German-speaking Switzerland.

Both the distribution of and the composition within the seven class groups differed between grooms and fathers. Among higher managers and professionals, more than 35 per cent of grooms were graduate engineers, while only 8 per cent of fathers had the same profession. In the group of lower managers and professionals, clerical, and sales, merchants (*Kaufleute*) were the most important group mentioned in both cases. It is interesting, however, to note that among the grooms the second most important profession was that of technician, while among the fathers it was innkeeper. Similar differences existed among the group of skilled workers. Among grooms, professions related to the engineering industry clearly outnumbered classic mechanic activities, while among the fathers, professions such as carpenter and shoemaker were numerous. Finally, the likelihood ratio shows that, at least for the fathers, the class distribution

41. For this purpose we used an SPSS syntax file created by Ineke Maas and Marco van Leeuwen, Amsterdam, 25 May 2004.

Table 2. *Distribution of fathers and grooms by class in 1909/10 and 1928*

Occupational class groups (HISCLASS codes)	Fathers		Grooms	
	1909/10 %	1928 %	1909/10 %	1928 %
Higher managers and professionals (1+2)	4.9	2.9	5.7	5.7
Lower managers and professionals, clerical and sales (3,4,5)	18.3	15.7	29.1	22.5
Skilled workers (6+7)	36.4	36.1	30.3	33.5
Farmers and fishermen (8)	14.2	11.7	0.6	2.6
Lower-skilled workers (9)	14.7	17.6	19.9	21.1
Unskilled workers (11)	9.9	14.1	12.9	13.4
Farm workers (10+12)	1.5	2.0	1.4	1.2
Number of observations	1,800		981	
Likelihood ratio	18.465		11.835	
Degrees of freedom	6		6	
P-value	0.005		0.066	

Sources: Staatsarchiv Zürich, Zivilstandsregister, Eheregister Winterthur, A2 NN 492.43, A2 NN492.60.

differed significantly between the two periods. Given the standard errors, however, it is impossible to say whether the proportion of any given group had increased or declined between the two dates.

TOTAL HOMOGAMY AND MOBILITY RATES

In this first part of our analysis we will examine total homogamy and mobility rates. We will concentrate on origin-related homogamy and mobility by comparing the class affiliation of the groom's father with that of the groom's father-in-law. In doing so, we compare the profession of two individuals of about the same age. In this way, origin-related homogamy should not be sensitive to biases related to career mobility, as would be the case with intergenerational marital homogamy. Indeed, a comparison between the groom's social status and that of his father-in-law is problematic, because the individuals being compared are not at the same stage in their life course. The groom is at the beginning of his professional career and therefore likely to climb the social ladder, while his father-in-law is probably at the end of his career and will have attained his ultimate social status.

Total homogamy and mobility rates have often been considered crude and imprecise measures. It has been argued that, especially when rates for different sub-tables are compared, variations might be due to shifts in the occupational structure (differences in the marginal distributions of origin

and destination).[42] While we share the view that the distinction between total, structural, and relative mobility is important, its importance should not be overestimated in the case of marital homogamy. Marginal distributions do not have the same meaning in every type of mobility table. Whereas in an intergenerational mobility table in which the son's class affiliation is cross-tabulated with that of his father the margins are fixed quantities, marital mobility tables do not have fixed marginal distributions. In other words, every son inevitably has a father, but nobody is forced to marry. The numbers of brides and grooms are therefore variable quantities reflecting the "interplay of preference for marriage partners of particular types, and opportunity to marry according to these preferences".[43] In that sense, total homogamy rates are important measures that mirror the interplay of supply and demand in the marriage market.[44]

Table 3 shows more precisely the outcome of this interplay and permits one to compare the situations in 1909/10 and 1928. In 1909/10 the total origin-related homogamy rate was of 30.4 per cent. Accordingly, about 70 per cent of spouses were socially mobile, which means that the occupational classes of their fathers were different. The direction of the mobility differed, however, according to the sex of the spouse. About 39 per cent of brides experienced upward social mobility,[45] while only 31 per cent of grooms did so. In 1928, at 28.3 per cent, the total homogamy rate was only slightly lower than around 1910. Among socially mobile spouses, the differences between the two sexes with respect to the direction of class changes were less pronounced than in 1909/10. However, women were still more likely to experience upward mobility than men. With respect to the temporal evolution of homogamy, one can conclude that the total rates differed only slightly between the two dates. Nevertheless, it seems that the internal association between the social origin of the two spouses diminished between 1909/10 and 1928. As shown in Table 3, Somers' D and gamma, two measures of ordinal association in a two-way contingency table, are both substantially lower in 1928 than in 1909/10. Thus, at this stage of the analysis, the hypothesis that homogamy increased after World War I cannot be confirmed.

Total homogamy rates are interesting and important indicators of the mating process. However, they do not permit us to distinguish between

42. Robert McCaa, "Isolation or Assimilation? A Log-Linear Interpretation of Australian Marriages, 1947–60, 1975, and 1986", *Population Studies*, 43 (1989), pp. 155–162.

43. Alan Gray, "Measuring Preference for In-Marriage: A Response to McCaa", *Population Studies*, 43 (1989), pp. 163–166, 164.

44. *Idem*, "Intermarriage: Opportunity and Preference", *Population Studies*, 41 (1987), pp. 365–379, 366.

45. At this stage of our analysis we suppose a hierarchical order among the seven class groups, and regard the first group, the higher managers and professionals, as the highest social class, and the last one, the farm workers, as the lowest. In that sense, a person experienced upward social mobility when marrying someone belonging to a socially higher class.

Table 3. *Occupational class mobility table, Winterthur, 1909/10 and 1928*

1909/10	Class of bride's father							Total
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	
Class of groom's father								
Higher managers and professionals (I)	4	10	4	4	2	2	0	26
Lower managers, professionals, clerical and sales (II)	6	25	27	8	8	5	0	79
Skilled workers (III)	1	20	66	22	23	13	2	147
Farmers (IV)	2	7	16	12	16	5	1	59
Lower-skilled workers (V)	3	5	20	9	10	6	2	55
Unskilled workers (VI)	0	0	22	3	7	9	1	42
Farm workers (VII)	0	1	3	1	1	0	0	6
Total	16	68	158	59	67	40	6	414
Total homogamy rate		30.4%		Somers' D		0.214***		
Upward mobility rate (men)		30.7%		Gamma		0.272***		
Upward mobility rate (women)		38.9%						

1928	Class of bride's father							Total
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	
Class of groom's father								
Higher managers and professionals (I)	3	5	3	0	0	2	0	13
Lower managers, professionals, clerical and sales (II)	4	17	22	7	9	6	3	68
Skilled workers (III)	3	21	58	24	25	21	4	156
Farmers (IV)	2	4	14	11	8	5	1	45
Lower-skilled workers (V)	1	11	36	10	17	12	2	89
Unskilled workers (VI)	0	8	19	4	6	16	1	54
Farm workers (VII)	0	1	1	2	0	2	0	6
Total	13	67	153	58	65	64	11	431
Total homogamy rate		28.3%		Somers' D		0.124**		
Upward mobility rate (men)		34.6%		Gamma		0.158**		
Upward mobility rate (women)		37.1%						

Note: ***p < 0.001 **p < 0.01 *p < 0.05.

https://doi.org/10.1017/S0020859005002075 Published online by Cambridge University Press

homogamous marriages due simply to the class distribution in the marriage market (structural homogamy), and those reflecting individual preference (often referred to as relative homogamy). As mentioned above, it is not possible completely to disentangle structural and relative homogamy in a marital mobility table. Still, this does not, we believe, mean that the distinction should be ignored.

Log-linear modelling is a method widely used to study relative homogamy. Such models predict the cell frequencies of a multidimensional contingency table as a function of the table's marginal distributions and a series of interaction terms. In the simplest case, the independence model, the observed cell frequencies can be predicted sufficiently closely by the margins of the table. In terms of marriage patterns, such a distribution would correspond to a situation where all homogamy is purely structural. In the most complicated case, the so-called saturated model, however, all possible interaction terms between the variables presented in the table are necessary to reproduce a cell distribution close enough to the observed frequencies. Such a model contains more parameters than there are cells in the table and is therefore not really helpful.

When applied to a marital mobility table, the objective of log-linear analysis is to replace the full interaction between the social origin of the two spouses by a series of homogamy parameters serving as cell co-variates in the model. In our case we substitute the forty-nine interaction parameters of the 7x7 marital mobility table by a reduced number of homogamy coefficients, measuring the association between the occupational class of the two spouses.

DISTANCES BETWEEN OCCUPATIONAL CLASSES

To refine the study of the association between origin (class affiliation of the groom's father) and destination (class affiliation of the bride's father) in the martial mobility table, we have specified a series of log-linear association models. These models assume that categories are ordinal, meaning that they are ranked on a scale.[46] The assignment of these scale values is an important topic in categorical data analysis.

The easiest way to impose an interval structure to categories is the integer-scoring method, which assigns consecutive integers to classes. However, when using this method one has to be sure that the classes are correctly ordered. Furthermore, it is assumed that distances between any two adjacent categories are uniform across all values. Another way to assign class scores is to estimate them from the data themselves, which means on the basis of the classes' crossings through marriage. Goodman's

46. Daniel A. Powers and Yu Xie, *Statistical Methods for Categorical Data Analysis* (San Diego, CA, 2000), p. 119.

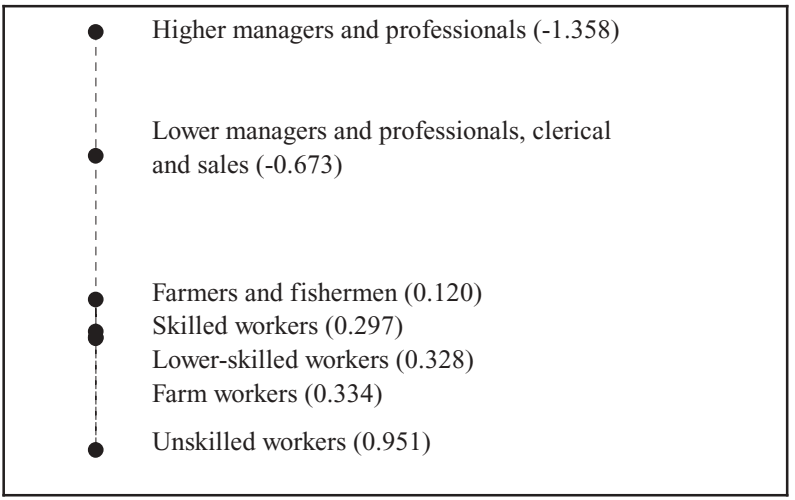

Figure 3. Estimated scores of class positions.

homogenous equal row and column effects model II[47] allows one to estimate these scale values without previous knowledge of the correct ordering of the categories.

Figure 3 shows the estimated relative positions of our seven occupational class groups for Winterthur in 1909/10 and 1928.[48] The model has a likelihood ratio of 35.0 with 30 degrees of freedom and is thus a well-fitting model. Primarily destined to be used for subsequent log-linear modelling, these estimated scale values are highly instructive in themselves since they give an idea of the class hierarchy and the distances between these groups.

The model actually points to a social structure consisting of four main classes, with higher managers and professionals constituting the upper class, and lower managers and professionals, clerical, and sales forming the upper-middle class. The lower-middle class included farmers, skilled, and lower-skilled workers, while the lower class comprised the unskilled workforce. These results confirm our assumption, outlined in the first part of this article, of a heterogeneous working class.

The social distance between skilled and unskilled workers was indeed important. This gap certainly reflects the opposition between the crafts-

47. Leo Goodman, "Simple Models for the Analysis of Association in Cross-Classifications Having Ordered Categories", *Journal of the American Statistical Association*, 74 (1979), pp. 537–552.

48. The model has been estimated using Jeroen K. Vermunt's LEM 0.11 program.

men, representing the overwhelming majority of skilled workers and an important part of the lower-skilled labour force, and the factory workers, most of whom were unskilled. But it may also be related to a concrete difference in the standard of living, as suggested by the data on wage distribution in the engineering industry in Winterthur. Yet, the social distance between farmers and workers, which the political events of the early twentieth century could have provoked, existed only partly in Winterthur. According to our model, farmers and skilled or lower-skilled workers did indeed belong to the lower-middle class, but the distance between farmers and unskilled workers was important. It also seems that the distance between the *Arbeiterschaft* and the *Angestelltenschaft* was real and significant.

LOG-LINEAR ASSOCIATION MODELS

The final step in our analysis of homogamy and marital mobility patterns in early twentieth-century Winterthur centres on the two hypotheses outlined in the first part of this study. First of all, we want to find out whether there was a rise in homogamy – as our historical arguments lead us to expect. Secondly, we want to examine whether the mobility between occupational classes was affected by the geographical origins of the spouses.

The first question implies analysing the association between origin, destination and time in a three-way contingency table. As we focus on the relation between origin (O) and destination (D), its full interaction term (OD) is replaced by a series of more parsimonious forms. Table 4 summarizes the different ways in which we have specified these interaction terms and their possible variation over time.[49]

The first model, the independence model, assumes that there was no interaction at all between the social origin of spouses, but asserts that the marginal distributions of the class affiliations of grooms and brides changed over time. This specification is not in itself particularly interesting, but it does serve as a baseline model for comparisons with more complex models. The quasi independence model includes six diagonal parameters (DIA_i) for the diagonal cells of the OD sub-table. Since the seventh cell on the diagonal (marriages between sons and daughters of farm workers) contains no observations, we have not specified a parameter for that cell. Specifying a different parameter for every diagonal cell actually means that homogamous behaviour varied according to occupational class.

49. Our model specifications were inspired by Marco van Leeuwen and Ineke Maas, "Log-linear Analysis of Changes in Mobility Patterns: Some Models with an Application to the Amsterdam Upper Classes in the Second Half of the Nineteenth Century", *Historical Methods*, 24 (1991), pp. 66–79.

Table 4. *Log-linear association models with respect to time, applied to occupational mobility in Winterthur, 1909/10–1928*

Model	*df*	*LR*	$p > LR$	*BIC*	*AIC*
–Independence model $(O + D)^*T$	72	140.06	0.000	–345.17	–3.94
–Quasi Independence model $(O + D)^*T + DIA_I$	66	88.98	0.031	–355.82	–43.02
–Quasi-uniform association model $(O + D)^*T + DIA_i + U$	65	60.13	0.648	–377.93	–69.87
–Semi dynamic QUA model $(O + D)^*T + DIA_i + U^*T$	64	57.75	0.696	–373.57	–70.25
–Full dynamic QUA model $(O + D)^*T + DIA_i{}^*T + U^*T$	58	54.83	0.594	–336.05	–61.17
–Full dynamic inheritance QUA model $(O + D)^*T + DIA_i + INH^*T + U^*T$	63	57.47	0.673	–367.11	–68.53

The third model, the quasi-uniform association model (*QUA*), contains one supplementary parameter *U* for the off-diagonal cells of the *OD* sub-table. This means that the diagonal cells are blocked out, that they are determined thus only by the log-linear homogamy parameters DIA_i. The frequencies of the cells above and below the diagonal are determined by a single parameter, measuring the association between the preliminary estimated class scores. The last three models contain three different specifications of the interaction between time and the association terms in the *OD* sub-table. The semi-dynamic quasi-uniform association model states that only the association parameter *U* differed across time, while the full dynamic *QUA* model also includes interactions between time and the diagonal homogamy parameters. The last model claims that these diagonal parameters differed over time, but uniformly across all occupational classes.

Table 4 indicates a series of goodness-of-fit statistics for these models. The likelihood ratio *LR* is a measure of the distance between the observed distribution of the contingency table and the one generated by the model. If the p-value for a given likelihood ratio and a number of degrees of freedom *df* exceeds 5 per cent, there is no significant difference between the observed and the predicted cell frequencies. In that case, the model fits the data. As we can see, all variations in the quasi-uniform association model are well-fitting models. When several models have an acceptable fit, it is usual to choose the most parsimonious – the one with the lowest Bayesian Information Criterion (*BIC*) or the lowest Akaike Information Criterion (*AIC*).[50] Considering the *BIC* and the *AIC*, we see that either the quasi-uniform association model without interaction with the time dimension or its semi-dynamic version should be retained.

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Table 5 gives the parameter estimates for these two models as well as those for their full dynamic version. As to the diagonal parameters, it can be said that higher managers and professionals at the top of the occupational hierarchy and unskilled workers at the bottom of this class scheme had by far the most pronounced homogamous behaviour. To a much lesser extent, lower managers and professionals, clerical and sales, and farmers also showed homogamous tendencies. According to these log-linear models, however, skilled and lower-skilled workers did not behave homogamously at all, since their corresponding homogamy parameters are not significantly different from zero.

This pattern of marked homogamy at both the top and the bottom of the social ladder is certainly not specific to Winterthur. Such marital behaviour has already been observed in proto-industrial[51] as well as in industrial[52] settings. More surprising is the observed heterogamy among skilled and lower-skilled workers – a finding that must certainly be related to the characteristic heterogeneity of the Swiss working class. At the same time, we should also recall the social proximity between farmers, skilled, and lower-skilled workers, which also contributed to this result. The substantial homogamy found for unskilled workers nevertheless indicates a class-specific solidarity among underprivileged factory workers.

The uniform association parameter U for the off-diagonal cell frequencies is strong and highly significant. The interaction term β_{U*T} is negative and would thus point to a decline in the association between the class affiliation of the two spouses were it not for the fact that its standard error is slightly too high to eliminate doubt (p=0.13). The parameters reflecting the interaction between the time dimension and the class-specific intensity of homogamy, included in the full dynamic QUA model, are all statistically insignificant. It seems therefore that there was no clear shift in occupational homogamy patterns between 1909/10 and 1928.

Since many spouses originated from less or differently industrialized regions, their fathers' occupational class structure and composition would have been different from that of those born in Winterthur. Especially among workers therefore, class-consciousness and solidarity could have been different in these areas. It could be argued, therefore, that the mobility between class groups was different among immigrants than among natives. In order to test this second hypothesis, we have specified a

50. Adrian E. Raftery, "Bayesian Model Selection in Social Research", *Sociological Methodology*, 25 (1995), pp. 111–163. The *BIC=LR–dfln(N)*, and *AIC=LR–2df*. Both criteria combine model fit and parsimony.

51. For example in nineteenth-century Geneva: Widmer, *De coeur et de raison,* pp. 41 ff; Ryczkowska, "Accès au mariage et structures de l'alliance à Genève, 1800–1880", p. 83.

52. For example in nineteenth-century Liège: Anne Jacquemin, "Alliances et reproductions sociales à Liège, 1840–1890", in Guy Brunet, Antoinette Fauve-Chamoux, and Michel Oris (eds), *Le choix du conjoint* (Paris, 1998), pp. 107–132, 119.

Table 5. *Log-linear homogamy and association parameters for models with respect to time*

Parameter	QUA model	Semi dynamic QUA model	Full dynamic QUA model
DIA_1	1.863***	1.907***	1.628**
DIA_2	0.569**	0.596**	0.786**
DIA_3	0.145	0.135	0.286
DIA_4	0.595*	0.594*	0.404
DIA_5	0.242	0.235	0.081
DIA_6	1.164***	1.146***	1.182**
U	0.849***	1.062***	1.034***
β_{U*T}		−0.470	−0.405
β_{DIA1*T}			0.645
β_{DIA2*T}			−0.409
β_{DIA3*T}			−0.294
β_{DIA4*T}			0.401
β_{DIA5*T}			0.274
β_{DIA6*T}			−0.047

Note: ***$p < 0.001$ **$p < 0.01$ *$p < 0.05$.

second series of log-linear association models controlling this time for the groom's geographical origin. To facilitate the analysis we distinguish only between immigrants and natives. The models are basically the same as in the preceding section, except for the control variable *T*, which is replaced by *I*, indicating whether a groom was born in Winterthur (*I*=0) or not (*I*=1). Table 6 summarizes these models and indicates their statistical fit.

As is shown by Table 6 overleaf, it is difficult to obtain a satisfactory model when controlling for the groom's geographical origin. Neither the quasi-uniform association model nor its semi-differential version, including a parameter measuring the interaction between the off-diagonal association and the dichotomous *I* variable, fit the data. Even the last model, which states that not only the *U* parameter but also the diagonal homogamy parameters differ according to the groom's origin, is hardly significant, as its related p-value is only slightly higher than 5 per cent. All the same, this is an interesting result, since it highlights the fact that the association between the class affiliation of the two spouses must have been dependent on the groom's geographical origin.[53]

The parameter estimates presented in Table 7 overleaf corroborate this finding. The estimates of the first two models presented largely confirm the results of the previous analyses. Occupational homogamy was most

53. The preceding model has actually shown that the full interaction terms OD and ODT can be replaced by a series of homogamy parameters. It seems difficult, however, to substitute the full ODI interaction term. A hierarchical log-linear model selection procedure (Hiloglinear in SPSS)

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Table 6. *Log-linear association models with respect to grooms' geographical origin, applied to occupational mobility in Winterthur, 1909/10–1928*

Model	*df*	*LR*	$p > LR$	*BIC*	*AIC*
–Independence model $(O + D)^*I$	72	168.05	0.000	–317.18	24.05
–Quasi Independence model $(O + D)^*I + DIA_i$	66	116.56	0.000	–328.24	–15.44
–Quasi-uniform association model $(O + D)^*I + DIA_i + U$	65	85.60	0.044	–352.46	–44.40
–Semi differential QUA model $(O + D)^*I + DIA_i + U^*I$	64	85.35	0.039	–345.97	–42.65
–Full differential QUA model $(O + D)^*I + DIA_i{}^*I + U^*I$	58	74.47	0.071	–316.41	–41.53

Table 7. *Log-linear homogamy and association parameters of models with respect to grooms' geographical origin*

Parameter	QUA model	Semi differential QUA model	Full differential QUA model
DIA_1	1.925***	1.926***	3.106**
DIA_2	0.538*	0.548*	0.266
DIA_3	0.146	0.144	−0.359
DIA_4	0.550*	0.550*	0.005
DIA_5	0.248	0.247	1.006*
DIA_6	1.206***	1.204***	1.289***
U	0.879***	0.759**	0.875**
β_{U^*I}		0.166	0.023
β_{DIA1^*I}			−1.502
β_{DIA2^*I}			0.445
β_{DIA3^*I}			0.727*
β_{DIA4^*I}			0.562
β_{DIA5^*I}			−1.066*
β_{DIA6^*I}			−0.092

Note: *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$.

pronounced at the top and at the bottom of the social hierarchy, while it was least pronounced among skilled and lower-skilled workers. The association parameter U is high and statistically significant. However, in

applied to the four factors O, D, T, and I endorses this conclusion. The backward elimination procedure retains as the final model (O, D, T, I, TI, OI, DI, OD, ODI), with LR = 97.97, df = 96, p-value = 0.425. Unlike the ODT interaction, which can be removed from the model, the ODI term must be included in the model in order to fit data. The association between O and D seems dependent on I therefore.

https://doi.org/10.1017/S0020859005002075 Published online by Cambridge University Press

the last model, which also includes interaction terms for the class-specific homogamy parameters, the estimates are considerably altered. The first homogamy parameter relative to higher managers and professionals is much higher than in the two preceding models. Its interaction with the control variable is strong and negative, even if it is not really significant (p=0.19). This may nevertheless indicate that in Winterthur the elites were much more insular towards other occupational classes than elsewhere.

Interestingly enough, the marital behaviour of skilled and lower-skilled workers depended on their geographical origin. Among skilled workers born in Winterthur there was no significant homogamous behaviour. In contrast, immigrants tended to marry within their social group, as is indicated by the significant and positive parameter β_{DIA_3*I}. This result highlights a substantial degree of heterogeneity among the class of skilled workers and must be related to its origin-specific composition. Natives were mainly sons of highly specialized workers and foremen in Winterthur's engineering industry, while the fathers of immigrants were mostly artisans from traditional crafts.

A similar difference can be found for the marital behaviour of lower-skilled workers. The estimates reveal a marked tendency to homogamy among natives, while among immigrants this pattern is not confirmed, the interaction term being negative and of about the same importance. Once again, this distinctive behaviour may be related to the differential composition of this occupational group according to geographical origin. In Winterthur, the most important subgroup among the lower-skilled were the metalworkers, such as moulders and milling workers, while among the immigrants the professions mentioned covered a wide range of lower-skilled activities in the textile and the transport sectors. If, in this particular case, our finding points to a specific sociability among the lower-skilled workers of Winterthur's engineering industry, it shows in general that, especially among workers, class-consciousness and solidarity were regionally determined and dependent on local contexts.

CONCLUSION

"We have no proletariat" was an often-cited statement in late nineteenth-century Switzerland.[54] It shows that, in the nineteenth century, contemporaries were aware of Switzerland's very specific model of industrialization, which was characterized by geographically delocalized manufacturing industries (preventing the creation of large industrial agglomerations), and of the impact of this model on social-class

54. Kaenel, "L'histoire et les images", p. 20.

formation. The aim of this article has been to examine, by analysing marital homogamy and mobility patterns, the fluidity of a system of social stratification marked by a heterogeneous working class and likely to lead to increasing social-group solidarity during the phase of a more active labour movement in the early twentieth century. To do so, we have explored data from Winterthur, a town whose economic and social development was determined by the expansion of the engineering industry. The Swiss context in general and the local background in particular lead us to expect there to have been an increase in homogamous behaviour after World War I, especially among the working class. Given the town's specific industrial organization, we also assumed homogamy would be higher among spouses born in Winterthur than among immigrants.

Our analyses revealed that occupational homogamy was most pronounced at the top and bottom of the social hierarchy. The homogamy parameters were highest and statistically significant among higher managers and professionals on the one hand, and among unskilled workers – mostly factory workers – on the other. To a lesser extent, homogamous behaviour could also be found among the group of lower managers and professionals, clerical and sales. However, skilled and lower-skilled workers did not behave homogamously.

There is no empirical evidence of an increase in homogamy after World War I. Even if the statistical results remain ambiguous, the system of social stratification appears to have become more fluid between 1910 and 1928. The presumed intensification of class-consciousnesses and conflict cannot explain the evolution of partner-choice patterns during that period, therefore. However, we also found that the association between the social background of the spouses was dependent on their geographical origin. Especially among skilled and lower-skilled workers, the homogamy parameters were altered when this control variable was included in the analysis. If skilled workers born in Winterthur did not tend to marry within their group, immigrants belonging to the same social class, mostly sons of artisans from rural German-speaking Switzerland, showed significant homogamous behaviour. A similar difference could be observed among lower-skilled workers. Immigrants had no particular preference for homogamous marriage, while natives seemed to marry homogamously.

This study has shown that it is difficult to define and understand the working class in early twentieth-century Switzerland. Indeed, workers' identities must have been geographically and temporally unstable. On the one hand, class-consciousness and solidarity were regionally determined and dependent on local contexts. On the other hand, a sense of belonging might have been strong in phases of intense political struggle but have rapidly diminished in calmer times. Finally, the workers themselves

might have considered their condition as temporary.[55] Especially in contexts of industrial immigration marked by a high turnover of professionals, there must have been a real possibility of social mobility – if not necessarily for first-generation immigrants, then at least for their daughters and sons.

55. Maurizio Gribaudi, *Itinéraires ouvriers. Espaces et groupes sociaux à Turin au début du XXe siècle* (Paris, 1987), p. 231.