

**Table 4. Primary gender gap determinants in wages, 2001**

<b>Total differences</b>	<b>0,438</b>
<b>Positive contribution</b>	<b>0,276</b>
Occupational segregation	0,150
Different work record	0,073
Enterprise owner	0,027
Health	0,026
<b>Negative contribution</b>	<b>-0,069</b>
Human capital, including	-0,058
Age	-0,026
Education	-0,029
Specific human capital	-0,003
Regional wage differences	-0,007
Wage arrears, natural benefits, reductions	-0,005
<b>Unaccounted differences</b>	<b>0,230</b>
Male gain	0,122
Female loss	0,108

nantly «female» professions, the highest — in traditional «male» professions. Thus, under other equal conditions the wages of industrial workers, operators, engine drivers are 35% higher than of

unskilled workers, while for professionals and specialists with university or specialised secondary education relevant parameters make up 31–32%. The advantage in wages of clerks and public officials is 13% only (Table 4).

Domination of women in public services and their scarcity in foreign companies made a positive, though insignificant contribution to gender gap in wages. If distribution by these sectors were absolutely uniform, the cumulative difference in wages would decrease by 2.7%.

Health factor (judging by respondents' self-rating) «explained» approximately the same share of gender gap in wages, namely, 2.6%. Good health ensured 16% growth of female wages vs. 7% growth of male wages.

Thus, primary determinants of gender disparities in wages in the Russian labour market in 2001 were gender discrimination<sup>15</sup>, occupational segregation, different types of company ownership (public sector or foreign company), which contributed to the gap positively. Also, differences in the quality of human capital (age, educational level, specific work record), distribution of arrears in wages, «in kind» payments, reduction of working time prevented increase of the gap by another 7%.

### 3.4. SEGREGATION

Gender segregation reveals itself in asymmetric distribution of men and women in different structures: departmental, occupational and functionary. At that, horizontal and vertical segregation are identified. Horizontal segregation manifests itself in different occupational groups, while vertical one — in the same occupational group. In view of that, departmental and occupational segregation may be called horizontal, and functionary segregation — vertical.

Statistical data allows for assessment only of departmental and occupational genders segregation. At that, occupational segregation should not be considered horizontal only. Distribution by 10 occupational groups reflects both horizontal and vertical segregation<sup>16</sup>.

**Departmental segregation (by branch of industry).** The overall conclusion is that women are mostly employed in public services (nearly 60 % of women vs. less than 30% of men). The expansion of public services during the last thirty years of the 20th century stimulated women's increased employment, amount of jobs and demand for female labour, but at the same time added to segregation of the labour market.

For a more detailed analysis we suggest the following approach: branches of industry with less than 33% of female labour are called «male», with more than 66% of female labour — «female». The remaining industries form a third, intermediary category.

From among 15 branches (in line with RF Goskomstat classification), from 1994 through 2002 no considerable changes occurred in 12. Thus, one may conclude that forestry (1/5 of women-workers), construction (the share of women never exceeded 25% during 9 years), transportation (the share of men stayed at approx. 75%) and «other branches» of industry may be classified as «male».

Such spheres as public health, physical culture and social security (male share never exceeded 20% during 9 years), education (nearly 4/5 of women), culture and arts (closer to the intermediary branch than other «female» industries, with the share of women 67.5% to 72.5%) and finances, credit and insurance (from 1994 to 2001 the share of women dropped from 74.5 to 69.3%) have seen the highest female concentration during the indicated period of time. Between 1994 and 2001, manufacturing industries, wholesale and retail trade, public catering, housing and communal services, non-productive public services, as well as science and research remained in the intermediary category. At that, during the 9 years the manufacturing industry saw a smooth decrease in female labour (by 4.3% from 1994 to 2002), while in the housing and communal services, non-productive types of public services, on the contrary, the share of women increased (by 3.9%). Early in this period wholesale and retail trade and

<sup>15</sup> Part of gap in wages — 52% — cannot be explained by properties of the job, human capital or regional labour markets, which is more than similar estimations for other countries. Obviously, it cannot be explained only by discrimination, and it is affected by unknown factors.

<sup>16</sup> E. g., heads (representatives) of all levels of government and management including heads of institutions, organisations and enterprises, highly qualified specialists; medium level specialists, office workers, workers, etc.

public catering were on the brink of moving to the «female» category, but by 2001 the share of women therein dropped from 65 to 61.1%.

The following branches moved from one category to another during this period: agriculture (in 1994–1996 and in 1999–2002 belonged to the intermediary category, in 1997 and 1998 switched to the «male» category, with the share of women being 31.7%); communications («female» from 1994 to 1995, it moved to the intermediary category, besides, the share of women decreased steadily during 8 years amounting to 7%) and governance. The latter experienced most radical changes during this period. In 1994 this branch was «female» (up to 69% of women), but since 1995 the male share in this sphere began to grow rapidly. In 1996 and 1997 the ratio of men and women in this sphere equalised, and in 2001 men slightly exceeded women, i.e. during this period the share of the latter fell by 24.5%.

What are the underlying reasons of such changes in the branch structure? One of the reasons could be the decline of the overall amount of women in the labour force. Still, the available data testifies that the share of women during this period remained more or less stable. Therefore, these changes are in no way related to women's exclusion from public production and transfer to private households. It turns out that a mere branch restructuring took place; women and men passed from some branches to others, therefore, reduction of the amount of women in some branches was compensated by increase in others.

Nevertheless, mere identification of «male», «female» and intermediary branches does not provide a clear picture, as it is difficult to evaluate straight away the actual gender segregation by industry. In order to make such an evaluation possible, four segregation indices were calculated for the whole period<sup>17</sup>: ID, SR, WE and MM.

### 3.4.1. SEGREGATION INDICES

**1)** Index of Dissimilarity (ID), or Duncan index, is most common. As a rule, it is determined as a half of the amount of differences (with the positive sign) between the shares of men and women occupied in each profession. This index shows what percentage of workers of one sex should change occupation (provided that workers of the other sex should remain at their jobs) to achieve equal distribution of men and women by profession.

$$ID = 1/2 \sum |F_i/F - M_i/M| = F_f/F - M_f/M,$$

where F is the number of women in the labour force; M is the number of men in the labour force; F<sub>i</sub> is the number of women in profession i; M<sub>i</sub> — is the number of men in profession i; F<sub>f</sub> is the number of women in «female» professions; M<sub>f</sub> is the number of men in «female» professions; i varies from one to the total number of professions.

**2)** Sex Ratio (SR). This index equals to the number of women in «female» professions divided by the number of women in these professions (in absence of occupational segregation by sex) minus the similar rate for women in «male» professions.

$$SR = F_f / [(F N_f) / N] - F_m / [(F N_m) / N],$$

where N is the aggregate number of workers in the labour force; N<sub>f</sub> is the aggregate number of workers in «female» professions; N<sub>m</sub> is the aggregate number of workers in «male» professions; F<sub>m</sub> is the number of women in «male» professions.

**3)** Women in Employment index (WE) is determined as the sum total of deviations of the share of women in each profession from the share of all work-

ers of this profession in the labour force. In other words, it is the amount of differences between actual and expected shares of women in the profession, all differences are taken with the positive sign.

$$WE = \sum |F_i/F - N_i/N| = 2(M/N)(F_f/F - M_f/M),$$

where N<sub>i</sub> is the aggregate number of workers in profession i.

**4)** Marginal matching (MM) index may be expressed as

$$MM = F_f/F - M_f/M.$$

In this case «male» and «female» professions are determined in a different manner as compared to other indices (ID, SR, WE), when professions are defined as «female» if the share of women therein is bigger than the share of women in the labour force, while in «male» professions the share of men is bigger than the share of men in the labour force. For MM, «female» professions are those where female concentration is the highest and which also include the same absolute number of workers — both men and women — as the number of employed women. «Male» professions are those where male concentration is maximum and the number of workers therein is equal to the number of employed men. The term «marginal matching» is derived from the method of data presentation: division into «male» and «female» professions is made in such a way that marginal common indicators for «gender affiliation» of professions corresponds to marginal common indicators for workers of one gender («male» professions correspond to men and «female» professions — to women).

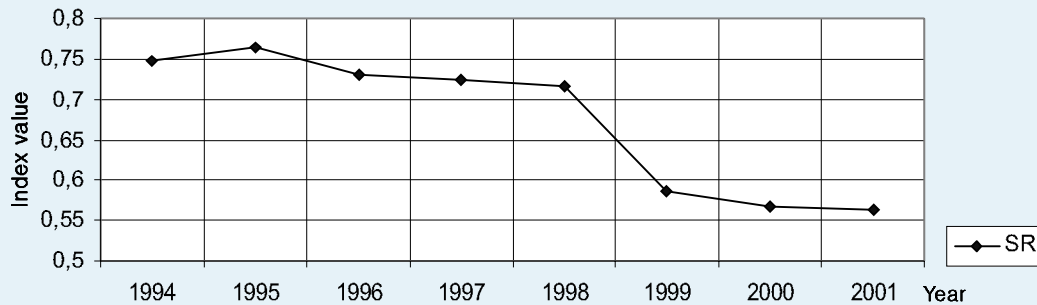
What do calculations of gender segregation indices testify to? At first sight, calculation results look ambiguous: three indices from among four (except SR) remained at approximately the same level, while SR values decreased almost by a quarter (Table 5, Fig.2).

Semantic constituents of each of the four indices slightly differ from each other. ID and WE determine closeness of the real situation to potential one, in which the share of men and women in all branches of industry (professions) was congruent with their total share in the economy.

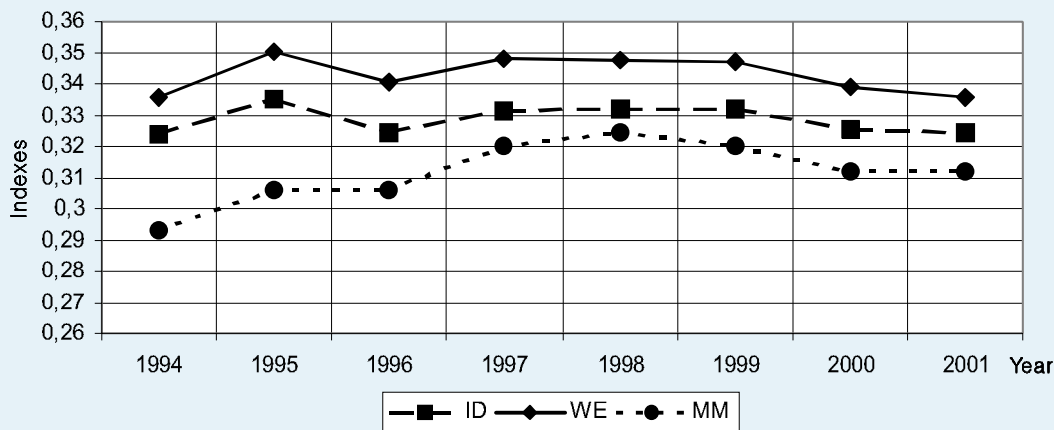
<sup>17</sup> ILO methodology was used for calculation of segregation indices, see Siitanen J., Jarman J., Blackburn R. Gender inequality in the labour market: occupational concentration and segregation. A manual on methodology. ILO, Geneva, 1995, see Appendix for details. Calculations were conducted by S. Antonchenkova.

**Table 5. Indices of segregation by industries, 1994–2001. (RF Goscomstat data)**

Index	1994	1995	1996	1997	1998	1999	2000	2001
ID	0,324	0,335	0,324	0,331	0,332	0,332	0,325	0,324
SR	0,748	0,763	0,730	0,724	0,716	0,586	0,568	0,562
WE	0,335	0,350	0,341	0,348	0,347	0,347	0,339	0,336
MM	0,293	0,306	0,306	0,310	0,324	0,320	0,312	0,312



**Fig. 2. Dynamics of segregation by industry, 1994 to 2001 (SR)**



**Fig. 3. Dynamics of segregation by industry, 1994–2001 (ID, WE и MM)**

MM is more relevant for assessing segregation, as it is cleaned from the impact of changes in the branch structure of the labour market, i.e. the share of those employed in any branch of industry, and gender structure of workforce (in this the case changes in the share of men and women in the economy could not produce any impact, as their number remained nearly the same during the whole period).

SR is aimed at identification of another aspect of segregation, namely, women’s concentration in «female» professions as compared to men’s concentration in «male» ones (Fig. 3).

The resulting conclusion is that during this period (from 1994 to 2001) segregation by industry has not changed on the whole, averaging 33% by the three indices (ID, WE and MM).

SR index values, which never exceeded 1, testify to the following trend: the number of women in «female» branches is much smaller (in relative

terms) than the number of men in «male» branches. The dynamics of changes in this index reveals that the number of women in «female» branches decreased every year as compared to the number of men in «male» branches.

**Occupational segregation.** RLMS data was used for occupational structure analysis, namely, for classification of labour activities by 10 occupational groups: military personnel; directors, specialists with university education; specialists with secondary education; office clerks; public services workers; skilled agricultural and fishery workers; industrial workers; installations operators and machinists and unskilled workers. Evidently, majority of occupational groups underwent minor changes, i.e. they remained within the same categories («male», «female» and intermediary) where they belonged, and only several occupational groups switched from one category to another.

The following occupational groups remained «male» during the whole period: military personnel (lowest females concentration, the share of women never exceeding 12%); qualified agricultural and fishery workers; installation operators and machinists and industrial workers. However, certain changes occurred in these occupational groups as well. Thus, as compared to 1994, in 2001 slightly more women joined military personnel and industrial workers' groups, but among qualified agricultural and fishery workers, vice versa, the number of women decreased.

The following occupational groups remained «female» from 1994 to 2001: office clerks and client services; professionals with secondary education and public services workers. In 1994–1995 the latter group was very close to becoming an intermediary one. However, since 1996 it undoubtedly turned «female» (during the whole period the share of women in this group varied from 70.2 to 78.8%). In the office clerks and client services group the share of women remained approximately the same (averaging 90%). As for professionals with secondary education, within 7 years the share of women decreased by 7%.

The occupational gender structure of employment conforms to a great extent to the branch structure. Women are more often employed not only in public services, but also in activities related to client services (Table 6).

«Unskilled workers» is the intermediate occupational group, which always (from 1995 to 2001) belonged to this category. In 1994–1995 it came close

to the «female» one, but between 1996 and 2001 the share of men and women in this group approximated.

During the given period only two out of ten occupational groups saw considerable changes related to switching to another category. These are professionals with university education (in 1994, this group was intermediary and in 1995 became «female»). The group of directors, considered «male» from 1994 to 1996, moved to the intermediate category in 1997 due to sharp increase in the share of women (by 21% from 1997 to 2001). Still, it should be noted that the share of women among directors increased at the expense of the subgroup «directors of small enterprises».

In this case, again, the processes of growth/reduction of the share of women in certain occupational groups compensate for each other, i.e. gender shifts occur not only within various branches of industry, but also within occupational groups.

Segregation index calculated for three levels of occupational classification codes (based on ISCO-88 standards) demonstrates a higher level of occupational segregation as compared to branch segregation, and a slight decrease in the extent of occupational segregation (table 7).

What is the value of gender segregation index made of? Generally speaking, it reflects occupational gender employment structure, which changes are manifested in a twofold way: first, changes of the overall occupational employment structure, and second, the changing ratios of male and female repre-

**Table 6. Share of women across occupational groups, 1994–2001, % (RLMS data)**

Occupational groups	1994	1995	1996	1998	2000	2001
Armed forces	6,1	16,9	11,9	10,6	11,6	11,1
Heads of government bodies, enterprises and organisations	25,3	32	32,7	41,8	40,9	46,5
Professionals with university education	64,2	69,4	69,2	71,8	73,3	74
Professionals with secondary education	81	77,1	76,8	74,3	76,4	74,1
Office clerks and client services	92,3	89,2	91,2	89,7	91,1	88,5
Public services workers	68,7	66,8	70,2	76,1	78,8	77,9
Skilled agricultural and fishery workers	10,3	0	16,7	10,5	9,4	7,4
Plant and machine operators and assemblers	19,1	16	17,4	16,7	16,7	15,2
Industrial workers	17,4	18,3	19,6	19,8	18,4	22,1
Unskilled workers	64	66	59,7	56,2	55,6	53,1

**Table 7. Correlation between ID segregation index and occupational desegregation (RLMS data)<sup>18</sup>**

Desegregation level	Number of occupational groups	1994	1995	1996	1998	2000	2001	2002
1–symbol occupational code	10	51,48	52,13	52,17	50,58	51,04	48,01	47,41
2–symbol occupational code	27	57,59	55,13	54,80	55,08	55,61	52,45	52,08
3–symbol occupational code	118	65,42	64,75	64,60	64,34	62,74	60,38	59,66

<sup>18</sup> Calculated by I.Maltseva

sentation in certain professions. In other words, decline of segregation level may result both from reduced share of employed in professions with prevalence of one gender and from mass influx of workers into professions, not typical for the relevant gender.

Analysis of the gender employment structure of the Russian economy allows for several observations. First, male distribution across occupations is more heterogeneous than female. Thus, during the observed period (1994), 53% of all working men were employed in three «male» occupations, while for women the same parameter did not exceed 30.13% (2002). There is an obvious trend of male distribution across other occupations (by 2002, only 44.47% of men worked in three most popular professions), while among women the level of concentration remains relatively stable or is on the rise. It should be highlighted that women are mostly employed in professions requiring high educational level (except for sales and service provision, which by 2002 moved to the third position with regard to the share of women). On the contrary, most common male professions (primarily skilled and unskilled labour) do not require high educational level. The only exception is specialists in natural and applied sciences, which in 1994 was the fourth most popular profession among men (7.46% of all employed men), but in 2002 moved to the fifth position.

Second, men and women prevail in different occupational groups. Most common among women in 1994–1998 were sales and service provision, teaching (with university diploma) and other specialities requiring special education<sup>19</sup>, while in 2002 the group of shop assistants and demonstrators became second most common group (9.44% of all women compared to 6.24% in 1994). Men employed in these groups made up less than 11.95% of all working men (1998). Noteworthy is that during the given period of time men increased their presence in the above «female» occupations: in 1994 the share of working men therein was only 8.66%. Majority of men have been and are still employed as drivers and machine operators in metal works and machine building, transportation and communications, as well as workers in the mining and construction industries. The share of women therein did not exceed 6%, and from 1994 to

2002 it decreased gradually. In other words, changes in the employment gender structure testify to women's attachment to traditional occupations, while men visibly expand their presence in other including «female» occupational groups. The latter is most evident among workers of «simple» professions, such as sales and service provision: the share of women in the group goes down, while the share of male employees goes up.

Third, gender dominated occupations are quite common among Russian employees. In 1994, three professions most popular among both genders involved 48.29% of all labour force. There is a positive trend of reducing such concentration: by 2002 this indicator dropped to 44.61%. The primary reason was mass exit of people from working professions in various industries, resulting in decrease of the number of employees therein from 10.71% in 1994 to 7.22% in 2002. This process modified gender segregation index, which decreased by 5.51% within 7 years.

Situation in other large occupational groups also played a considerable role in changing segregation patterns. Considerable reduction of the share of men specialising in natural and applied sciences contributed to the levelling of occupational disproportion. Vice versa, segregation increased due to the growing share of women employed as individual entrepreneurs, shop assistants and demonstrators. The share of employees in the latter occupational group grew from 3.86% in 1994 to 5.68% in 2002, exclusively at the expense of women (while the share of men therein decreased). Gender gap among office clerks slightly decreased due to outflow of women and inflow of men, but is still considerable: in 2002, 7.57% of women and 1.53% of men belonged to this group.

According to calculations (Table 8), from 1994 to 2002 almost 80% of changes in the segregation index were predetermined by changes in the professional employment structure of the Russian economy, i.e. increased shares in certain occupational groups and decreased shares in others. Replacement of workers of one gender by workers of another gender within occupations accounts for 20% of the overall index change. In 2002, reduced occupational segregation was mostly accounted for by exit of workers from occupations with huge amount of em-

**Table 8. Decomposition of changes of segregation indexes (RLMS, 1994–2002)<sup>20</sup>**

	1994	2002
Segregation index, %	57,59	52,08
	Index change, p.p.	
	-5,51	
<i>Due to:</i>	<i>In absolute terms</i>	<i>In %</i>
Effect of gender inter-occupational structure	-1,11	20,15%
Effect of occupational employment structure	-4,40	79,85%

<sup>19</sup> Occupational group of «other specialists with special education» includes such popular «female» occupations as tourist agent, administrative secretary, tax inspector, etc.

<sup>20</sup> Professional segregation index was calculated by I. Maltseva for 28 occupational groups in compliance with 2–digit codification of professions in ISCO–88.

**Table 9. Share of women among employees and level of wages by industries, 1992–2001, (%)**

	Share of women among the employed, %					Ration of monthly wages in branch to average wages in economy				
	1992	1996	1998	2000	2002	1992	1996	1998	2000	2002
Total economy	49	47	48	48	48	100	100	100	100	100
Industry	45	41	38	38	38	118	110	115	123	118
Agriculture	36	34	32	35	40	66	48	45	40	40
Construction	25	24	24	24	24	134	122	127	126	120
Transportation	26	26	26	26	23	146	144	144	150	136
Communications	71	62	60	61	60	91	130	140	130	130
Trade, public catering, MTS	73	62	62	64	63	81	77	82	71	70
Communal and public services	48	46	46	47	47	82	106	105	88	85
Healthcare, sport, social security	83	82	81	81	80	66	77	69	62	74
Education	79	82	80	80	79	61	70	63	56	67
Arts and culture	70	69	68	69	72	52	65	62	55	66
Science	53	51	50	50	49	64	83	99	121	126
Finance and credits	86	74	71	71	69	204	193	199	243	285
Public administration	68	50	48	45	38	94	120	129	120	118

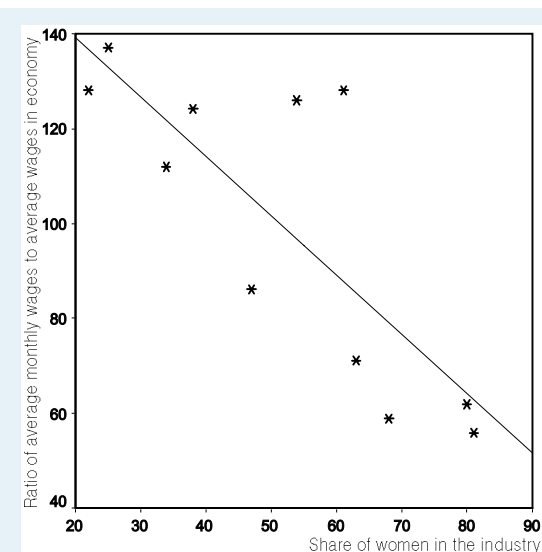
ployees, which in 1994 were dominated by one gender. Analysis of gender employment structure of the Russian economy reveals that this process was predetermined by break up of «male» occupations into smaller units.

Conclusion may be drawn that the most important factor affecting the degree of potential segregation is not female transfer to such traditionally «male» sectors as mining and processing industries, but expected increase of the share of men in public services. The existing trends are not stable yet.

Thus, analysis of gender gap in wages revealed the on-going influence of occupational segregation. Still, analysis of segregation indices demonstrates their relative stability. If RF Goskomstat data about increase of gender gap in wages in late 1990s is seen as a baseline, how can one explain it? Growing gender gap in wages could be attributed to the increase of average wages in «male» and «female» occupations. I.e., «male» occupations become more profitable, while «female» ones — less profitable. One should also bear in mind that men as a rule occupy higher positions even in «female» occupations (Table 9).

Segregation is closely related to gaps in wages. The higher is women's share in a branch of industry, the lower is the ratio between the level of wages and average wages in the economy. Only two branches contradict this stable ratio: agriculture — and finances, credit and insurance. There are more men in agriculture, but wages are very low, while in finances, credit and insurance there are more women and wages exceed the average. Lately, the share of men in finances and credits kept growing steadily, which illustrates vividly gender inequality mechanism in the labour market, namely, the impact of male and female distribution by activity on economic outputs (Fig 4).

As soon as an industry or an occupation becomes profitable due to favourable state of the market, men start flowing in. On the one hand, employers give them more preference, on the other hand, more profitable industries set higher requirements to the work load, which cannot be always fulfilled by women due to their heavier family duties. Behavioural and situational patterns do play a certain role. A good example of retroactive redistribution mechanisms is the increase of women's share in the army, among the military personnel. As soon as military service became less profitable and less attractive for men, a demand for female labour emerged.



**Fig. 4. Correlation between the share of women by industry and the level of wages, 2001 (for all branches of industry except agriculture and finances, credit and insurance)**