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Changes in the quantitative and qualitative composition of employees of defense enterprises in Kazakhstan during the war years (1941–1945)

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Abstract. The republic's defence industrial sector began to grow during the wartime on the basis of evacuated enterprises. There was no production of ammunition in the Republic before the war. The country's defence factories manufactured mine-neutral weapons, torpedoes, artillery shells, mines, aerial bombs, gunpowder, field radios, X-ray equipment and insulation materials. Although the evacuated enterprises faced difficulties, they were rapidly restored to new locations and began to produce goods. The paper studies the changes in the quantitative and qualitative composition of employees of the USSR defence enterprises during the war years on the case of the Kazakh SSR. Main quantitative and qualitative shifts, specifics of labour collective formation with regard to gender, national and migration factors are shown. The study of labour resources manning problem in defence enterprises allows to reconstruct the peculiarities of the mobilisation policy of the state, sources of replenishment of workers, who under incredibly difficult conditions made their significant contribution to the increase of the USSR defence capability.

Keywords: war, USSR, defense enterprises, workers, women, Kazakhstan

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Научная статья

Изменения количественного и качественного состава работников оборонных предприятий Казахстана в военные годы (1941–1945 гг.)

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Аннотация. В годы войны на базе эвакуированных предприятий начала развиваться оборонная промышленность Казахской ССР. Данный процесс был затруднен из-за отсутствия опыта производства боеприпасов, так как на территории КазССР до войны не было предприятий по их производству. Основными видами производимого вооружения в республике были минно-тральное оружие, торпеды, артиллерийские снаряды, мины, авиабомбы, порох, полевые радиостанции, рентген-аппаратура и изоляционные материалы. Никакие трудности не смогли задержать выпуск оборонной продукции, и эвакуированные предприятия в скором времени наладили бесперебойный выпуск остро необходимых на фронте орудий. В статье дается анализ изменений количественного и качественного состава работников оборонных предприятий СССР в годы войны на примере Казахской ССР. Кроме того, рассмотрены особенности формирования трудовых коллективов на основе гендерных различий, национальных особенностей и миграционных факторов.

Ключевые слова: война, СССР, оборонные предприятия, рабочие, женщины, Казахстан

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Introduction

In order to speed up the deployment and material support of military production in the Volga, the Urals, Western Siberia, Kazakhstan and Central Asia regions, the military-economic plan provided for the transfer to the eastern regions hundreds of mechanical engineering industrial enterprises for the production of ammunition, weapons, tanks, aircraft with the transfer of construction projects and enterprises of other sectors of the national economy [1, p. 38]. With the assistance provided to the arriving enterprises by local organizations in Kazakhstan, some plants (№ 317, Alma-Ata Machine Building Plant (hereinafter AZTM), etc.) began to make production in 1942 within 1,5 months, and most plants within 3 months [2, p. 56].

The Department of Defense Industry of the Central Committee of the Communist Party classified 20 enterprises in this category – 17 factories and 3 special technical equipment, organized on the basis of the Chimkent, Leninogorsk lead plants and the Karlag mechanical plant of the People's Commissariat of Internal Affairs of the USSR [3, p. 1].

The 17 factories included: Plant № 231 People's Commissariat of the Shipbuilding Industry of the USSR, Plant № 347, Plant № 239, Plant № 175, Plant № 675 of People's Commissariat of the Electrical Industry of the USSR, Plant № 641, Plant № 692, October XXth Anniversary Plant and etc. [4, p. 40].

These were mainly enterprises of the Commissariat of Ammunition, Shipbuilding, Light, Heavy, Machine-Tool, Power Plants and Power Industry, Medium and Heavy Machine Building, Aircraft Repair Bases, etc. There was an urgent need to provide these enterprises with workers.

It should be noted that, in general, throughout the USSR there were the following forms of recruitment of labor resources:

1) mobilization for work in production and construction of the entire able-bodied urban population of those not working in state institutions and enterprises to work at the place of residence in production and construction: men aged from 16 to 55 years old and women – from 16 to 45 years old (Decree of the Presidium of the Supreme Soviet of the USSR of 13th February, 1942). Subsequently, by the Decree of the Presidium of the Supreme Soviet of the USSR of 19th September, 1942, the age limits of persons subject to mobilization were changed: men – from 14 to 55 years old, women – from 14 to 50 years old;

2) recruitment of young people under 18 years of age through the system of state labor reserves (Decree of the Presidium of the Supreme Soviet of the USSR of 2nd October, 1940 “On the state labor reserves of the USSR”).

Along with these types of compulsory employment, the forms of recruitment of labor resources from Central Asia and Kazakhstan were the mobilization of those liable for military service, unfit for service in the Red Army, as part of construction battalions and work columns for work in industry and construction (Resolution of the State Defence Committee № 2414 c of 14th October 1942). Thus, during the war years, mobilization into the labour army took place in addition to general civil labor mobilization.

At the same time, as M. K. Kozybaev noted the concept of «defence plants» was to some extent relative. Since most of the so-called defence plants before the war produced products for peacetime economic purposes. Among the defence plants were steam locomotive, forge-mechanical, X-ray plants, enterprises producing electrical insulating materials, radio devices, scales, sewing machines, etc. [5, p. 66].

The purpose of this article is to analyse the quantitative and qualitative composition of employees of defence enterprises in 1941–1945 and to outline the specifics of the formation of labour collectives, with special emphasis on gender, national and migration factors. In this regard the attempt is made to study the proportion of national, local and evacuated personnel, the ratio of workers and engineers, men and women in the structure of labour collectives, as well as the problems of training qualified workers on the example of five defence plants (№ 231, № 317, № 175, AZTM and Chimkent Lead Plant).

Thus, out of 5 enterprises considered in this research, 4 enterprises emerged on the basis of evacuated ones, and evacuated from Voronezh machine-tool defence plant № 234 named after M.I. Kalinin, which produced automatic presses, was located on the territory of Chimkent Lead Plant. One plant arrived from Leningrad (plant № 231 named after K.E. Voroshilov, located in Uralsk). The other three were evacuated from Ukraine: Melitopol (plant №317 located in Akmolinsk), Voroshilovgrad (Alma-Ata Machine-Building Plant), Bolshoi Tokmak and partially Makhachkala, plant № 182 (S.M. Kirov Machine-Building Plant, plant №175) in Alma-Ata. Part of Plant № 182 from Makhachkala joined Plant № 231 named after K.E. Voroshilov.

Materials and methods

The implementation of the research purpose will be achieved by analysing archival documents depos-

ited in the Archive of the President of the Republic of Kazakhstan (AP RK), the Central State Archive of the Republic of Kazakhstan (TsGA RK), the State Archive of Astana, the State Archive of Socio-Political History of the Turkestan Region (GAOPITO), the State Archive of the Turkestan Region (GATO).

To study the dynamics of changes in quantitative and qualitative indicators of the labour force, statistical data provided by the defence industry department of the Central Committee of the Communist Party are of great value. These documents reflect quarterly information on the total number of employees in the republic's defence industry enterprises, the number of employees in individual enterprises, including the data on involved Kazakhs, workers, engineers, men and women.

The study of changes in the structure of the working class, in general, is being quite actively studied in line with the history of labour, or "labour history". "Labour history" is a field of study that deals with everyday human life, examining working life, behavior patterns and relationships that arise in the workplace. Chris and Charles Tilly, Marcel Van der Linden, Jan Lucassen [6, p. 91–98] are researchers who had a significant influence on the formation and development of labour history.

Results and discussion

Most of the enterprises that laid the foundation for the defence industry of the republic were evacuated, mainly in the 4th quarter of 1941 and the 1st quarter of 1942. 8,000 workers and 1,589 engineers and technical workers were evacuated together with the factories. The number of workers and engineers employed by 1944 in production and the defence industry increased compared to 1942: workers from 8,000 people up to 26127 people, engineers from 1589 people. By 1945 the number of workers increased up to 3603 people, and the total number of workers had changed in relation to 1942 from 8,000 to 21,302 people, up to 3230 [2, p. 91].

1. National personnel employed in the defense industry

Despite the fact that during the years of Soviet power a policy of "nativization" was conducted in the republic, it should be noted that the situation with the training and promotion of national personnel in most branches of industry was rather difficult. The main backbone at the defence plants consisted of highly qualified workers who arrived mostly with the evacuated factories.

For example, in the production of the defence industry in the I quarter of 1942, 7653 workers were involved, 61 of whom were Kazakhs, in the II quarter, accordingly, 11749/596, in III-15518/654, in IV-18648/915. In the first quarter of 1943, there were 24,462 workers, 1,155 of whom were Kazakhs; in the second quarter, accordingly, 25,964/1,272; Of the 2053 Kazakhs 1153 people worked in production, 898 people were employed only in construction [7, p. 7–9]. In 1945, the number of Kazakhs employed in production was 8% of the total number of employees. [2, p. 91].

Thus, if in the III quarter of 1942 the number of Kazakhs working at defence enterprises was 654 people, then by the indicated period of 1943 it was already 2053 people, that is, it increased by more than 3 times. The above figures show an increase in the number of employees in general and an increase in the proportion of Kazakhs in them.

The low number of employed Kazakhs can be explained by the fact that most of the Kazakh population lived in villages engaged in farming. In spite of the Soviet industrialization, the native population for the most part did not leave their families and auls for industrial centers. Some of the mobilized to work in industry, both inside and outside the republic often did not know the Russian language and consequently had certain difficulties in mastering working professions. In this situation, some of them did either low-skilled work, were engaged in building or were odd-job people.

The Communist Party Organization and plant management paid much attention to the question of recruiting workers, especially local workers, to work at plants. For example, at the meeting of the Party Bureau of the AZTM in January 1944 the low training level of local population personnel was raised. It was said that the plant should be ready for the removal of workers. Thus the personnel department and the leadership needed to focus on the training of local people, «*not only Kazakhs, but local people. This will guarantee that these people will stay in production*» [8, p. 17 об.].

Therefore, it should be mentioned that the number of working Kazakhs in the defence industry was, in general, small as there were problems with recruitment and promotion because of the lack of technical specification in their native language.

2. Ratio of workers and engineers

On the whole, we should state an increase in the number of workers and engineers employed in Kazakhstan's defence industry.

So, if we take for comparison the data for the 3rd quarter of 1942 and 1943, then the situation is as follows: the total number of workers in defense enterprises in 1942 was 12,298 people, 2240 were engineers. By the designated period of 1943, there was increase in the number of workers up to 22627 people and the increase of engineers was to 3387 [7, p. 8], that is, the number of workers increased by almost 84 %, the number of engineers increased by almost 51 %.

Table 1 – Dynamics of changes in the number of workers and engineers per plant (compiled by the authors)

Enterprises' name	1942 г., III quarter		1943 г., III quarter	
	Workers	Eng.	Workers	Eng.
Ural plant № 231	910	216	1482	233
Alma-Ata plant № 175	no factories		4036	543
Akmola plant № 317	403	63	416	73
Alma-Ata plant People's Commissariat for Machine Building	1267	211	1693	239

Let us further consider the supply of engineering and technical workers at the Chimkent Lead Plant. In 1944, there were fewer engineering and technical workers compared to the plan and the situation at the beginning of 1943. So, on January, 1st, 1943, there were 215 engineers at the plant, according to the plan there should have been 205, but in fact 199 worked, which was 97,1 % of the plan, but on January, 1st in 1944 there were 195 specialists. It was due to the cut of some posts and general lack of engineering and technical workers [9, p. 15].

3. Male to female ratio

As a result of the mass conscription of men to the front, women became one of the main sources of manpower for industrial enterprises. In order to replace the men, in accordance with the resolution of 27 July 1941 of the Central Committee of the Communist Party (Bolsheviks) of Kazakhstan all regions of the country developed and approved plans to teach qualified women workers for work at industrial enterprises and railway transport. At the same time the Central Committee of the Communist Party (Bolsheviks) received signals about the insufficient state of affairs at the local level with regard to the training of the reserve. On 27 July 1941, for instance, the data indicated that at some of the republic's enterprises 'do not show the proper spirit in fulfillment of the directive', and these questions were raised at the Party Bureau for consideration [10, p. 79].

The ratio of the number of women and men at the defence factories in 1942–1943, in general, was characterized by an increase in the number of women. If in 1942 8766 men and 6426 women (60 % and 40%) were employed in defence factories, then by 1943 the figures increased to 15424 males and 12673 females. As archival documents show, the number of women employed in the defence industry in the period under the study increased almost 2 times, however, in percentage terms, it changed slightly (55 % and 45 %) [7, pp. 7–9]. Women in defence enterprises in 1945 made up to 50% of the total number of employees [2, p. 91].

If in 1942, according to the document under study, the number of women working at defence enterprises was 1934, then by the indicated period in 1943 it was already 10925, that is, it increased by more than 5,5 times. In general, the ratio of women to men in these periods changed as follows: if at the beginning of 1942 5374 men and 1934 women (74 % and 26 %) were employed in production, then by 1943 the numbers increased to 13972 males and 10925 females (56 % and 43 %) [7, pp. 7–9]. Changes took place in the quantitative aspect and in the percentage of men and women employed in production.

For example, in 1942, at plant № 317 (Akmolinsk), 62 % of plant workers were women [11, pp. 6–7]. By January, 1st 1943, 50 % of the workers at plant № 317 (Akmolinsk) were women [11, p. 24].

In July 1941, the Chimkent City Committee of the Communist Party (b) K gave the task to the Chimkent Lead Plant to present the plan with measures for the training of qualified female personnel no later than 29th July, 1941. From August, 1st, every five-day period, the City Committee department was to be informed about the implementation of this plan. Since that time, intensive training of women began and, accordingly, the proportion of female employees increased [12, p. 24].

Thus, on 25th December, 1941, 661 women worked at the plant, which constituted 28 % of all workers.

118 women were in the process of mastering the following specialties [13, pp. 151–152].

Table 2 – Personnel training by specialty (compiled by the authors)

Name of specialty	Total number
Chauffeur	9
Electrician	11
Locksmith	8
Turner	27
Winch crane operator	4
Electric welder	5
Others	54
Total	118

As mentioned in the summary of the training of mass-qualified personnel at the plant, in 1942 it was planned to replace 1,378 people liable for military service, of which: 478 “*worked in jobs where female labour is not applicable (miners, siphon operators, bottlers, blacksmiths, etc.)*”; 392 people had qualifications that required little or no preliminary training (laborers, loaders, reclaimers, etc.); 208 people do not require training, since they were office workers or their training in a factory environment was impossible (for example, engineering and technical personnel).

The assigned tasks were completed. According to the document, women were trained and recruited for almost all types of work.

It is important to mention woman’s motivation to work at plants. It was the responsibility to provide for their families which forced women to work at plants as well as social protection. As it was often necessary for women to leave their working place to attend to family matters, for example in case of a child’s disease, to buy bread at the factory stall, or to arrange for a child to go to a kindergarten or a summer camp. Women were more compliant and convenient employees for the factory superiors. Although there were cases when women wouldn’t followed orders from their management.

For breaches of labour discipline, expressed in failure to fulfill the plan and to disobey orders from superiors, the administration of the plants imposed financial punishment. For example, the director of plant № 317 Muravyov deprived a female worker of the right to receive Stakhanov coupons and manufactured goods for 3 months for failing to obey the foreman’s order. On 11th, August, 1943 a worker was unable to fulfil her shift plan for an 11-hour day and went home without permission from her shop foreman who demanded that she stay on after the shift [14, p. 56].

In considering such incidents, we must acknowledge that the state, having called women into production, did not pay due attention to the development of the service sector (catering, bathhouses, laundries, repair shops for clothes, shoes, utensils, etc.) and, which is very important, to the pre-schools system. There was a catastrophic shortage of vacant places in kindergartens and nurseries. In this context, the everyday life of female factory workers was dominated by the problems of domestic services for their families.

Throughout the war the situation of working mothers and their children was disastrous. The situation was even worse for women with young children. For example, at plant № 175 in autumn 1942 over six hundred women with infants and young children could not start work, because the plant had no possibility to organise nurseries and kindergartens due to lack of room for them. The shortage of nurseries and kindergartens meant that some mothers had to leave their little children, including infants, unattended or make their older children look after them while they were at work. There were numerous reports of accidents with children.

Women were employed in almost all types of work, although it was said that the number of women in harmful production was limited, women were engaged in harmful production not only during the war but also after it. Even in the post-war period, female workers worked in hazardous occupations.

Thus, based on the statistical data, it can be said that from 30 to 60% of the employees of the considered enterprises were women, who were involved in almost all types of work, with the rare exception of some work in metallurgical shops. The statistics was different in different plants, and the ratio data of men and women were constantly changing.

4. Ratio of evacuees to local workers

The main core of the working teams evacuated to Kazakhstan enterprises were skilled workers who ar-

rived with the factories or were hired in Kazakhstan. The number of arriving evacuated workers during different periods of the war varied across enterprises of the republic from 13 % to 76 %, the rest were recruited from the local population.

By the time of enterprise launch, in terms of staffing levels, plant № 175 was in a much better position than other plants. 4,766 workers arrived with the plant. In 1943, more 3,056 people were hired, which made it possible to fully staff the workshops with manpower. Despite the fact that a significant number of workers arrived with plant № 175, there was an acute shortage of qualified personnel at the plant, which was due to the fact that some personnel remained at plant 182, the systematic shifting of qualified workers from plant № 175 to other factories of the People's Commissariat, and conscription into the army. As a result, as it is said in the report of the party committee, “... on the whole, in 1943 there were more than 1,600 workers and 250 members of engineering and technical personnel” [15, p. 20].

According to the information from the director of the AZTM plant, S. Makeev, dated 18th April, 1944, out of 3,000 people working at AZTM, 1,700 people were evacuated from various places to the temporarily occupied territories of the USSR. As the areas were liberated, these workers either left, citing the relevant instructions of the Government (farm workers, teachers, CPSU workers, communications, etc.), or left the plant without permission, i. e. deserted [16, pp. 51–52].

The smallest number of workers arrived from plant № 231. The plant was poorly provided with qualified workers, machine operators and adjusters, throughout the entire period of the war. According to the plan, 950 people were to be evacuated along with the plant, but on 9th, September, 1941, only 101 people arrived.

Table 3 – Workers, engineers, employees and members of their families evacuated from Leningrad [17, p. 8].

	Arrival date	Railway wagons	Workers	Engineers	Employees	Family members
According to plan	-	50	420	200	30	950
Actually profit	09.09.1941	7	51	35	-	101

At the same time, excluding torpedo production, at least 290 skilled workers were required. To solve this problem, according to the order of the Main Directorate, 250 skilled workers were sent from plant № 182 from Makhachkala to plant № 231. But the plant did not have any accommodation for the coming workers and their families [18. p. 3].

According to the Report of the Secretary of the Central Committee of the CP(b)K Koishegulov, the number of workers, office workers and engineering workers (excluding construction workers) at plant № 231 in 1942 constituted 757 workers, of which 151 arrived with the plant from Leningrad, 605 people were brought from Uralsk. In ITR there were 172 workers, 85 of them arrived from Leningrad, 87 people came from Uralsk. 165 people were employees. 16 of them came from Leningrad, 149 were hired in Uralsk. The total number was 1094 workers. 252 people arrived from Leningrad, 842 were accepted and trained in the new place. The workforce was replenished through the factory training schools, as well as adult workers from the local population who were getting their qualification at their work place. Moreover, out of 757 workers, only 200 workers were qualified specialists, the rest were students of the factory training schools and got training on individual curriculum [11, p. 34].

5. Staff training

One of the means of increasing the labour force was factory training and individual training organized at the enterprise.

In Kazakhstan in 1941, there were only 40 educational institutions of labour reserves consisting of 15,965 people, including 25 Schools of Factory Training, 9 craft shops and 6 railway schools. They trained qualified personnel in 69 different specialties. But accelerated training had also negative consequences, since in 1940-1945 46,5% of boys and girls graduated from the schools of factory training without any assigned qualification [19, p. 74].

From 1942 to 1945 12,000 young workers were trained to work for the defence industry, which accounted for 78% of the total number of workers who entered the workplace [2, p. 91].

Although in 1944 the defense industry factories trained 6,700 local people, this was definitely not enough with the lack of personnel at all plants.

According to the director of the AZTM S. Makeev on 18th April, 1944, the situation with the person-

nel became more and more threatening due to the re-evacuation and the desertion that had begun to take place. Failure to take measures in terms of personnel training and mobilization of the local population in accordance with the decision of the State Defense Committee would have made it impossible to expand production and would have led to the disruption of plans for the production of ammunition and equipment for ferrous metallurgy. In this regard, the director of the plant decided to ask for allocating living space in accordance with the decision of the State Defense Committee, which would make it possible to preserve school № 12 and recruit adults from outside to work at the plant. [16, pp. 51–52].

Qualified personnel were a decisive factor for successful product output. Plant № 231 laid emphasis on intensive qualified training of workers from local residents.

According to information from the director of plant № 231, M. B. Rosenshtein the additional labour demand could be met by:

1. Short-term training of new workers – (300–400 per year);
2. Recruitment from the local population (mainly people of working professions, up to 400 people);
3. Additional evacuation of people from Leningrad and relocation from other factories of the Headquarters of qualified workers and engineering personnel in amount of up to 1000 people.

Thus, if in 1942, 632 people were trained at plant № 231, and in 1943 were trained 845 people, then in 1944 were trained 389. In 1942, 20 of them were Kazakhs, in 1943, 52 of them were Kazakhs, in 1944 there were 16 citizens [20, p. 101]. It is important to say that the potential for the training of personnel from the local population at the plants was quite limited, and this was due to a number of factors.

Not all skilled workers agreed to teach apprentices, or agreed to teach few. This was due to the fact that the mentors were not exempt from fulfilling the production plan. As noted by V. E. Flaxbart (plant № 231) in December 1941, only 58 people were trained, but this number was to be increased to 120–150 people. To do this, it was necessary to recruit this number in Uralsk and be sure to place them in a hostel on the territory of the backwater, but there were no vacant rooms: “*Currently we have only 35 qualified machine operators, only 15–20 of whom can share their experience with apprentices. We are forced to teach 2–3 students, but we can’t do it anymore, since all our machines are from foreign companies and require special attention and production experience when working*” [17, p. 24].

Some experienced workers were reluctant to ensure mentorship. Some workers refused to teach apprentices at the expense of their salaries, arguing that “*Teach apprentices does not let enough money and interferes with the work*”. As Korobkin, a worker from workshop № 12 (plant named after S. M. Kirov), stated, that grinders cannot be released from school in 6 months, they need to be trained further. From conversations with students, it became clear that “*they weren’t taught anything there*”. Therefore, it is necessary to create a separate brigade and provide leadership to this brigade [21, p. 16].

The “*Summary on the state of training for mass qualifications of women*” contains the following data for the Chimkent Lead Plant: on 25th December, 1941, the plant employed 2,403 people (workers, engineers), 661 of whom were women, including 59 Kazakh women [13, pp. 151–152].

The plant’s labour supply in 1943 was generally 98,8 %, 1,728 workers worked in the workshops, while the planned value was 1,750 people, a total number of 2,155 workers in the industrial group. At the same time, the main metallurgical workshops were not fully provided with manpower, the figures were below the plan by 11,5 % [9, p. 13].

According to the data on the use of the wage fund, the plant employed 2,307 workers in 1945, 368 of whom were non-industrial group personnel. In September 1945, young people made up 30 % of the workforce, which constituted 602 people, half of them were girls. The replenishment of workers took place at the expense of the vocational school, factory training school; in 1945, 54 amnestied people were hired to the plant [22, p. 84–85].

Thus, the composition of staff at the plant had been changing since 1941 both due to attracting women and teenagers, and by recruiting prisoners and prisoners of war. In 1945, there was a significant influx of workers from outside, such as Labor Army members, amnestied workers and some others. The main importance was given to short technical courses and targeted training courses, which underwent practical training in metallurgical shops. A significant percentage of unskilled teenagers and young workers who returned to the plant were qualified as carpenters, mechanics, turners, electricians, motor mechanics through individual apprenticeship, i. e. assigning a student to a more qualified worker for a certain period.

The total number of workers and employees engaged in the national economy of Kazakhstan in September 1945 amounted to 1 million 35 thousand people and increased by 13 % compared to 1940. The growth was due to the increased number of industrial and production personnel, which grew by almost 100 thousand people, i. e. 61,3 %. During the war years 56 % of young people under the age of 25 numbered in mechanical engineering, 40 % were engaged in non-ferrous metallurgy, and 42,5 % were in the coal industry.

Conclusion

The shortage of workers was especially acute in the initial period of the war and was associated with the mass mobilization of draft age men to the front, as well as the occupation of a significant territory of the USSR. In this regard, the state could only rely on the labour of women and children.

In general, the means of increasing the labour force were arrived (between the summer of 1941 and the summer of 1942) in the rear regions evacuees, people mobilized for enterprises, including those called up for work columns, graduates of the labour reserve system, pensioners returning to work, prisoners and prisoners of war.

Although during the war years the rear economy of the USSR constantly experienced a shortage of workers, the defence industry suffered from the lack of manpower less than other industries. This was due to the management's policy of prioritizing the provision of labour resources to defence industry enterprises, given its strategic nature.

An analysis of quantitative data on the workers of defence industry enterprises, drawn from archival sources, proves that 10–30 % of the list of workers arrived to the eastern regions of the country with the evacuated enterprises. For example, in the enterprises of the KazSSR, excluding ChSZ, the ratio of locally-sourced workers and those evacuated with the enterprises varied from 13 % to 76 % during different periods of the war.

The data for the Kazakh SSR confirms this perspective. At plant № 231, evacuated workers arrived with the plant comprised 20 % of the workforce in the first quarter of 1942. While, for other factories in the republic, the proportion of evacuated workers exceeded 30 %. For instance, at plant № 317, around 40 % of workers in the first quarter of 1942 were evacuees. Similarly, at plant № 175 in 1943, evacuated workers made up approximately 50 % of the total workforce, accounting for the outflow of some evacuated personnel. By April 1944, evacuated workers represented 76 % of the workforce at AZTM.

The analysis of these figures should consider that some documents provide data on the total number of evacuated workers at particular enterprises without differentiating whether they arrived as workers of those plants, or as workers of other plants, or by themselves. The proportion of evacuees in an enterprise workforce was higher if the enterprise established production straight upon arrival to the destination of the evacuation, rather than merging the plant into an existing operation.

The workforce experienced significant qualitative changes with an intensive increase in the proportion of women and teenagers, and greater representation of local ethnic groups. Additionally, there was a rise in the number of workers trained through the system of labour reserves. For instance, in the declared enterprises of the Kazakh SSR, women made up between 30–60 % of the workforce, participating in a wide range of tasks, with rare exceptions in certain metallurgical shop roles. The presence of Kazakh workers also began to approach 10% of the total labour force. Furthermore, some defence enterprises in the republic employed political emigrants, and used the labour of prisoners and prisoners of war, as it is shown at the AZTM plant. The labour force experienced significant renewal due to a number of factors. These included a rapid rise in the proportion of employed women, as well as rejuvenation of the workforce by employing teenagers.

The observed variations in worker headcounts across years can be attributed to the dynamic nature of labour collectives. These collectives were not static entities, but rather evolved and shifted over time, with workers transitioning between different categories. Factors such as interplant mobility and labour force turnover need to be considered when analyzing these trends. Additionally, the available statistical data may encompass varying scopes, with some reporting the total number of workers, including administrative and technical personnel, while others focus on the production worker count.

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