

High quality development evaluation of western counties based on resources and environment synergy: a case study of Datong County, Qinghai Province

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Abstract: Resources and environment is the carrier and material basis of regional sustainable development. Regional high-quality development must adhere to the protection of resources and environment. Based on the investigation and empirical analysis of the current situation of industrial development in Datong County of Qinghai Province, this paper puts forward some countermeasures and suggestions to promote the coordinated high-quality development of resources, environment and industry in Datong County.

1 Introduction

High quality development is a kind of development direction and goal based on the foundation, controlling the overall situation and focusing on the future. The Fifth Plenary Session of the 19th CPC Central Committee clearly takes "high quality development" as one of the important guiding ideology of economic and social development during the 14th Five Year Plan period. In the new era, the county bears new functions, which is not only the support of rural revitalization, but also an important node to alleviate the "big city disease" and realize the coordinated development of urban and rural areas^[1]. The foundation of high-quality economic development lies in the county, the short board lies in the county, and the potential lies in the county^[2]. County economy has no unchangeable development ideas and unified development mode. It should be combined with its own regional industrial structure level, scientific and technological innovation ability and economic development level to clarify the new direction of economic development and find a suitable development mode^[3].

County economy is composed of small town economy and rural economy. It is a bridge between the city and the countryside. It is the economic region closest to the common people in real life. Therefore, the development of county economy is a major event related to the national economy and people's livelihood^[4].

2 Datong County Industrial Development and the status quo of resources and environment

2.1 Characteristic agriculture and animal husbandry realize scale management

The total agricultural output value reached 1.482 billion yuan, up 5% year on year. We will vigorously develop high-quality and characteristic agricultural and livestock products, and increase the added value of agriculture by more than 4.6%. 960 new land-saving solar greenhouses will be built. The results of agricultural scale operation are remarkable, with a moderate scale operation area of 260000 mu. 58 farmers' professional cooperatives, 49 family farms and 1200 new professional farmers were added. The qualified rate of sampling inspection of agricultural products reached 100%. By 2019, the agricultural scale operation has achieved remarkable results, with a moderate land scale operation area of 273000 mu. 26 facilities agricultural parks have been built in the county, with a production area of 42800 Mu and a production capacity of 123000 tons. The development level of vegetable industry in facilities is leading in the province; The number of large livestock was 189200, and the level of proper scale management of the whole county's seed and breeding industry was significantly improved.

2.2 Improving the quality and efficiency of County Industrial Development

In 2019, the industrial added value will reach 3.926 billion yuan, an increase of 5%. 280 new enterprises of various types were added, and 5 Enterprises above

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designated size were cultivated. In 2019, the total industrial output value of the county reached 22.902 billion yuan, an increase of 7.181 billion yuan compared with 15.721 billion yuan in 2010, and the average annual growth rate from 2016 to 2019 reached 5%. The industrial added value of the whole county reached 11.203 billion yuan, with an average annual growth of 4.35%. The proportion of the industrial added value in the national economy of the whole county has been maintained at about 60%, and the industrial status has become increasingly prominent. Although the growth rate of industrial added value has slowed down year by year, it is still higher than the national average.

2.3 The development of modern service industry highlights competitive advantages

In 2019, the GDP of Datong County will reach 11.211 billion yuan, and the output value of service industry will reach 3.499 billion yuan, with a year-on-year growth of 4.26%, accounting for 31.21% of GDP, and the contribution rate to GDP growth will be 31.92%, which optimizes the economic structure of Datong. Deepen the establishment of national e-commerce comprehensive demonstration county in rural areas, build four Township logistics distribution points, including logistics distribution center and Chengguan, 170 rural e-commerce service stations (points), healthy development of real estate, finance, insurance, intermediary and other modern service industries, and 349 financial service points in the county. In 2019, it will receive 2.959 million tourists and achieve tourism revenue of 860 million yuan, with a year-on-year growth of 15% and 26%.

3 Dynamic analysis of industrial development in Datong County

3.1 Analysis on the evolution of industrial structure

Industrial structure is the production, technology and economic connection among industries formed in the process of social reproduction. County industrial structure refers to the composition of all kinds of industries in the county economy and the relationship between the quantity and quality [5].

Table 1 GDP and GDP composition of Datong County from 2000 to 2019

particular year	GDP	Added value of primary production	Added value of secondary industry	Added value of tertiary industry	Proportion of primary production	Proportion of secondary industry	Proportion of tertiary industry
2000	21.4	2.6	14.9	3.9	12.15	69.63	18.22
2001	22	2.8	14.9	4.3	12.73	67.73	19.55
2002	24.6	2.9	16.9	4.8	11.79	68.70	19.51
2003	30.9	3.1	22.8	5	10.03	73.79	16.18

2004	36.9	3.3	28.2	5.4	8.94	76.42	14.63
2005	43.7	3.6	34.4	5.7	8.24	78.72	13.04
2006	58	3.8	47.9	6.3	6.55	82.59	10.86
2007	66.2	4.8	53.9	7.5	7.25	81.42	11.33
2008	67.5	6.6	52.3	8.6	9.78	77.48	12.74
2009	63.4	6.7	47.1	9.6	10.57	74.29	15.14
2010	80.9	8.5	61.5	10.9	10.51	76.02	13.47
2011	91.3	9.8	68.6	12.9	10.73	75.14	14.13
2012	98.3	11.2	72.2	14.9	11.39	73.45	15.16
2013	105.7	13.1	75.5	17.1	12.39	71.43	16.18
2014	106	13.8	73.7	18.5	13.02	69.53	17.45
2015	97.8	13.7	63.9	20.2	14.01	65.34	20.65
2016	86.3	13.5	45.9	26.9	15.60	53.20	31.20
2017	100.3	16.1	53	31.2	16.12	52.84	31.11
2018	107.6	17.7	56.3	33.6	16.47	52.30	31.30
2019	112.1	19.7	57.4	35.0	17.60	51.20	31.20

The proportion unit is%, and the output value unit is 100 million yuan. It can be seen from table 1 that the industrial structure of Datong County will change from 12.15:69.63:18.22 in 2000 to 17.60:51.20:31.20 in 2000-2019. The added value of primary industry in Datong county increased from 260 million yuan in 2000 to 1.97 billion yuan in 2019, with an average annual growth of 34.6%. The development of the primary industry can be divided into two stages, the first stage (2000-2006) showed a downward trend, and then an upward trend.

The added value of the secondary industry also increased rapidly, from 1.49 billion yuan in 2000 to 5.74 billion yuan in 2019, with an average annual growth of 15.01%. The development of the secondary industry can also be divided into two stages. In the first stage (2000-2006), the proportion of the added value of the secondary industry in GDP increased, and then decreased. From 2000 to 2019, the proportion of added value of the secondary industry in GDP has always been in the first place. From 2000 to 2019, the proportion of added value of the secondary industry in GDP has always been in the first place.

The added value of the tertiary industry increased from 390 million yuan in 2000 to 3.5 billion yuan in 2019, with an average annual growth rate of 41.97%. At the same time, the proportion of GDP rose from 18.22% to 31.20%. The development of the tertiary industry can also be divided into two stages. From 2000 to 2006, the proportion of the tertiary industry in GDP showed a downward trend, but fluctuated. From 2006 to 2019, the proportion of added value of the tertiary industry showed an upward trend.

3.2 Analysis of employment structure

With the development of economy, that is, with the improvement of per capita national income level, the workers first transfer from the primary industry to the secondary industry. When the per capita national income level further improves, the labor force will transfer to the tertiary industry. People call this Law of industrial structure change caused by per capita income change "petty Clark theorem" [6].

Table 2 Composition of employees in Datong County from 2000 to 2019

particular year	Employment proportion of primary industry	Employment proportion of secondary industry	Employment proportion of tertiary industry
2000	65.08%	18.27%	16.64%
2001	64.70%	17.80%	17.50%
2002	58.48%	21.03%	20.49%
2003	56.97%	22.95%	20.09%
2004	49.65%	28.63%	21.72%
2005	50.51%	29.56%	19.93%
2006	40.87%	37.36%	21.78%
2007	39.51%	37.49%	23.01%
2008	37.02%	38.22%	24.76%
2009	37.71%	39.80%	22.49%
2010	36.15%	39.72%	24.13%
2011	35.62%	36.32%	28.06%
2012	33.03%	37.97%	29.01%
2013	33.49%	37.49%	29.02%
2014	32.09%	40.67%	27.24%
2015	31.90%	38.42%	29.68%
2016	31.35%	37.67%	30.98%
2017	30.03%	38.24%	31.73%
2018	29.25%	40.13%	30.62%
2019	29.58%	40.26%	30.16%

The trend of the proportion of employees in the three industries in Datong County is different from the change of the proportion of added value, which shows that the proportion of employment in the primary industry gradually decreases, while the proportion of employment in the secondary and tertiary industries increases. The employment structure changes from primary industry > secondary industry > tertiary industry in 2000 to secondary industry > primary industry > tertiary industry in 2019.

The analysis shows that the change of industrial structure in Datong County from 2000 to 2019 conforms to the "petty Clark" theorem. With the further improvement of per capita national income in Datong County, the proportion of employment in the primary industry gradually decreases, and the labor force transfers to the secondary and tertiary industries.

3.3 Analysis on the change of comparative labor productivity

Kuznets summed up: with economic growth, the relative national income of the primary industry is in constant decline; the relative national income proportion of the secondary industry is generally rising, but in the late industrialization period, especially in the post industrialization period, the relative national income of the secondary industry will decline in varying degrees; the relative national income of the tertiary industry is in continuous growth Rising trend [7].

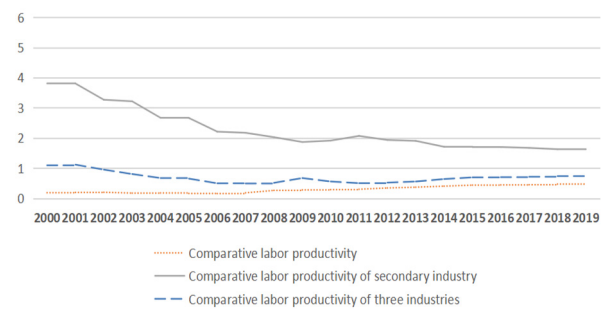


Fig.1. the change of labor productivity of Datong County from 2000 to 2019

As can be seen from Figure 1, the comparative labor productivity of the primary industry in Datong County from 2000 to 2019 is less than 1, the comparative labor productivity of the secondary industry is greater than 1, the comparative labor productivity of the tertiary industry is greater than 1 from 2000 to 2001, but the comparative labor productivity is less than 1. Overall, the comparative labor productivity of the second industry is the highest, followed by the third industry, and the first industry is the lowest. And the secondary and tertiary industries are on the decline, while the primary industry is on the rise. The reason why the tertiary industry does not conform to Kuznets' rule of thumb is that in the tertiary industry, the traditional service industry dominated by wholesale and retail trade and catering industry still occupies a dominant position. These industries absorb more employment, but their output value is not as high as modern service industry.

To sum up, the industrial structure of Datong County from 2000 to 2019 does not show the law described by Kuznets.

3.4 Analysis of urban and rural dual structure

The urban-rural dual economic structure generally refers to the coexistence of urban economy characterized by socialized production and rural economy characterized by small-scale production. Binary contrast coefficient is one of the main measurement indexes of binary economic structure. The larger the binary contrast coefficient is, the smaller the difference between the two sectors is; on the contrary, the greater the difference between the two sectors is. Theoretically, the maximum value of binary contrast coefficient is 1, but it is usually less than 1.

Calculation formula:

$$B_1 = \frac{G_1 / G}{L_1 / L} \quad (1)$$

$$B_2 = \frac{G_2 / G}{L_2 / L} \quad (2)$$

$$R_1 = \frac{B_1}{B_2} \quad (3)$$

Where G is the total output value, L is the total labor force, G₁ is the output value of agricultural sector, G₂ is the output value of non-agricultural sector, L₁ is the labor force of agricultural sector, L₂ is the labor force of

non-agricultural sector. B_1B_2 is the comparative labor productivity of the two sectors, and R_1 is the binary contrast coefficient.

Table 3 Binary contrast coefficient of Datong County from 2000 to 2019

particular year	B_1	B_2	R_1
2000	0.1867	2.5161	0.0742
2001	0.1967	2.4726	0.0796
2002	0.2016	2.1244	0.0949
2003	0.1761	2.0906	0.0842
2004	0.1801	1.8084	0.0996
2005	0.1631	1.8541	0.0880
2006	0.1603	1.5803	0.1015
2007	0.1835	1.5333	0.1197
2008	0.2641	1.4326	0.1844
2009	0.2802	1.4358	0.1951
2010	0.2906	1.4016	0.2074
2011	0.3014	1.3865	0.2174
2012	0.3450	1.3230	0.2608
2013	0.3700	1.3173	0.2809
2014	0.4057	1.2808	0.3167
2015	0.4392	1.2627	0.3478
2016	0.4476	1.2587	0.3556
2017	0.4665	1.2298	0.3793
2018	0.4702	1.2234	0.3843
2019	0.4712	1.1963	0.3939

It can be seen from table 3 that the dualistic contrast coefficient of Datong County is increasing in general and decreasing in some years, which indicates that with the implementation of the urban-rural overall planning policy, the dualistic economic structure of Datong County is constantly improving, but from the numerical point of view, the dualistic contrast coefficient of Datong County is always less than 0.5, which indicates that the dualistic structure of Datong County is still very serious and the development of urbanization and industrialization is strict. The emphasis is not coordinated.

4 Conclusions and recommendations

4.1 Conclusions

Based on the dynamic analysis of the county economy in Datong County, this paper finds that the GDP of the three industries is increasing year by year, the labor structure is transferring from the primary industry to the secondary and tertiary industries, the industrial structure of Datong county does not present the Kuznets law, and the dual structure is serious, and the development of urbanization and industrialization is seriously uncoordinated.

4.2 Suggestions

4.2.1 Optimizing agricultural structure and protecting agricultural production resources

We should further optimize the agricultural structure, stabilize grain production, tap the potential of grain production, promote new varieties of grain crops with

high yield, high quality and high efficiency, and create demonstration projects with high yield, so as to improve the yield per unit area and ensure the steady growth of grain production. We should develop animal husbandry in agricultural areas, focus on the development of ecological recycling animal husbandry, accelerate the large-scale and intensive development, and improve the production capacity and market supply capacity of meat, eggs, milk and other animal products.

4.2.2 Speed up industrial upgrading and develop recycling industry

Accelerate the construction of environmental protection science and Technology Industrial Park, vigorously develop circular economy, and strive to build ecological industry. Efforts should be made to foster large enterprise groups with independent intellectual property rights, well-known brands, strong core competitiveness and obvious leading role. Support industry leading enterprises and advantageous backbone enterprises to become bigger and stronger through technological transformation, merger and reorganization, joint venture and cooperation, and give full play to the advantages of large enterprises and groups in terms of talents, technology, capital and brand.

4.2.3 Developing modern service industry to reduce the pressure on resources and environment

Actively develop the county life, productive service industry, and promote the development of modern service industry in the county. We should vigorously develop modern finance, science and technology services, transportation and other producer services, scientifically set up a statistical and evaluation index system, and enhance the function of producer services. We should reasonably set up the index system for the development of life service industry, and speed up the development of tourism industry, cultural industry, sports industry and other industries under the guidance of informatization, networking, quality and convenience.

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