

The Comparative Analysis of Competitiveness of Human Resources of 59 Countries and Regions Based on IMD Data

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Abstract

Under the leadership of new technology revolution and knowledge economy, some factors like capital, technology, talents aggravated flow, the competition between different regions substantially became the competition of comprehensive strength based on economy and technology, which actually is manpower resources(HR) competition. HR becomes an increasingly strategy resource in modern economy development, and the most important resource as well. Whoever controlling the high quality of HR can holds an invincible position in future development. Only taking an advantage of HR, can a country or region have competitiveness in the world economic development, and it also can promote sustainable development strongly and fastly. This paper, based on the HR competitiveness theory, building a HR competitiveness evaluation system including 8 aspects and 28 targets and it used IMD data of 2011 to synthetically evaluated and cluster analysis 58 countries and regions worldwide, thus it can shows different countries and regions' current situation and character of HR competitiveness.

Keywords: Competitiveness of human resources, index system, IMD data

1. Introduction

The conception of Human resources was formally raised and definitely defined by Drucker, which published on his famous book management practice. The reason why Drucker raised this conception is that he wants to express the meaning of human things which is unable to express in tradition way. the conception means company staffs naturally possess and autonomously disposed "coordination, fusion, judgment and imagination". Meanwhile, economists began to concerned about immateriality capital factor and this factor's vital impact to economic growth. Schultz raised economic growth not only relate to the quantities of HR(labors),but also relate to the qualities of HR(education qualities like knowledge, skill, etc).Therefore, he particularly raised the conception of human capital, and the conception formed a systematic theory. The first step of countries' HR grade and rank can back to the UNDP published "human develop index "in 1990.It includes three-dimensional indexes which is population expectation life, adult literacy rate and comprehensive gross enrollment ratios, per capita GDP. After dealing with dimensionless, human development index should be calculated from indexes scores through arithmetic mean. These achievements provided helpful references to further research.

In conclusion, Measuring HR international competitiveness should not be only concern the scale of HR, but also need to concern the quality of it, should not be only concern the ability of education exploitation, but also need to concern the ability of market allocation and health guarantee, should not be only concern the develop status, but also need to emphasize the potential of system reformation. Consequently, this paper constructed HR competitiveness evaluation system, which synthetically evaluated HR competitiveness of 58 countries and districts worldwide.

2.HR competitiveness evaluation index system

2.1The design of evaluation index system

Under the international competition pattern, HR international competitiveness is a sustainable support to economic growth for a country or region's resource stocks and increments and it is a comprehensive reflect of HR education development,marketization flow allocation efficiency, social security status advanced industrial structure, institutional reform marketization,and the driving force of benefits to improve humanistic. Therefore, paper structured concluded health condition, education situation, senior HR feasibility, HR reproduction, HR output, economic environment, work environment,8 aspects,28 indexes HR competitiveness evaluation system in total results as shown in table 1.

Table 1 .HR competitiveness evaluation system

Overall performance	Secondary indexes	detail indexes
HR competitiveness	Health condition	Total health expenditure per capita
		Life expectancy at birth
		Medical assistance / Per physician
	Education situation	Total public expenditure on education per capita
		Pupil-teacher ratio (primary education)
		Illiteracy (%)
		Employee training
	Senior HR feasibility	Skilled labor
		International experience
		Competent senior managers
	HR reproduction	Entrepreneurship
		Population under 15 years (%)
	HR output	Labor force
		Labor force growth
Labor productivity (PPP)		
Labor productivity (PPP) growth		
Economic environment	High-tech exports	
	Scientific articles	
	GDP (PPP)	
Society environment	Real GDP growth	
	Employment (%)	
	Compensation levels	
Work environment	Personal security and private property rights	
	Equal opportunity	
	Justice	
	Labor regulations	
	Labor relations	
	Worker motivation	

2.2Evaluation approaches

Evaluation approaches used synthetically index method. First, use formula (1) normalize data, which makes single index with in a scope of change. second, use formula (2) aggregate 3-levels equal right to get comprehensive evaluation index R. Last, according to synthesis evaluation index R to rank 58 countries and regions worldwide and analyzing the ranking data.

$$r_{ij} = 100\Phi\left(\frac{x_{ij} - \bar{x}_{ij}}{\sigma_{ij}}\right) \tag{1}$$

$$R = \frac{1}{g} \sum_{i=1}^g \sum_{j=1}^{n_i} r_{ij} \tag{2}$$

$i = 1, \dots, g$ means secondary index, $j = 1, \dots, n_i$ means detailed indicators, n_i means detailed indicators numbers included in secondary index; $k = 1, \dots, 58$ means 58 countries or regions worldwide.

2.3 Data

Essential data rooted in World Competitiveness Yearbook 2012 from IMD Switzerland. It summarized and collated data from national organizations like world bank and self-organized global corporations, which solved the problem of data comparability to some extent.

3. Evaluation results

Due to the constructed index system, researchers who used the data of World Competitiveness Yearbook 2012 evaluated 58 countries and regions synthetically. Rank results as shown in table 2.

Table 2. the rank of 58 countries and regions HR competitiveness

country	Health condition	Education situation	Senior HR feasibility	HR reproduction	HR output	Economic environment	Social environment	Work environment	Overall rank
Argentina	35	35.27	44	52.14	28	60.14	16	48.22	28
Australia	8	72.84	12	61.72	15	51.88	22	52.79	18
Austria	3	80.52	6	65.04	10	36.52	39	51.90	20
Belgium	10	72.84	11	62.30	13	40.54	34	53.79	15
Brazil	45	27.01	51	61.63	16	82.25	2	31.72	52
Bulgaria	40	31.10	47	26.30	53	18.95	58	42.51	36
Canada	12	63.11	18	52.14	29	41.25	30	55.86	13
Chile	39	29.86	48	72.64	4	68.26	11	35.53	49
China Mainland	48	39.15	42	51.27	31	61.76	14	75.57	3
Colombia	50	25.61	52	58.81	21	76.87	5	30.19	55
Croatia	32	40.18	41	24.16	56	22.33	56	50.29	22
Czech Republic	29	45.09	38	27.26	51	27.20	51	39.90	39
Denmark	9	86.22	2	54.75	25	30.31	49	50.68	21
Estonia	34	60.70	21	46.60	40	40.77	32	34.74	50
Finland	18	75.72	8	42.60	43	35.63	40	49.89	24
France	6	51.17	31	32.50	48	33.07	45	72.87	4
Germany	11	72.97	10	60.37	18	42.26	29	76.22	2
Greece	21	45.17	37	53.82	27	23.01	55	40.66	38
Hong	26	61.29	20	76.98	1	40.98	31	49.71	25

Kong									
Hungary	38	57.20	23	52.12	30	35.04	41	37.98	45
Iceland	14	82.59	5	48.85	37	38.37	37	52.31	19
India	58	17.68	57	49.01	36	90.89	1	48.13	29
Indonesia	57	33.53	45	59.65	19	69.49	10	38.43	43
Ireland	13	69.00	14	64.89	11	40.67	33	53.78	16
Israel	23	64.09	16	67.21	8	67.96	12	47.01	31
Italy	17	53.11	25	28.45	50	33.45	43	55.32	14
Japan	16	62.87	19	11.28	58	24.34	53	63.93	5
Jordan	44	24.88	53	45.91	41	60.45	15	18.41	58
Kazakhstan	49	51.54	29	50.39	32	65.13	13	39.68	40
Korea	28	48.13	33	49.64	35	44.91	25	56.79	12
Lithuania	42	47.52	34	47.35	38	24.09	54	42.35	37
Luxembourg	4	82.68	4	74.34	2	54.61	19	44.43	33
Malaysia	52	54.53	24	70.99	5	73.46	8	50.05	23
Mexico	37	21.31	54	42.67	42	80.75	3	30.33	53
Netherlands	7	70.41	13	59.64	20	34.92	42	60.28	9
New Zealand	22	64.47	15	37.21	46	57.47	17	34.72	51
Norway	2	86.53	1	40.47	44	54.30	20	48.85	26
Peru	53	17.10	58	50.12	33	70.50	9	35.77	48
Philippines	54	28.33	49	49.68	34	79.20	4	29.23	56
Poland	36	46.61	36	54.76	24	40.32	36	45.82	32
Portugal	24	46.72	35	22.74	57	25.86	52	38.72	42
Qatar	31	64.08	17	73.21	3	30.87	47	63.12	7
Romania	43	51.94	27	54.54	26	29.46	50	36.44	47
Russia	46	31.97	46	26.70	52	43.05	27	43.65	34
Singapore	27	53.06	26	58.34	23	55.27	18	61.46	8
Slovak Republic	33	42.67	39	30.66	49	33.22	44	39.63	41
Slovenia	25	51.35	30	24.25	55	19.59	57	43.58	35
South Africa	56	18.96	55	37.57	45	75.98	7	30.30	54
Spain	19	51.63	28	24.77	54	32.37	46	59.49	11
Sweden	5	85.96	3	67.34	7	42.65	28	52.88	17
Switzerland	1	78.66	7	67.55	6	45.98	24	48.49	27
Taiwan	30	59.94	22	63.98	12	40.35	35	60.20	10
Thailand	55	42.29	40	62.11	14	50.41	23	27.31	57
Turkey	47	18.67	56	66.24	9	76.57	6	37.46	46
UAE	41	27.29	50	60.69	17	37.62	38	47.03	30
Ukraine	51	35.96	43	36.81	47	30.44	48	38.43	44
United Kingdom	20	50.99	32	47.24	39	43.61	26	63.89	6
USA	15	73.04	9	58.67	22	53.52	21	81.59	1

4. Clustering analysis

Due to synthesis score, researchers clustering analyzed 58 countries and regions worldwide. Then researchers divided them into 4 groups (Weak HR competitiveness, Feeblish HR competitiveness, relatively strong HR competitiveness, strong HR competitiveness) .results as shown in table 3:

table3. HR competitiveness classification results (1)

category	country
Weak HR competitiveness	Bulgaria, Croatia, Jordan, Portugal, Russia, Slovak Republic, Slovenia, South Africa, Ukraine
Feeblish HR competitiveness	Argentina, Brazil, Colombia, Czech Republic, Estonia, Greece, Hungary, India, Indonesia, Italy, Lithuania, Mexico, Peru, Philippines, Poland, Romania, Spain, Thailand, Turkey, UAE
relatively strong HR competitiveness	Belgium, Chile, China Mainland, Finland, France, Japan, Kazakhstan, Korea, Malaysia, New Zealand, Taiwan, United Kingdom
strong HR competitiveness	Australia, Austria, Canada, Denmark, Germany, Hong Kong, Iceland, Ireland, Israel, Luxembourg, Netherlands, Norway, Qatar, Singapore, Sweden, Switzerland, USA

(2)

category	Health condition	Education situation	Senior HR feasibility	HR reproduction	HR output	Economic environment	Social environment	Work environment	Comprehensive score
Weak HR competitiveness	39.73	35.98	30.57	36.65	38.39	33.82	18.32	17.81	31.88
Feeblish HR competitiveness	37.62	37.65	50.12	53.02	39.83	41.99	32.06	40.67	41.73
relatively strong HR competitiveness	54.66	55.10	49.34	49.05	54.74	52.19	63.66	55.45	54.07
strong HR competitiveness	72.15	73.36	61.85	44.84	55.96	58.07	83.14	76.73	65.27

5. Conclusion

After analyzing 58 countries and regions worldwide, we can see that among the strong HR competitiveness group, their synthesis score is the highest. Besides the index of HR reproduction lower than the groups of relatively strong HR competitiveness and feeblish HR competitiveness groups, other 7 secondary indexes are higher than the other 3 groups, especially health condition, education situation, social environment and work environment these 4 secondary indexes, which is much better than the other 3 groups. In the weak HR competitiveness group, secondary indicators get a feeblish scores, especially social environment and work environment get the lowest score.

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