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research

Is there a relationship between gin exports and tourist arrivals to South Africa and the Western Cape from REO countries?

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1. INTRODUCTION

Recent research has been conducted to identify Realistic Export Opportunities (REO) for gin exports from South Africa and the Western Cape using the Decision Support Model (DSM). The following REO markets have been identified as having the greatest opportunity for exports of gin:

Table 1: REO markets for gin exports from South Africa

Rank	Country	Halal reduced potential to Target Market (USDm)	Rank	Country	Halal reduced potential to Target Market (USDm)
1	Spain	22.47	21	Hungary	0.52
2	Italy	8.81	22	Taipei - Taiwan (Province of China)	0.48
3	Netherlands	7.84	23	Bulgaria	0.43
4	Belgium-Luxembourg	6.90	24	Korea (South - R)	0.40
5	United Kingdom	4.93	25	Malta	0.34
6	Switzerland	2.93	26	Benin	0.30
7	New Zealand	2.11	27	Lithuania	0.26
8	Latvia	1.59	28	Belarus	0.16
9	Russian Federation	1.54	29	Bosnia and Herzegovina	0.16
10	Czech Republic	1.40	30	Cambodia	0.16
11	China	1.11	31	Serbia	0.15
12	Turkey	1.02	32	Macedonia (Former Yugoslav Rep.)	0.12
13	Croatia	1.00	33	Georgia	0.11
14	Slovenia	0.82	34	Montenegro	0.11
15	Romania	0.72	35	Djibouti	0.08
16	Poland	0.70	36	Albania	0.08
17	Cyprus	0.69	37	Uruguay	0.08
18	Slovakia	0.63	38	eSwatini (Swaziland)	0.02
19	Israel	0.53	39	Botswana	0.01
20	Hong Kong (SARC)	0.53	40	Madagascar	0.00
Total REO					**72.26**

Source: DSM, 2021

Further to this, the purpose of this subsequent research is to assess whether a relationship can be summised between gin exports from South Africa and the Western Cape (to REO markets presented above) and tourists visiting South Africa and the Western Cape from these REO markets identified.

2. DATA AND METHODOLOGY

Gin export data to the various REO markets have been sourced from Quantec for the period 2013 to 2019 and tourist arrival data to South Africa and the Western Cape have been sourced from Wesgro. Given the limitations in the tourist arrival data, this analysis will only focus on the top five REO markets identified above.

Furthermore, to assess whether a relationship exists between gin exports and tourist arrivals, the Spearman's test will be utilised using a statistical programme called Stata. The Spearman's correlation is a non-parametric test which measures the strength and direction between two variables. The Spearman's correlation generates a coefficient called the Pearson's correlation coefficient. The mechanic of the metric attempts to draw a line of best fit through the data of two variables and the Peason's correlation informs how far away all these data points are to the line of best fit. Moreover, the coefficient can range -1 (for a perfect negative relationship) to +1 (for a perfect positive relationship). A value of 0 indicates no relationship between the variables. Moreover, the Spearmans correlation is a useful test of correlation when the Pearson's correlation cannot be run due to violations of normality and non-linear relationship between two variables.

The Spearmans correlation provides output as detailed below. The first row of output provides the number of observations which is equivalent to the number of years of data analysed. i.e. number of observations is equal to 7 which covers the period 2013 to 2019. The second row of in the output shows the Spearmans correlation coefficient (Spearmans rho) which is the statistical measure of the correlation between two variables. As mentioned, a positive coefficient indicated a positive relationship between two variables and the closer this value is to +1, the stronger the positive relationship. This holds true for a negative coefficient as well. The Spearmans correlation test also provides a p-value (Prob> [t]) which is a measure of the statistical significance of the test at the 5% level of significance. Therefore, a p-value <0.05 is indicative of a strong statistical level of significance of the relationship identified by the Spearmans correlation coefficient. The following section analyses the Spearmans correlation coefficient output for gin exports and tourists arrivals from 2013 to 2019 from South Africa and Western Cape to REO countries identified above.

3. ANALYSIS

3.1 Spearmans correlation coefficient: South Africa, Western Cape and Spain

Box 1 below shows that there is a strong positive relationship between South African exports of gin to Spain and tourist arrivals from Spain to South Africa over the period 2013 to 2019. Moreover, this result is statistically significant and thus we can conclude that an increase in tourist arrivals from Spain to South Africa does seem to increase the value of gin exports to Spain.

Box 2 shows that there is a weak positive relationship between Western Cape exports of gin to Spain and tourist arrivals from Spain to the Western Cape over the period 2013 to 2019. Moreover, this result is not statistically significant due to its large p-value being greater than the 5% significance level (35.53%). Thus, the result is inconclusive.

Box 1: South Africa

Number of obs = 7

Spearman's rho = 0.9190

Test of Ho: Exp_SA_Spain and SAT_Spain are independent

Prob > |t| = 0.0034

Box 2: Western Cape

Number of obs = 7

Spearman's rho = 0.4144

Test of Ho: Exp_SA_Spain and WCT_Spain are independent

Prob > |t| = 0.3553

3.2 Spearmans correlation coefficient: South Africa, Western Cape and Italy

Box 3 below shows that there is a weak positive relationship between South African exports of gin to Italy and tourist arrivals from Italy to South Africa over the period 2013 to 2019. However, this result is statistically insignificant and thus we cannot conclude that an increase in tourist arrivals from Italy to South Africa increase the value of gin exports to Italy.

Box 4 shows that there is a weak negative relationship between Western Cape exports of gin to Italy and tourist arrivals from Italy to the Western Cape over the period 2013 to 2019. However, this result is not statistically significant due to its large p-value being greater than the 5% significance level (26.14%). Thus, the result is inconclusive.

Box 3: South Africa

Number of obs = 7

Spearman's rho = 0.3336

Test of Ho: Exp_SA_Italy and SAT_Italy are independent

Prob > |t| = 0.4647

Box 4: Western Cape

Number of obs = 7

Spearman's rho = -0.4926

Test of Ho: Exp_WC_Italy and WCT_Italy are independent

Prob > |t| = 0.2614

3.3 Spearmans correlation coefficient: South Africa, Western Cape and Netherlands

Box 5 below shows that there is a strong positive relationship between South African exports of gin to Netherlands and tourist arrivals from the Netherlands to South Africa over the period 2013 to 2019. However, this result is statistically insignificant at the 5% level of significance and thus we cannot conclude that an increase in tourist arrivals from the Netherlands to South Africa increases the value of gin exports to the Netherlands.

Box 6 shows that there is a weak positive relationship between Western Cape exports of gin to the Netherlands and tourist arrivals from the Netherlands to the Western Cape over the period 2013 to 2019. However, this result is not statistically significant at the 5% level due to its large p-value being greater than the 5% significance level (70.17%). Thus, the result is inconclusive.

Box 5: South Africa

Number of obs = 7

Spearman's rho = 0.7143

Test of Ho: Exp_SA_Netherlands and SAT_Netherlands are independent

Prob > |t| = 0.0713

Box 6: Western Cape

Number of obs = 7

Spearman's rho = 0.1786

Test of Ho: Exp_WC_Netherlands and WCT_Netherlands are independent

Prob > |t| = 0.7017

3.4 Spearmans correlation coefficient: South Africa, Western Cape and Belgium

Box 7 below shows that there is a strong positive relationship between South African exports of gin to Belgium and tourist arrivals from Belgium to South Africa over the period 2013 to 2019. However, this result is statistically insignificant at the 5% level of significance and thus we cannot conclude that an increase in tourist arrivals from Belgium to South Africa increase the value of gin exports to Belgium

Box 8 shows that there is a weak positive relationship between Western Cape exports of gin to Belgium and tourist arrivals from Belgium to the Western Cape over the period 2013 to 2019. However, this result is not statistically significant at the 5% level due to its large p-value being greater than the 5% significance level (81.92%). Thus, the result is inconclusive.

Box 7: South Africa

Number of obs = 7

Spearman's rho = 0.7500

Test of Ho: Exp_SA_Belgium and SAT_BelgiumLuxembo~g are independent

Prob > |t| = 0.0522

Box 8: Western Cape

Number of obs = 7

Spearman's rho = 0.1071

Test of Ho: Exp_WC_Belgium and WCT_BelgiumLuxembo~g are independent

Prob > |t| = 0.8192

3.5 Spearmans correlation coefficient: South Africa, Western Cape and United Kingdom

Box 9 below shows that there is a strong positive relationship between South African exports of gin to the UK and tourist arrivals from the UK to South Africa over the period 2013 to 2019. Moreover, this result is statistically significant at the 5% level of significance and thus we can conclude that an increase in tourist arrivals from the UK to South Africa increase the value of gin exports to the UK.

Box 10 shows that there is a weak positive relationship between Western Cape exports of gin to the UK and tourist arrivals from the UK to the Western Cape over the period 2013 to 2019. However, this result is not statistically significant at the 5% level due to its large p-value being greater than the 5% significance level (38.33%). Thus, the result is inconclusive.

Box 9: South Africa

Number of obs = 7

Spearman's rho = 0.8571

Test of Ho: Exp_SA_UnitedKingdom and SAT_UnitedKingdom are independent

Prob > |t| = 0.0137

Box 10: Western Cape

Number of obs = 7

Spearman's rho = 0.3929

Test of Ho: Exp_WC_UnitedKingdom and WCT_UnitedKingdom are independent

Prob > |t| = 0.3833

4. CONCLUSION

From the analysis above, the study concludes that overall, there exists a positive relationship between number of tourist arrivals into South Africa and the Western Cape (from the REO markets identified) and exports of gin to these REO markets. However, this result is statistically insignficiant at the 5% level of significance and therefore this positive result is inconclusive with the exception of gin exports from South Africa to Spain and gin exports from South Africa and the United Kingdom. In these two markets, we can say with statistical certainty that an increase in tourists from these markets increases gin exports from South Africa to these markets over the period 2013 to 2019.