



National Iranian Productivity Organization (NIPO)

Assessment of the Labour Productivity &
Labour Competitiveness Status in
Manufacturing Sector, 1383 (2004/05) to 1390
(2011/12)

Fall, 1394 (2015/16)

www.nipo.gov.ir

National Iranian Productivity Organization (NIPO)

**Assessment of the Labour Productivity & Labour
Competitiveness Status in Manufacturing Sector, 1383
(2004/05) to 1390 (2011/12)**



Author(s): Hadi Ramin, Mohana Omidi Translator(s): Hesam Hoursan

Department: Deputy of Monitoring, Research & Technology

Date: Fall, 1394 (2015/16)

Abstract: The report focuses on the status of labour productivity and labour competitiveness in manufacturing sector (in establishments with 10+ employees). Based on the results of the “Survey of manufacturing establishments with 10 employees or more” published by the Statistical Center of Iran, the output value and value added of the economic activities have been extracted and calculated based on classification of two-digit codes of ISIC-Rev3.

Keywords: Manufacturing establishments; Productivity; Labour Productivity; Labour Competitiveness

Address: No. 16, Sepand St., Nejatollahi Ave., Tehran, I.R.Iran

Tel: (+98) 21 88899175

Postal Code: 1598994911

Email: productivity@mporg.ir

www.nipo.gov.ir

Abstract

The current report focuses on the status of labour productivity and labour competitiveness in manufacturing sector. Based on the results of “Survey of manufacturing establishments with 10 employees or more” published by the Statistical Center of Iran, the output value and value added of the economic activities have been extracted and calculated based on classification of two-digit codes of ISIC-Rev3, respectively. Based on the extracted results, labour productivity and labour competitiveness indices in manufacturing establishments with 10 employees or more for various classifications of activities and provinces, are calculated from 1383 (2004/05) to 1390 (2011/12). These indices are calculated on the basis of output value and value added. Finally, the results are compared and presented.

Keywords:

Manufacturing establishments; Productivity; Labour productivity; Labour competitiveness

Labour Productivity and Labour Competitiveness

Labour productivity & labour competitiveness in manufacturing sector are calculated in this section. These values are derived based on the extracted statistical data from the report of the Statistical Center of Iran. The terms used in this report are defined by the following relations:

Labour productivity based on output value

$$= \frac{\text{Output Value}}{\text{Number of Eemployees}} \quad 1-1$$

Labour productivity based on value added

$$= \frac{\text{Value Added}}{\text{Number of Employees}} \quad 1-2$$

Labour competitiveness based on output value

$$= \frac{\text{Output value at current price}}{\text{compensation at current prices}} \quad 1-3$$

Labour Competitiveness based on value added

$$= \frac{\text{Value added at current price}}{\text{compensation at current prices}} \quad 1-4$$

In the above relations, output value and value added are at fixed price for calculation of labour productivity, while they have been used at current prices for labour competitiveness. In the following, these indices are presented based on type of activities and for provinces.

Based on existing tabular data, including value added at fixed price and the number of employees in manufacturing establishments, labour productivity based on activity is presented in table 1. Figure 1 shows the variations of labour productivity based on output value at the aggregate level of manufacturing in establishments. The overall rising trend is noticeable is labour productivity based on output value; the productivity index has risen from 100 in 1383 (2004/05) to 140 in 1390 (2011/12). Increase in labour productivity based on output value is noteworthy during the years 1388 (2009/10) and 1389 (2010/11), while there is a relative drop in 1390 (2011/12). The highest labour productivity index based on output value in the period 1383 (2004/05) -1390 (2011/12) belongs to “Manufacture of coke, refined

petroleum products and nuclear fuel”. During the same period, the lowest labour productivity goes to “Recycling” and “Manufacture of wearing apparel; dressing and dyeing of fur”.

In table 3, labour productivity based on value added is shown for the period 1383 (2004/05) -1390 (2011/12). It is noted that the maximum labour productivity based on value added has occurred during the years 1385 (2006/07) and 1386 (2007/08). This is while, as observed previously, the highest labour productivity based on output value occurs in 1388 (2009/10) and 1389 (2010/11). This can be explained by the notion that the ratio of input to output value has increased significantly in these two years, while the ratio of value added to output value has decreased. Another noteworthy observation is the point comparison between 1383 (2004/05) and 1390 (2011/12); it is inferred that labour productivity based on value added has decreased from 100 in 1383 (2004/05) to 92 in 1390 (2011/12), this is contrary to the trend of labour productivity based on output value. The above points can be seen in figure 1, as well as the fact that the maximum of the two curves occur at different times. The point comparison of productivity at the beginning and end of the period approves the above-mentioned facts.

From the results of labour productivity based on value added, it can be observed that in the period 1383 (2004/05) -1389 (2010/11), the “Manufacture of coke, refined petroleum products and nuclear fuel” has the highest labour productivity index, while in 1390 (2011/12), “Manufacture of chemicals and chemical products” holds the title. It is also remarkable that, similar to labour productivity based on output value, labour productivity based on value added has seen its lowest value in “Recycling” industry.

Table 1- Labour productivity index based on output value for various manufacturing activities (base year 1383 (2004/05))

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Total Manufacturing	100	108	122	130	124	165	165	140
Manufacture of food products and beverages	100	107	117	119	113	126	127	97
Manufacture of tobacco products	100	186	208	185	250	248	205	171
Manufacture of textiles	100	110	125	131	122	122	138	141
Manufacture of wearing apparel; dressing and dyeing of fur	100	123	102	121	105	125	145	223
Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	100	108	121	119	88	105	120	114
Manufacture of wood and of products of wood and cork, except furniture	100	116	193	243	184	186	227	347
Manufacture of paper and paper products	100	111	112	96	89	90	92	94
Publishing, printing and reproduction of recorded media	100	114	101	118	108	124	111	98
Manufacture of coke, refined petroleum products and nuclear fuel	100	103	136	154	101	359	234	137
Manufacture of chemicals and chemical products	100	95	131	150	131	128	143	155
Manufacture of rubber and plastics products	100	110	97	101	96	90	108	122
Manufacture of other non-metallic mineral product	100	104	109	129	122	129	143	164
Manufacture of basic metals	100	109	124	129	108	93	93	94
Manufacture of fabricated metal products, except machinery and equipment	100	91	111	119	103	106	110	123
Manufacture of machinery and equipment n.e.c.	100	105	117	125	123	116	134	136
Manufacture of office, accounting and computing machinery	100	95	111	126	148	225	287	390
Manufacture of electrical machinery and apparatus n.e.c.	100	120	91	92	98	108	106	100
Manufacture of radio, television and communication equipment and apparatus	100	102	99	88	110	125	124	177
Manufacture of medical, precision and optical instruments, watches and clocks	100	101	110	130	149	187	209	225
Manufacture of motor vehicles, trailers and semi-trailers	100	108	117	106	119	132	138	149
Manufacture of other transport equipment	100	87	91	79	76	92	104	120
Manufacture of furniture; manufacturing n.e.c.	100	107	110	113	116	114	104	133
Recycling	100	52	87	106	76	155	49	51

Source: Authors' Calculations

Table 2- Labour productivity index based on output value for various manufacturing activities (base year 1383 (2004/05))

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Total Manufacturing	100	108	124	125	115	116	112	92
Manufacture of food products and beverages	100	116	127	114	104	120	121	96
Manufacture of tobacco products	100	173	206	187	236	274	223	171
Manufacture of textiles	100	116	129	126	128	129	142	150
Manufacture of wearing apparel; dressing and dyeing of fur	100	121	106	121	108	144	162	191
Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	100	106	116	99	79	101	123	117
Manufacture of wood and of products of wood and cork, except furniture	100	114	167	178	163	185	205	212
Manufacture of paper and paper products	100	113	107	91	85	92	84	80
Publishing, printing and reproduction of recorded media	100	132	125	112	122	178	199	211
Manufacture of coke, refined petroleum products and nuclear fuel	100	101	146	158	91	60	34	20
Manufacture of chemicals and chemical products	100	87	109	115	98	99	103	119
Manufacture of rubber and plastics products	100	117	104	99	95	101	104	122
Manufacture of other non-metallic mineral product	100	105	109	128	128	140	148	154
Manufacture of basic metals	100	105	104	101	80	63	64	66
Manufacture of fabricated metal products, except machinery and equipment	100	94	114	132	99	111	115	132
Manufacture of machinery and equipment n.e.c.	100	101	117	119	116	116	137	129
Manufacture of office, accounting and computing machinery	100	111	134	168	198	185	237	302
Manufacture of electrical machinery and apparatus n.e.c.	100	143	88	90	104	122	114	110
Manufacture of radio, television and communication equipment and apparatus	100	90	81	79	94	105	111	163
Manufacture of medical, precision and optical instruments, watches and clocks	100	101	106	112	130	145	199	166
Manufacture of motor vehicles, trailers and semi-trailers	100	120	159	123	135	162	168	165
Manufacture of other transport equipment	100	80	105	65	70	83	87	71
Manufacture of furniture; manufacturing n.e.c.	100	114	107	99	101	95	104	127
Recycling	100	76	89	124	94	245	102	141

Source: Authors' Calculation

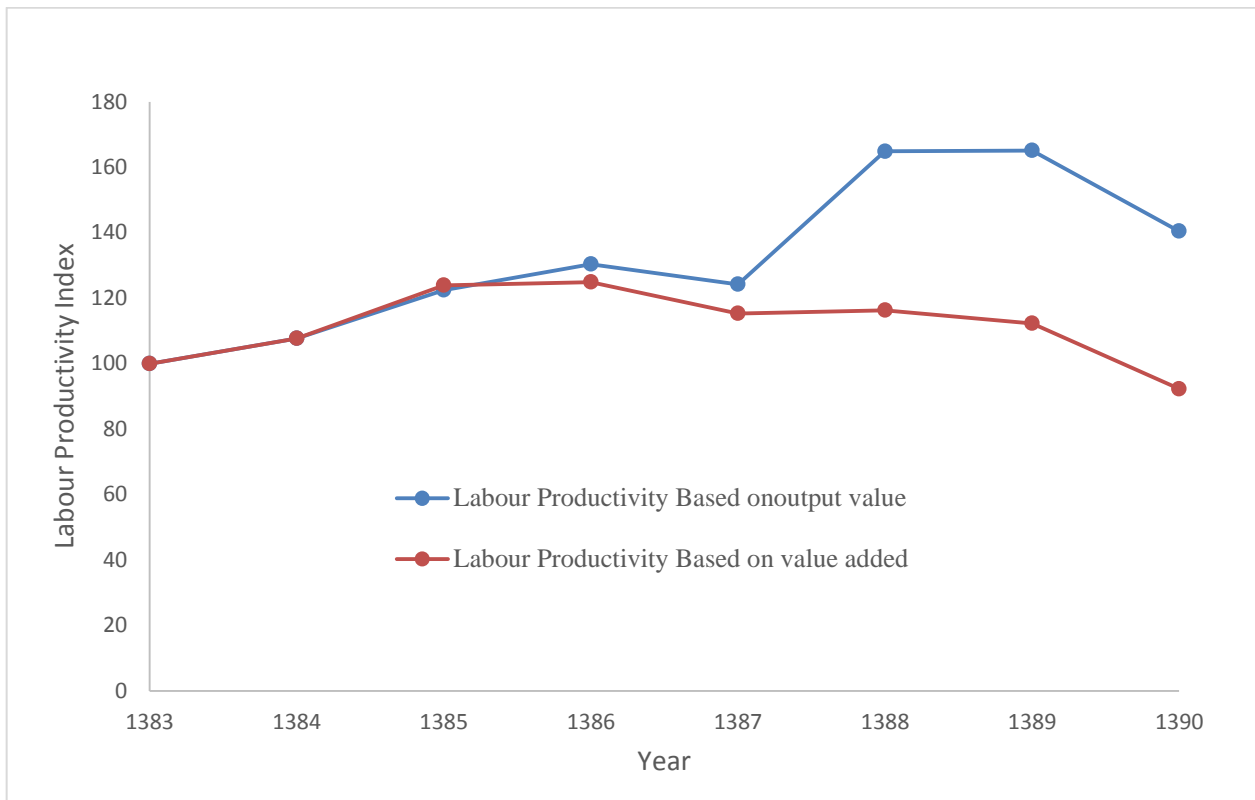


Figure 1- Percentage change of labour productivity based on output value and value added in establishments with 10 employees or more (Years 1383 (2004/05) -1390 (2011/12))

In continuation, labour productivity figures based on output value are shown in table 3 for various provinces. In table 4, labour productivity based on value added is calculated and presented for various provinces. On average during the period under study, Hormozgan, Bushehr and Khuzestan have the highest labour productivity based on output value, each in a certain year in the time frame. Hormozgan owns the highest labour productivity in more years, while Kohgiluyeh, Sistan and Baluchestan, Qom and Ardebil experienced the lowest labour productivity based on output value. Annual percentage change of labour productivity based on output value show an oscillating trend during 1383 (2004/05) -1390 (2011/12); for instance, the provinces Kermanshah and Bushehr have had the highest annual changes in a year, while they had had the lowest changes in another year.

The statistics of labour productivity based on value added show that Bushehr has the highest labour productivity in the entire duration 1383 (2004/05) -1390 (2011/12). This rule does not hold for labour productivity based on output value where the maximum value is shared among various provinces. In this time frame, each of the provinces Qom, Guilan, Golestan and Chehar Mahal have

the lowest labour productivity based on value added in a year. No meaningful trend can be seen in annual changes.

Table 3- Labour productivity index based on output value in manufacturing sector for various activities

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)	1391 (2012/13)
Country total	100	108	108	122	130	124	165	165	140
East Azerbaijan	100	95	95	101	119	116	149	153	134
West Azerbaijan	100	108	108	126	143	116	130	133	113
Ardebil	100	99	99	102	105	86	102	101	85
Esfahan	100	101	101	130	160	147	182	176	152
Alborz	100	112	112	120	136	162	181	186	131
Ilam	100	91	91	103	92	113	112	126	141
Bushehr	100	86	86	101	172	223	264	369	272
Tehran	100	110	110	114	103	102	131	130	99
Chahar Mahal and Bakhtiari	100	104	104	96	108	118	120	150	97
South Khorasan	100	104	104	115	114	119	116	101	95
Razavi Khorasan	100	112	112	133	157	148	158	121	120
North Khorasan	100	129	129	151	131	97	117	116	101
Khuzestan	100	109	109	159	175	138	196	190	163
Zanjan	100	120	120	149	141	146	152	132	90
Semnan	100	126	126	129	163	122	131	161	118
Sistan and Baluchestan	100	104	104	106	95	102	123	147	132
Fars	100	107	107	111	115	100	148	153	133
Qazvin	100	113	113	135	132	132	139	138	115
Qom	100	98	98	95	100	82	86	95	91
Kurdistan	100	125	125	151	175	153	146	194	149
Kerman	100	136	136	162	152	121	179	136	116
Kermanshah	100	116	116	107	116	155	231	170	197
Kohgiluyeh and Boyer-Ahmad	100	153	153	140	136	134	186	244	158
Golestan	100	122	122	113	131	126	119	126	109
Guilan	100	120	120	141	187	186	188	193	194
Lorestan	100	116	116	123	132	100	104	106	86
Mazandaran	100	127	127	132	125	123	138	125	95
Markazi	100	97	97	122	119	112	165	179	183
Hormozgan	100	101	101	106	88	76	361	330	305
Hamadan	100	117	117	140	135	129	141	142	129
Yazd	100	113	113	118	164	160	167	174	132

Source: Authors' Calculations

Table 4- Labour productivity index based on value added for various manufacturing activities

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Country total	100	108	124	125	115	116	112	92
East Azerbaijan	100	78	72	86	74	64	62	54
West Azerbaijan	100	106	133	158	131	144	147	102
Ardebil	100	91	89	74	69	77	76	58
Esfahan	100	100	109	134	128	82	83	71
Alborz	100	106	120	131	156	175	189	123
Ilam	100	108	99	71	83	111	118	103
Bushehr	100	89	103	132	122	123	170	147
Tehran	100	117	137	113	113	129	127	84
Chahar Mahal and Bakhtiari	100	117	106	118	106	123	147	116
South Khorasan	100	104	107	92	94	98	78	61
Razavi Khorasan	100	108	124	113	106	137	117	113
North Khorasan	100	120	142	108	84	108	100	87
Khuzestan	100	108	155	158	126	109	103	86
Zanjan	100	135	158	125	141	169	144	102
Semnan	100	112	118	133	106	115	127	103
Sistan and Baluchestan	100	102	96	103	107	128	170	154
Fars	100	108	104	102	88	103	104	87
Qazvin	100	116	196	136	140	151	136	112
Qom	100	105	88	87	71	74	71	65
Kurdistan	100	99	91	125	112	140	124	83
Kerman	100	108	152	135	93	109	112	103
Kermanshah	100	104	103	110	143	183	132	177
Kohgiluyeh and Boyer-Ahmad	100	145	152	146	151	223	265	146
Golestan	100	112	114	127	116	104	106	87
Guilan	100	109	129	132	141	145	134	106
Lorestan	100	121	121	137	92	102	92	75
Mazandaran	100	136	143	126	128	132	125	94
Markazi	100	104	130	108	101	99	97	85
Hormozgan	100	101	119	120	66	68	59	55
Hamadan	100	118	118	113	114	129	121	108
Yazd	100	112	124	160	159	179	200	151

Source: Authors' Calculations

Labour competitiveness figures are shown in the following tables. In table 5, labour competitiveness based on output value is shown for various manufacturing activities in the period 1383 (2004/05)-1390 (2011/12). In table 6, labour competitiveness based on value added is demonstrated. The activity “Manufacture of coke, refined petroleum products and nuclear fuel” has the best performance in productivity based on both output value and value added; while the activities “Manufacture of wood and of products of wood and cork, except furniture”, “Publishing, printing and reproduction of recorded media”, “Manufacture of tobacco products” and “Recycling” each have the worst productivity performance in a year during the period.

Labour competitiveness based on output value and value added at the aggregate level of manufacturing in the time span 1383 (2004/05) -1390 (2011/12) is denoted in figure 2. It can be observed that there is an increasing trend in labour competitiveness based on output value throughout the graph with the exception of the year 1387 (2008/09), while this situation is not true for labour competitiveness based on value added. The productivity is increasing at first, but is followed by a decrease later. Labour competitiveness based on value added experiences its minimum in 1389 (2010/11). The point comparison of labour competitiveness based on output value and value added may be of interest. According to labour competitiveness based on output value, productivity values are 100 and 147 in 1383 (2004/05) and 1390 (2011/12) respectively, while in these two years labour competitiveness index based on value added is 100 and 96 respectively. This reveals a considerable growth in labour competitiveness based on output value, contrary to the minor drop in labour competitiveness based on value added.

Additionally, labour competitiveness based on value added is shown for various provinces in table 6. Each of the provinces Bushehr, Hormozgan and Khuzestan have the highest labour competitiveness based on output value in a certain year. While the highest level of labour competitiveness based on value added goes to Bushehr. On the other hand, each of the provinces Kohgiluyeh, Sistan and Baluchestan, Chahar Mahal and Khorasan have demonstrated the lowest income productivity based on output value in some years. However, labour competitiveness based on value added, in the same period, is minimum for the provinces Guilan, Sistan and Baluchestan, Razavi Khorasan, Golestan and Chahar Mahal. Once more in the annual productivity change tables, there is fluctuation in both indicators. For instance, based on output value, Hormozgan has the highest affirmative changes in one year and the highest negative changes in another. The same issue holds for Kermanshah for labour competitiveness based on value added.

Table 5- Labour competitiveness index based on output value for various manufacturing activities (1383 (2004/05) -1390 (2011/12))

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Total Manufacturing	100	103	105	107	106	124	134	147
Manufacture of food products and beverages	100	103	99	106	101	104	113	117
Manufacture of tobacco products	100	154	120	64	53	50	43	44
Manufacture of textiles	100	97	105	106	96	92	104	108
Manufacture of wearing apparel; dressing and dyeing of fur	100	124	87	104	86	84	100	144
Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	100	102	106	101	73	83	84	84
Manufacture of wood and of products of wood and cork, except furniture	100	110	152	199	143	126	136	249
Manufacture of paper and paper products	100	92	84	83	88	67	72	72
Publishing, printing and reproduction of recorded media	100	104	81	91	84	90	85	116
Manufacture of coke, refined petroleum products and nuclear fuel	100	101	91	112	110	511	515	610
Manufacture of chemicals and chemical products	100	97	112	123	117	96	109	114
Manufacture of rubber and plastics products	100	120	112	109	102	90	101	120
Manufacture of other non-metallic mineral product	100	104	97	99	103	99	100	114
Manufacture of basic metals	100	103	112	126	130	85	94	96
Manufacture of fabricated metal products, except machinery and equipment	100	113	109	132	113	95	90	92
Manufacture of machinery and equipment n.e.c.	100	107	114	118	114	105	114	110
Manufacture of office, accounting and computing machinery	100	87	79	69	80	113	109	106
Manufacture of electrical machinery and apparatus n.e.c.	100	102	110	107	103	96	99	99
Manufacture of radio, television and communication equipment and apparatus	100	87	72	65	72	61	60	83
Manufacture of medical, precision and optical instruments, watches and clocks	100	107	98	102	114	140	125	149
Manufacture of motor vehicles, trailers and semi-trailers	100	102	93	74	77	77	77	71
Manufacture of other transport equipment	100	89	62	57	45	48	50	62
Manufacture of furniture; manufacturing n.e.c.	100	99	105	107	108	97	92	103
Recycling	100	48	72	48	37	105	22	41

Source: Authors' Calculations

Table 6- Labour competitiveness index based on value added for various manufacturing activities (1383 (2004/05) -1390 (2011/12))

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Total Manufacturing	100	103	106	103	98	88	91	96
Manufacture of food products and beverages	100	111	108	101	93	98	108	117
Manufacture of tobacco products	100	144	119	65	50	55	47	44
Manufacture of textiles	100	102	108	102	101	97	108	114
Manufacture of wearing apparel; dressing and dyeing of fur	100	122	91	105	89	97	111	123
Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	100	100	102	84	66	80	86	87
Manufacture of wood and of products of wood and cork, except furniture	100	108	131	145	126	125	123	152
Manufacture of paper and paper products	100	94	79	79	84	68	66	61
Publishing, printing and reproduction of recorded media	100	120	110	101	92	106	100	143
Manufacture of coke, refined petroleum products and nuclear fuel	100	99	98	115	100	85	74	88
Manufacture of chemicals and chemical products	100	89	93	94	87	73	78	88
Manufacture of rubber and plastics products	100	127	121	107	101	100	97	120
Manufacture of other non-metallic mineral product	100	105	97	99	108	107	104	107
Manufacture of basic metals	100	99	93	99	97	57	65	68
Manufacture of fabricated metal products, except machinery and equipment	100	117	112	146	109	99	94	99
Manufacture of machinery and equipment n.e.c	100	103	113	113	108	105	116	105
Manufacture of office, accounting and computing machinery	100	101	95	92	107	93	90	82
Manufacture of electrical machinery and apparatus n.e.c.	100	121	106	104	109	109	107	109
Manufacture of radio, television and communication equipment and apparatus	100	76	59	58	62	51	54	77
Manufacture of medical, precision and optical instruments, watches and clocks	100	108	95	88	99	109	119	110
Manufacture of motor vehicles, trailers and semi-trailers	100	114	126	86	88	94	94	79
Manufacture of other transport equipment	100	82	71	46	42	43	42	37
Manufacture of furniture; manufacturing n.e.c.	100	105	101	94	95	82	91	97
Recycling	100	71	89	66	44	122	22	53

Source: Authors' Calculations

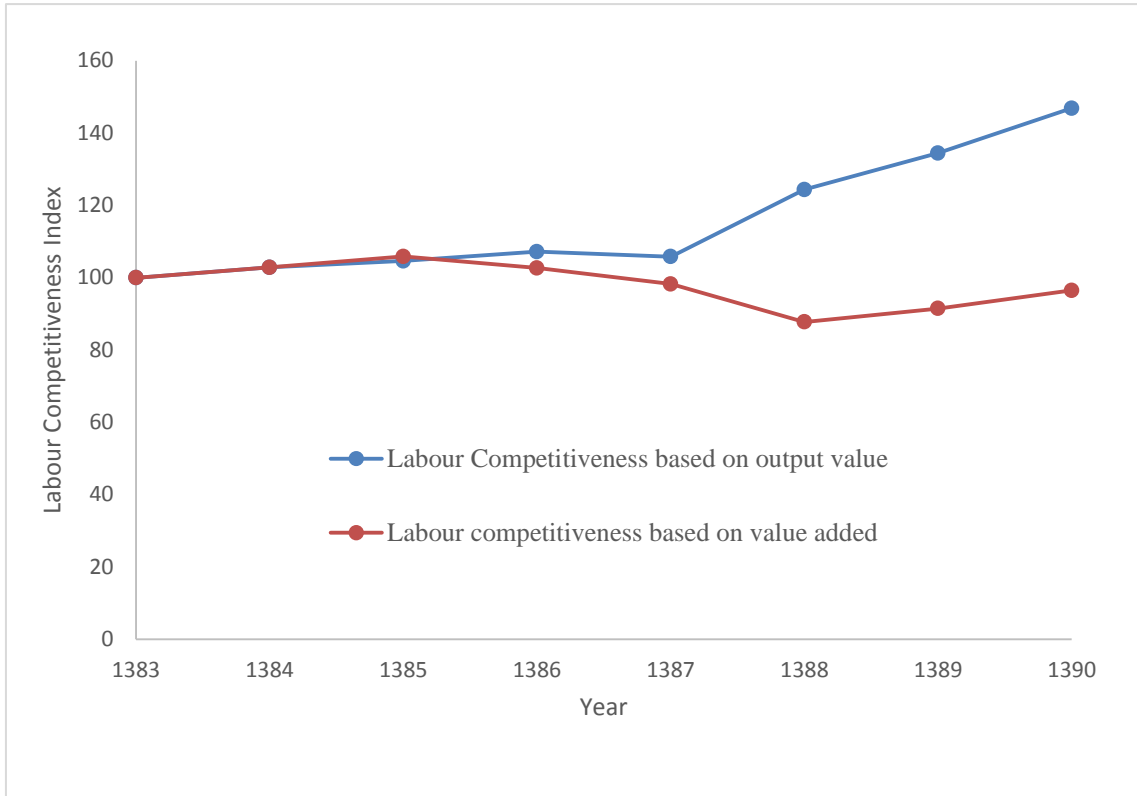


Figure 2- Percentage change of labour competitiveness based on output value and value added in establishments with 10 employees or more (Years 1383 (2004/05) -1390 (2011/12))
 Source: Authors' calculations

Table 7- Labour competitiveness index based on output value for various manufacturing activities

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Country Total	100	103	105	107	106	124	134	147
East Azerbaijan	100	96	97	105	108	129	143	169
West Azerbaijan	100	97	109	120	104	93	107	117
Ardebil	100	97	87	98	96	94	100	108
Esfahan	100	100	97	113	118	123	137	151
Alborz	100	103	101	105	123	124	136	120
Ilam	100	111	102	99	144	106	160	188
Bushehr	100	92	84	137	147	157	229	244
Tehran	100	101	97	81	80	91	100	97
Chahar Mahal and Bakhtiari	100	107	103	111	112	100	133	38
South Khorasan	100	104	109	115	117	104	90	118
Razavi Khorasan	100	111	121	140	127	113	96	129
North Khorasan	100	102	86	90	70	67	72	83
Khuzestan	100	102	131	145	127	182	174	173
Zanjan	100	117	127	111	127	123	109	107
Semnan	100	114	112	145	111	95	129	127
Sistan and Baluchestan	100	95	90	72	80	88	105	117
Fars	100	101	100	104	88	120	136	165
Qazvin	100	106	119	114	117	109	113	130
Qom	100	93	87	86	73	67	80	100
Kurdistan	100	132	140	141	118	116	143	154
Kerman	100	116	145	169	148	185	136	117
Kermanshah	100	99	82	92	120	169	115	174
Kohgiluyeh and Boyer-Ahmad	100	130	146	132	124	151	204	166
Golestan	100	112	97	115	118	98	109	136
Guilan	100	107	116	161	166	148	143	223
Lorestan	100	105	117	109	88	87	94	123
Mazandaran	100	120	108	114	112	114	114	110
Markazi	100	119	104	99	107	138	152	230
Hormozgan	100	88	86	87	89	349	349	467
Hamadan	100	117	131	127	126	116	129	145
Yazd	100	107	109	152	134	135	148	145

Source: Authors' Calculations

Table 8- Labour competitiveness index based on value added for various manufacturing activities

Year	1383 (2004/05)	1384 (2005/06)	1385 (2006/07)	1386 (2007/08)	1387 (2008/09)	1388 (2009/10)	1389 (2010/11)	1390 (2011/12)
Country Total	100	103	106	103	98	88	91	96
East Azerbaijan	100	80	69	76	69	56	57	67
West Azerbaijan	100	97	114	133	117	104	118	105
Ardebil	100	90	76	70	77	72	75	73
Esfahan	100	99	81	96	103	56	63	70
Alborz	100	98	101	102	118	120	137	112
Ilam	100	132	98	77	105	105	149	137
Bushehr	100	94	86	106	80	74	104	131
Tehran	100	109	116	90	88	91	96	82
Chahar Mahal and Bakhtiari	100	122	114	122	101	103	129	45
South Khorasan	100	105	102	94	93	88	69	75
Razavi Khorasan	100	108	113	102	91	99	93	121
North Khorasan	100	96	80	75	61	62	62	71
Khuzestan	100	101	128	133	116	104	92	90
Zanjan	100	133	135	99	123	137	118	122
Semnan	100	102	102	119	96	84	100	110
Sistan and Baluchestan	100	94	81	78	84	91	121	137
Fars	100	103	93	94	78	84	91	108
Qazvin	100	109	172	119	125	119	110	125
Qom	100	101	80	76	63	58	59	72
Kurdistan	100	105	85	102	86	112	90	85
Kerman	100	93	136	151	115	114	111	103
Kermanshah	100	90	79	89	110	135	88	155
Kohgiluyeh and Boyer-Ahmad	100	124	158	142	140	182	219	153
Golestan	100	104	97	113	108	87	90	108
Guilan	100	98	106	115	126	116	98	121
Lorestan	100	110	115	113	80	86	81	108
Mazandaran	100	129	117	116	116	110	113	109
Markazi	100	128	111	91	97	84	80	106
Hormozgan	100	88	96	118	77	69	58	81
Hamadan	100	118	111	106	111	107	109	122
Yazd	100	107	114	150	134	146	169	165

Source: Authors' calculations

Discussion and Conclusion

In this report, the indices of labour productivity and labour competitiveness have been calculated and presented for various manufacturing activities and various provinces of the country, and based on output value and value added. Labour productivity and labour competitiveness have been calculated based on fixed price and current price values respectively.

The following is a summary of the results:

- The overall trend of labour productivity and labour competitiveness graphs based on output value has been rising, while it has dropped based on value added.
- Labour productivity based on output value experiences a leap upwards in 1388 (2009/10) and 1389 (2010/11) which can be related with the rise in the ratio of intermediate value to output value. During these years, labour productivity based on value added has decreased.
- During the period 1383 (2004/05) -1390 (2011/12), the highest labour productivity based on output value in the time span 1383 (2004/05) -1390 (2011/12) belongs to “Manufacture of coke, refined petroleum products and nuclear fuel”. On the other hand, during the same period, the least labour productivity goes to “Recycling”, “Manufacture of wearing apparel; dressing and dyeing of fur”. The activities “Manufacture of coke, refined petroleum products and nuclear fuel” and “Manufacture of chemicals and chemical products” own the highest numbers in productivity based on value added; while the activities “Manufacture of wearing apparel; dressing and dyeing of fur”, “Recycling” and “Manufacture of furniture; manufacturing n.e.c.” have the least productivity in a year during the period.
- The provinces Hormozgan, Bushehr and Khuzestan have had the highest labour productivity based on output value; while the provinces Kohgiluyeh, Sistan & Baluchestan, Qom, Guilan and Ardebil have demonstrated the lowest labour productivity based on output value. Bushehr has had the highest labour productivity based on value added; while Qom, Chahar Mahal and Golestan have had the lowest labour productivity based on value added.

- There have been fluctuations in changes of labour productivity based on output value and value added for various manufacturing activities and provinces.
- The activity “Manufacture of coke, refined petroleum products and nuclear fuel” has the highest value in labour competitiveness based on output value; while the activities “Manufacture of wood and of products of wood and cork, except furniture”, “Publishing, printing and reproduction of recorded media”, “Manufacture of tobacco products” and “Recycling” each have the least labour competitiveness in a year during the period. Based on value added, “Manufacture of coke, refined petroleum products and nuclear fuel” have had the highest productivity, while the lowest goes to “Publishing, printing and reproduction of recorded media” and “Manufacture of tobacco products”
- Bushehr, Hormozgan and Khuzestan hold the highest labour competitiveness based on value added, where Kohgiluyeh, Sistan and Baluchestan, Ilam, Chahar Mahal and North Khorasan, each have demonstrated the lowest labour competitiveness based on output value in some years. At the same time, Bushehr is characterized with the highest labour competitiveness based on output value. On the other hand, Bushehr has the highest labour competitiveness based on value added, while Guilan, Sistan and Baluchestan, Razavi Khorsan, and Chahar Mahal have each demonstrated the lowest labour competitiveness based on value added in some years.

References

- [1] <http://www.nipo.gov.ir/Portal/View/Page.aspx?PageId=95920e1c-16ac-40cd-83d0-338b5e6cb7d5>
- [2] <https://www.amar.org.ir/english/Metadata/Statistical-Survey/Industry>
- [3] <http://www.cbi.ir/category/1624.aspx>