Oman's Economic Diversification cum Trade Structure

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Abstract

In line with Oman's National Programme for Enhancing Economic Diversification 'Tanfeedh" which has received the Royal approval and has been endorsed by the Royal Decree 1/2016, this paper attempts to analyze the potential success of economic diversification of Oman by adopting measurements of trade concentration profile as used in Pitigala (2005). Tanfeedh's mandate is to implement the ninth five-year plan (2016-2020), which calls for oil's contribution to GDP to decrease to 26 per cent. The government has chosen five sectors with which it sees its best potential, namely: manufacturing, transport and logistics, tourism, fisheries and mining. This paper investigates whether or not Oman possesses the necessary trade structure by analyzing her dynamic exports between the years 1990 to 2015. In addition, the Herfindahl-Hirschman concentration index is also being employed to measure trade concentration for selected years for Oman and other GCC countries as a comparison. The advantage of using these measurements at the disaggregated level is that they allow for a more in-depth analysis at the product level that could be used to gauge the prospects for the success of economic diversification. The findings of this paper provide useful information for the formulation of strategies that would enhance Oman's economic diversification programme "Tanfeedh". It also serves additional information as to whether it needs to realign the existing policies in order to promote a more favorable environment and sustainable development in Oman.

Keywords: *Economic diversification, Oman, Trade concentration, Trade structure, GCC countries*

1. Introduction

Oman has been relying on its primary exports of oil and gas representing 62.7% of its total exports and 51% of its GDP to generate income.1 However, the falling oil prices resulted in export losses in 2015 amounting to approximately $300bn or 21% of GDP in the Gulf. With 5.5 billion barrels of oil reserves, Oman ranks only seventh in the Middle East and 21st in the world for proved oil reserves but thanks to enhanced oil recovery techniques, it has been producing at a higher level. However, the Omani government plans to cut its reliance on oil exports and has set an ambitious goal of reducing it to 9% of its GDP by 2020 from current 37.2%.[2]

[1] http://atlas.media.mit.edu/en/profile/country/omn/

[2] http://globalriskinsights.com/2015/02/oman-path-towards-economic-diversification/

In order to reduce its over-reliance on oil and gas, Oman initiated "Tanfeedh," a national programme for enhancing economic diversification on 18 September 2016. Tanfeedh is a national initiative, which is part of the 9th Five-Year Development Plan (2016-2020), and has been launched in collaboration with the Malaysian government's "Performance Management and Delivery Unit (PEMANDU)" in order to build upon the achievements of the previous plans, with a focus on targeted sectors. These sectors as identified by the Royal Decree (1/2016) are manufacturing, tourism, transport and logistics, mining, and fisheries. The programme focuses on raising the contribution of these sectors to the Sultanate's Gross Domestic Product (GDP), increasing investment in these sectors, and creating more job opportunities.

Tanfeedh, which means 'implementation', outlines a detailed roadmap and a working mechanism to achieve the goals of the 9th five-year plan, and overcoming the obstacles facing economic diversification. It looks into the necessary amendments to the laws and regulations, identifying priorities, providing tools to secure the necessary project financing, agreement on the deliverables and responsibilities and timelines, and aiming to increase the GDP, private sector investments by 80 per cent, providing job opportunities for Omanis in the targeted sectors. It works on the formulation of a clear mechanism, with specific timetable and indicators to measure performance.

Tanfeedh is unique in the sense that its formulation involves the participation of a diverse group of around 300 people—from the private sector and government, nationals, expatriates—to the public. The discussions took place for six weeks from September 18 to October 26, 2016, in workshops called 'labs' that focus on the economy. They are meant to identify challenges from the people involved in the sectors themselves to come up with workable and practical solutions to achieving the targets. Tanfeedh is neither a new plan nor a strategy; rather it is an accelerator to create a climate of ease of doing business in the country. It paves the way towards reduction in bureaucracy and creating a better understanding between the government and private sector, and the civil society.

As mentioned earlier, the government has chosen five sectors with which it sees its best potential, namely: manufacturing, transport and logistics, tourism, fisheries and mining. This paper investigates whether or not Oman possesses the necessary trade structure by analyzing her dynamic exports between the years 1990 to 2015. In addition, the Herfindahl-Hirschman concentration index is also employed to measure trade concentration for selected years for Oman and other GCC countries as a comparison. The advantage of using these measurements at the disaggregated level is that they allow for a more in-depth analysis at the product level that could be used to gauge the prospects for the success of economic diversification. The findings of this paper provide useful information for the formulation of strategies, which would enhance Oman's economic diversification programme. It also serves additional information as to whether it needs to realign the existing policies in order to promote a more favorable environment and sustainable development in Oman.

This paper consists of five sections. Following a brief introduction, the next section provides a survey of literature between export concentration and income instability of cross-sectional analysis in analyzing intra-trade activities, trade concentration and trade divergence. In section 3, the empirical framework and data used in this study are explained in detail. Section 4 presents the analysis and

discussion of the findings. Lastly, the final section provides a summary of the main results and some concluding remarks.

2. Literature Review

Empirical studies have looked at the relationship between export concentration and income instability of a country. Massell (1964), in a cross section analysis of 36 countries, came up with some interesting findings by concluding that there was a clear relationship between instability of export earnings and concentration of exports. However, he stressed, "Neither diversification nor the degree of industrialization appears to explain much of the variation in export instability", and elaborated further "diversification may be beneficial in other ways, for example, in providing the economy with greater flexibility in adapting the structure of its production to changes in market conditions" (Massell, 1964, p.62).

Another cross sectional analysis conducted by Soutar (1977) concluded that trade concentration was one of the significant variables in explaining export instability in 48 less developed countries from 1957 to 1969. Other significant explanatory variables that explained export instability were geographic concentration and petroleum product index. In a related work, Yeats (1998) reported that studies have shown that countries with highly concentrated exports may experience a relatively high degree of export earning instability that could reduce a country's ability to maintain the financial commitment required by regional arrangements. A similar study conducted by Hamid (2010) on Malaysia investigated the magnitude of geographic concentration and commodity concentration over the period of 1970 to 2003. The results indicated that commodity concentration appeared as a significant variable in explaining the export earnings instability for Malaysia during these 34 years. The commonly used method for measuring commodity concentration is based on the calculation of Gini coefficient and the modified version called Gini-Hirschman coefficient of concentration. However, Low, Olarreaga and Suarez (1998) used three different concentration indices namely Herfindal-Hirschman concentration index, Theil-entropy coefficient and Mean Logarithm deviation to investigate if globalization has affected the concentration indices. Their findings indicated, among others, that although world trade has increased overtime, globalization does not affect the concentration indices. According to Kali, Mendez and Reyes (2007), empirical measures of trade characteristics or trade structures are limited. In analyzing trade structure and economic growth, they used trade dispersion among trading partners as one of the measures of trade structure. As in Low, Olarreaga and Suarez (1998), Kali, Mendez and Reyes (2007) constructed a Herfindahl-Hirschman concentration index of trade for all countries to measure trade dispersion among all trading partners. A low value of the index indicates low concentration or high dispersion, and vice versa. The study found trade concentration to be positively correlated with growth for all countries, but the effect is found to be more pronounced for poor countries.

In a separate study, Ishido (2004) used a less rigorous method by applying the coefficient of variation as a proxy to measure manufacturing capability cum trade divergence in selected Asian economies. Ishido found that in these countries export became more divergent when more technology-enhancing economic activities were undertaken within an economy.

3. Data Description and Methodology

The statistical analysis uses trade data from Oman for the years 1990, 2003, 2007, 2012, 2013, 2014 and 2015. Due to the unavailability of data for most of the years, this study is only confined to the seven selected years. Values of Oman's exports to the rest of the world (ROW) based on SITC Revision 4 at 4-digit level were extracted from the UNCOMTRADE database. The SITC 4-digit level is selected since it is the highest level of disaggregation for which comparisons can be carried out. This is due to the fact that consistent reporting of data is unattainable at further disaggregated levels, such as the SITC 6- to 8-digit levels (Pitigala, 2005).

In order to investigate the potential success of economic diversification of Oman over the years, the disaggregated individual product at 4-digit level is divided by total exports to the rest of the world. These values are used to calculate the share in the growth of total exports to the rest of the world for two time periods, namely between the intervals of 1990-2003 and 2003-2015. The two periods with intervals of 13 to 14-year gap are chosen to examine whether Oman possesses the characteristics, which are in line with Oman's National Programme for Enhancing Economic Diversifation 'Tandfeedh' as envisaged by the Royal Decree 1/2016.

The share in the growth of total exports of each commodity i for Oman between 1990 and 2003 can be computed as:

$$S_i = \frac{\left(\frac{X_i^{2003} - X_i^{1990}}{\sum_{i=1}^{n} X_i^{1990}} \right)}{\left(\frac{\sum_{i=1}^{n} X_i^{2003} - \sum_{i=1}^{n} X_i^{1990}}{\sum_{i=1}^{n} X_i^{1990}} \right)} \tag{1}$$

which can be simplified to:

$$S_i = \frac{\left(X_i^{2003} - X_i^{1990} \right)}{\left(\sum_{i=1}^{n} X_i^{2003} - \sum_{i=1}^{n} X_i^{1990} \right)} \tag{2}$$

where X_i^{1990} and X_i^{2003} are export of commodity i of Oman for 1990 and 2003, respectively; $\sum_{i=1}^{n} X_i^{1990}$ and $\sum_{i=1}^{n} X_i^{2003}$ are total exports of Oman for 1990 and 2003, respectively.

Similarly, the share in the growth of total exports of each commodity i for Oman between 2003 and 2015 is written as:

$$S_i = \frac{\left(X_i^{2015} - X_i^{2003}\right)}{\left(\sum_{i=1}^{n} X_i^{2015} - \sum_{i=1}^{n} X_i^{2003}\right)} \quad (3)$$

The share in equation (1) is derived based on the commutative property of subtraction. After simplification and division, the shares of growth is be written as:

$1 = S_1 + S_2 + \cdots + S_n$, or $1 = \sum_{i=1}^{n} S_i$.

Collectively, the shares of growth computed are used to identify the dynamic exports of Oman, where dynamic exports are defined as products, which accounted for a significant amount of total export growth to the rest of the world between 1990-2003 and 2003-2015. Pitigala (2005) identifies products that account for 75% of total export growth (which exclude marginal products that might not be reported on regular basis) as dynamic exports. For comparison purposes, apart from using the 75% cut-off point as in Pitigala (2005), this study also employs a cut-off point of 95% to identify dynamic exports. The concentration of exports for Oman at the 75% (or 95%) cut-off point is measured by the number of products accounting for 75% (or 95%) of export growth to the rest of the world between the years 1990-2003 and 2003-2015.

In order to verify the results of export concentration using the above method, the Herfindahl-Hirschman concentration index ($HHCI$) is also employed. The $HHCI_t$ for Oman's exports to the rest of the world at year t is computed as follows:

$$HHCI_t = \sum_{i=0}^{9} (Z_i)^2 \text{ , and } Z_i = \frac{X_i}{\sum_{i=0}^{9} X_i}$$

where $i = 0,\ldots,9$; i is the SITC Revision 4 at 4-digit level of exports, and $t = 1990, 2003, 2007, 2012, 2013, 2014 \text{ and } 2015$. The $HHCI$ increases with the level of concentration, reaching a value of 1 to indicate a maximum level of concentration and a value close to 0 to indicate a low level of concentration.

4. Analysis and Discussion

In order to evaluate whether Oman possesses certain fundamental conditions to be successful in its economic diversification effort, this section first provides a general description of the trade structure of Oman. Based on Hamid et al. (2008), an analysis of product-level trade data in 1990 and 2003 showed a relatively high export shares in minerals and fuels (code 3) of 92.24% and 81.57%, respectively (vide Table 1, page 49).

Table 1: Product composition of GCC Countries to the Rest of the World (2015)

	Food & live animals	Beverages & tobacco	Crude materials	Minerals & fuels	Animal & Vegetable fat
Code	0	1	2	3	4
Oman	3.594%	0.539%	1.771%	61.998%	0.638%
Saudi	1.594%	0.110%	0.533%	78.866%	0.121%
UAE	0.939%	0.130%	0.636%	19.149%	0.089%
Bahrain	2.605%	0.197%	4.431%	50.350%	0.008%
Kuwait	0.848%	0.081%	0.264%	89.094%	0.013%
Qatar	0.203%	0.003%	0.712%	82.767%	0.003%
	Chemicals & materials	Manufactured goods	Machinery & transport equipment	Miscellaneous manufactures	Other commodities
Code	5	6	7	8	9
Oman	8.406%	6.942%	2.250%	0.648%	13.214%
Saudi	15.240%	2.526%	0.546%	0.310%	0.153%
UAE	1.494%	3.603%	0.811%	2.488%	70.660%
Bahrain	7.793%	28.508%	1.964%	4.095%	0.049%
Kuwait	5.041%	0.646%	2.685%	0.933%	0.396%
Qatar	1.227%	0.936%	2.592%	0.358%	11.202%

However based on the recent analysis as displayed in Table 1 suggests that the shares of this category is showing a decreasing trend with 61.998% recorded in 2015. If similar comparison to be made with other GCC countries, we could observe that Oman is the third country that registered a lower share of commodity of code 3 with UAE and Bahrain leading the way with 19.149% and 50.35%, respectively. It is not a surprise to see that minerals and fuels have been found to be the dominating sector in Oman exports share to the rest of the world as Oman is known to be oil-exporting country. Nevertheless, this sector showed a declining share, which indicate there is effort from the Sultanate of Oman to diversify the economy over the years.

Table 2 presents the profile of dynamic exports of Oman at the SITC 4-digit classification level between 1990 and 2003. Oman records almost one-half (49.86 percent) share of its exports from crude petroleum and oils in 2003. As shown in Table 2, only one sector, namely minerals and fuels (SITC 3) is the dominating sector in Oman's exports to the rest of the world with crude petroleum and oils (3330) and petroleum gases and others (3413) contributing to more than 70% of the extra-regional exports. Based on the 75 percent cut-off point, the figures suggest that Oman does not show the likelihood for greater diversification of exports with only two products constitute its dynamic exports to the rest of the world. However, based on the 95 percent cut-off point for dynamic exports, the number of items increased to 34 in total.

Table 2: Profile of Dynamic Exports for Oman (1990-2003) to ROW					
Code	**Product Description**	**Exports to the ROW 2003 in $1000**	**Share in Total Export 2003**	**Share of Growth from Total Growth 1990-2003**	**Cum share of growth**
Total		$11,048,146	100	100	
3330	Crude petroleum and oils obtained from bituminous materials	$7,762,000	70.26	49.86	49.86
3413	Petroleum gases and other gaseous hydrocarbons, nes, liquefied	$1,250,419	11.32	21.82	71.69
7810	Passenger motor vehicles (excluding buses)	$380,757	3.45	5.21	76.89
1222	Cigarettes	$212,431	1.92	3.69	80.58
7849	Other parts and accessories, for vehicles of headings 722, 781-783	$121,325	1.10	1.55	82.14
6534	Fabrics, woven, less 85% of discontinuous synthetic fibres	$82,205	0.74	1.43	83.57
9310	Special transactions, commodity not classified according to class	$95,583	0.87	1.43	85.00
7821	Motor vehicles for the transport of goods or materials	$82,597	0.75	1.41	86.41
0341	Fish, fresh or chilled, excluding fillet	$44,920	0.41	0.78	87.19
7731	Insulated electric wire, cable, bars, etc	$41,944	0.38	0.72	87.91
6612	Cement	$38,768	0.35	0.68	88.59
7649	Parts, nes of and accessories for apparatus falling in heading 76	$38,333	0.35	0.67	89.25
8459	-- other, clothing accessories, non-elastic, knitted or crocheted	$42,692	0.39	0.53	89.78
8472	Clothing accessories, knitted or crocheted, nes	$28,446	0.26	0.50	90.28
6732	Bars, rods (not wire rod), from iron or steel; hollow mining drill	$25,201	0.23	0.44	90.72
0460	Meal and flour of wheat and flour of meslin	$23,986	0.22	0.42	91.13
6783	Other tubes and pipes, of iron or steel	$24,333	0.22	0.40	91.53
7831	Public service type passenger motor vehicles	$22,591	0.20	0.38	91.92
0224	Milk and cream, preserved, concentrated or sweetened	$22,325	0.20	0.37	92.29
8219	Other furniture and parts thereof, nes	$20,026	0.18	0.35	92.63
0484	Bakery products	$18,842	0.17	0.29	92.92
7239	Parts, nes of machinery and equipment of headings 72341 to 72346	$27,972	0.25	0.29	93.21
6624	Non-refractory ceramic bricks, tiles, pipes and similar products	$15,375	0.14	0.27	93.48
6353	Builders` carpentry and joinery (including prefabricated)	$13,938	0.13	0.24	93.72
5833	Polystyrene and its copolymers	$12,688	0.11	0.22	93.94
7415	Air conditioning machines and parts thereof, nes	$13,168	0.12	0.21	94.15
0012	Sheep and goats, live	$13,174	0.12	0.18	94.33
8510	Footwear	$11,603	0.11	0.18	94.50
2734	Pebbles, gravel, crushed or broken stone, etc	$10,093	0.09	0.17	94.67
7781	Batteries and electric accumulators, and parts thereof, nes	$10,327	0.09	0.17	94.84
6613	Building and monumental stone, worked, and articles thereof	$10,254	0.09	0.17	95.01
6912	Structures and parts of, of aluminium; plates, rods, and the like	$11,223	0.10	0.16	95.17
0741	Tea	$10,051	0.09	0.16	95.33
0980	Edible products and preparations, nes	$9,541	0.09	0.16	95.49

Table 3: Profile of Dynamic Exports for Oman (2003-2015) to ROW					
Code	**Product Description**	**Exports to the ROW 2015 in $1000**	**Share in Total Export 2015**	**Share of Growth from Total Growth 2003-2015**	**Cum share of growth**
Total	All Commodities	31926516.34	100	100	
3330	Crude petroleum and oils obtained from bituminous materials	17425800	54.58	46.29	46.29
9310	Special transactions, commodity not classified according to class	4215413.298	13.20	19.73	66.02
3346	Petroleum oils & oils obtained from bituminous materials	2256037.741	7.07	10.81	76.82
5621	Mineral or chemical fertilizers, nitrogenous	683571.481	2.14	3.27	80.10
6841	Aluminium and aluminium alloys, unwrought	621032.845	1.95	2.97	83.07
5121	Acyclic monohydric alcohols	543830.185	1.70	2.60	85.68
5112	Cyclic hydrocarbons	417418.306	1.31	2.00	87.68
7731	Insulated electric wire, cable, bars, etc.	343960.466	1.08	1.45	89.12
0222	Milk and cream, concentrated or sweetened	272441.132	0.85	1.30	90.43
5822	Other plates, sheets, film, foil	256858.277	0.80	1.23	91.66
6726	Semi-finished products of iron or n	244984.447	0.77	1.17	92.83
2816	Iron ore agglomerates (sinters)	237082.746	0.74	1.14	93.97
5751	Polymers of propylene	233547.179	0.73	1.12	95.08

Table 3 presents the profile of dynamic exports of Oman between 2003 and 2015. As expected, crude petroleum and oils (3330) is still dominating Oman's share of exports to the rest of the world in 2015 with 46.3 percent derived from this product. However, this sector shows a small decline of 3.6 percent share in exports to the rest of the world between 2003 and 2015. The findings also show that based on the 75 percent cut-off point, three products constitute its dynamic exports to the rest of the world but the number of items that fall into 95 percent cut-off point reduces from 34 to 13 between 2003 and 2015. These figures suggest that the trend of trade for Oman is moving towards concentrating on a lesser number of products and the existing trade structure may not facilitate the economic diversification programme as envisaged in 'Tanfeedh'.

Table 4: Herfindahl-Hirschman Concentration Index for Exports to ROW

Year	Oman	Bahrain	Kuwait	UAE	Qatar	Saudi
2013	0.69	0.41	0.89	0.41	0.79	0.78
2014	0.71	0.40	0.91	0.39	0.79	0.74
2015	0.42	0.35	0.80	0.54	0.70	0.65

Table 4 provides a summary of the Herfindahl-Hirschman Concentration Index (HHCI) for Oman and other GCC countries for the years 2013, 2014 and 2015. Based on these three years, it could be observed that the HHCI for Oman supports the results for export concentration in Table 2 and 3. Based on the availability of data for Oman for additional two years in 2007 and 2012, it recorded a high HHCI in 2007 with index 0.80 indicating a high level of export concentration but the index fluctuates over the years and shows a declining trend over the years with 0.71 in 2012, 0.69 in 2013, going up slightly with 0.71 in 2014 and finally 0.42 in 2015. Bahrain is found

to have the lowest concentration of exports to the rest of the world with an HHCI value of 0.41 in 2013 and 0.35 in 2015. Except UAE, all other GCC countries, to a certain extent, show a declining trend of HHCI over these three years. UAE on the other hand, initially shows a low concentration of exports of 0.41 in 2013 but exports become slightly concentrated in 2015 with an HHCI of 0.54.

5. Conclusion

This paper attempts to investigate whether or not Oman possesses the prerequisites to enable a successful diversification of trade as envisaged by Oman's National Programme which also known as 'Tanfeedh'. As mentioned earlier, it has been argued that the ability to increase diversification of exports is contingent upon the degree to which Oman's dynamic exports and the range of products she is capable of exporting and importing. Oman's ability to export a wide range of diversified goods is considered a positive factor, while concentration of exports is considered a limiting factor to the prospects of achieving this goal. Hence, this paper attempts to examine the trade of Oman by analyzing her dynamic exports trade profile between 1990-2003 and 2003-2015 as well as trade concentration index for the years 2013, 2014 and 2015.

In general, the findings indicate that the existing trade structure may not facilitate Oman's National Programme for Enhancing Economic Diversification. It does not appear to be encouraging since only a small number of products constitute Oman's dynamic exports to the rest of the world when two intervals of time period are taken, specifically in 1990-2003 and 2003-2015. The share of crude petroleum and oils (Code 3330) contribution to total GDP in 2015 is 54.58%. However, evidence from the Herfindahl-Hirschman Concentration Index shows an encouraging trend with the index decreasing over a 25-year period from 0.85 in 1990 (as calculated by Hamid et al., 2008, vide Table 8, page 66) to 0.42 in 2015.

Nevertheless, based on these findings, Tanfeedh's mandate, which calls for oil's contribution to GDP to decrease to 26 percent by the year 2020, seems to be a tall order. This goal is very unlikely to be achieved unless drastic measures and concerted efforts are undertaken to realign the existing policies by providing more incentives to foreign direct investment and by promoting a more favorable pro-trade environment. Oman's strategic location on the Strait of Hormuz gives her a competitive advantage on establishing itself as a global logistics center. It is in line with the sultanate's selection of five sectors, which it sees has the best potential to flourish, namely: manufacturing, transport and logistics tourism, fisheries and mining. Oman is also promoting private sector participation, which could reduce her public spending with economic diversification efforts to keep growth on a positive trajectory.

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