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   RESEARCH METHODOLOGY

   RESULTS & DISCUSSION

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CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

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SOLVING TRAVELING SALESMAN PROBLEM BY DYNAMIC PROGRAMMING

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ABSTRACT

In this paper, we show how to apply dynamic programming method solving traveling salesman problem to making managerial decisions in real world problems. As a numerical computation of traveling salesman problem, we considered 21 capital cities of each provinces of Mongolia. Due to a small number of entries (cities), we found the optimal path (an exact solution) to the problem. The optimal path has been described. It is concluded that the obtained result has a practical importance on decision making.

KEYWORDS

Dynamic Programming, Managerial Decisions, Optimal Path, Traveling Salesman Problem.

INTRODUCTION

There are many factors that impact managers to make effective and efficient decisions. One of them is to produce feasible solutions for an encountering problem, and choose the best among them one based on assessment.
Based on analysis of adequate observation and data, applications of mathematics provide terms that produce reasonable solutions to a problem. Mathematical methods are critical to making decisions in any sector. Thus, applications of probability theory, linear programming, and dynamic programming have been widely used as tools to produce effective and efficient solutions for business operation problems.
In this paper, we consider optimization theory applications in order to reach optimal or optimum managerial decisions. We first introduce the traveling salesman problem (TSP), which is the one of the most discussed classical optimization problems. Next, we formulate TSP in dynamic programming terms. Lastly, we provide some examples of dynamic programming applications in the real world scenarios in Mongolia.

DYNAMIC PROGRAMMING FORMULATION

According to Bellman, the well-known traveling salesman problem is described as follows: "A salesman is required to visit once and only once each of *n* different cities starting from a base city, and returning to this city. What path minimizes the total distance travelled by the salesman?" (Bellman, R., 1953).
Assume the problem as a multistage decision problem. Since the salesman has to return to the city where he starts the tour, fix the origin at some city, say 0. Let say that at a certain stage of an optimal tour starting at 0 has reached a city *i* and there remain *k* cities $j_1, j_2, \dots, j_k$ to 0.
Therefore, Bellman defines as:
$f(i, j_1, j_2, \dots, j_k) \equiv$ length of a path of minimum length from *i* to 0 which passes once and only once through each of the remaining *k* unvisited cities $j_1, j_2, \dots, j_k$. (1)
Thus, if we obtain $f(0; j_1, j_2, \dots, j_n)$, and a path which has this length, the problem has been solved.
Let us also define d_{ij} to be the distance between the i^{th} and j^{th} cities. Then as a consequence of the above remarks, we have that
$$f(i;\ j_1, j_2, \dots, j_k) = \min_{1\le m\le k}\{d_{ij_m} + f(i;\ j_1, j_2, \dots, j_{m-1}, j_{m+1}, \dots j_k)\}. \quad (2)$$
This is an application of the general principle of optimality in the theory of dynamic programming.
The iterative procedure given by (2) is initiated through the use of the known function
$$f(i; j) = d_{ij} + d_{j0} \quad (3)$$
from which we obtain $f(i;\ j_1, j_2)$, which, in turn, through (2) yields $f(i;\ j_1, j_2)$, and so on until $f(0; j_1, j_2, \dots, j_n)$ is obtained. The sequence of values of *m* which minimize the expression in the braces on the right-hand side of (2) gives a desired minimal path. (Bellman, R., 1953).

FORMULATION OF TSP USING NETWORK FRAMEWORK

When making a mathematical formulation, it is easier to use network framework. Thus, we consider the cities as nodes, and the distances as arcs. (Rasmus, R., 2011). A standard assumption in TSP is to assume direct links between every pair of nodes, referred as a complete graph. A standard TSP always has a feasible solution since a complete graph is always connected, the optimal tour is closed, and all nodes are visited only once.
For the simplicity and its wide range of use we consider a standard TSP. The set of nodes to be visited are defined as $N = \{1, 2, \dots, n\}$ where n is the total number of nodes (referred to as the size of a TSP), and the set of arcs connecting the nodes is defined as A= $\{(i, j): i, j \in N, i \neq j\}$, where the pair (i, j) indicates the arc between node i and j. The graph consisting of the nodes N and arcs A is then connected; there is a connection or path from any node to any other node in the graph. The basic standard assumption is to restrict the number of visits to exactly one for each node.
A common definition of the set of decision variables is $X = \{x_{i,j}: i, j \in N, i \neq j\}$ where $x_{i,j} = 1$ if the salesman travels from node i to j (node i is visited immediately before node j), and 0 otherwise. The cost matrix is defined as $C = \{c_{i,j}: i, j \in N, i \neq j\}$ and usually assumed to be positive, where $c_{i,j}$ represents the cost of traveling from node i to node j. In standard TSP a common assumption is that the square cost matrix is symmetric, $c_{i,j} = c_{j,i}$, the cost is the same in both directions. Another standard assumption is to assume the triangle inequality; $c_{i,j} + c_{j,k} \geq c_{i,k}, \forall i, j, k \in N$, the direct connection between two nodes is always the cheapest. A standard TSP could be formulated as following form:
$$Minimize\ \sum_{i=1}^{n}\sum_{j=1}^{n} c_{ij}x_{ij} \quad (1)$$

$\sum_{i=1}^{n} x_{ij} = 1, \forall j \in N$ (2)
$\sum_{j=1}^{n} x_{ij} = 1, \forall i \in N$ (3)
$x_{ij} \in \{0,1\}, \forall i, j \in N$ (4)
In addition subtour elimination constraints are needed. Constraints (2) and (3) are the standard assignment constraints. The objective in (1) will minimize the total cost along all the arcs used to complete the tour. However, as written this formulation assumes a complete graph, and if the data are being arranged in a square matrix will also include the diagonal. For a complete graph the only arcs that do not exist are related to the self-loop variable x_{ij} (along the diagonal). Therefore it usually is more convenient to exclude these variables by a new constraint (5), instead of excluding them in the definition of the set X. This convenience comes at the cost of increased problem size (both in terms of variables and constraints) . For a complete graph the following constraint will fix the diagonal in a square n matrix of the binary variables x_{ij} equal to zero:
$x_{i,i} = 0, i \in N$ (5)

NUMERICAL COMPUTATIONS
As an example of a TSP in a complete graph we used following examples. A traveling salesman is visiting capital cities of each provinces of Mongolia. The base is starting from Ulaanbaatar city, the capital of Mongolia. We computed this problem using Rasmussen's method on Excel Solver Premium. Data (see appendix Table-1) on distances between the cities is taken from National Statistical Office. In order to solve the problem, we indexed the cities in Table-2 (see appendix).
The total number of feasible solutions is
$(n-1)! = (22-1)! = 21! = 51{,}090{,}942{,}171{,}709{,}400{,}000$
And, the optimal solution to the problem is as follows (see appendix Table-2)
The Optimal Route: Ulaanbaatar-Sukhbaatar-Darkhan-Erdenet-Bulgan-Murun-Ulyastai-Ulaangom-Ulgii-Khovd-Altai-Bayakhongor-Tsetserleg-Arvaikheer-Dalanzadgad-Mandalgovi-Choir-Sainshand-Baruun Urt-Choibalsan-Undurkhaan-Zuunmod-Ulaanbaatar
Total distance: 6,030 км
On the other hands, a traveling salesman would travel the shortest path of 6,030 km if he follows the above optimal route. This result could be used as one of the alternatives to minimize the cost and time resulting better decision making for managers.

CONCLUSION
Decision making is critical component of business. Some decisions are obvious and can be made quickly, without investing much time and effort in the decision-making process. Others, however, require substantial consideration of the circumstances surrounding the decision, available alternatives, and potential outcomes. Fortunately, there are mathematical methods such as applications of probability theory, linear programming, and dynamic programming that can be utilized to assess the substantial consideration circumstances and produce effective and efficient solutions. We applied dynamic programming method for solving a TSP formulated for cities of each provinces of Mongolia. The obtained result has a practical importance.

REFERENCES
1. Bellman, R. 1954, "The Theory of Dynamic Programming", RAND Corporation, Available at: http://www.rand.org/pubs/papers/P550.
2. Dondald, D. 2010, "*Traveling Salesman Problem: an Overview of Applications, Formulations, and Solution Approaches*" in Traveling Salesman Problem, Theory and Applications,Ch 1, pp 1-24, InTech, New York.
3. Harlan. C. 2000, "The science of smart decisions: Making operations research core business competency", *ORMS today,* Jun 2000, Available at: http://www.orms-today.org/orms-6-00/crowder.html
4. Rasmussen, R. 2010. "TSP in Spreadsheets-A Guided Tour*", International Review of Economic Education,* 2011, vol. 10, issue 1, pp 94-116.

APPENDIX

TABLE-1 (NATIONAL STATISTICAL OFFICE 2011 BULLETIN)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0	0	477	1709	639	336	1037	450	661	275	1023	431	575	565	321	1487	779	338	43	1417	223	373	223
1	477	0	1085	191	282	589	927	1138	752	546	255	634	1042	617	1039	379	815	520	940	519	338	700
2	1709	1085	0	1070	1367	672	2159	2370	1579	725	1278	1657	2274	1702	222	928	2047	1752	291	1604	1423	1766
3	639	191	1070	0	473	398	853	1300	509	470	208	500	1204	808	848	570	977	682	1131	862	529	696
4	336	282	1367	473	0	871	776	997	611	828	364	743	901	335	1321	348	674	379	1026	240	59	559
5	1037	589	672	398	871	0	1286	1698	907	195	606	898	1602	1358	450	585	1375	1080	693	1260	927	1094
6	450	927	2159	853	776	1286	0	520	344	1423	645	499	334	771	1937	1229	302	430	1867	673	823	226
7	661	1138	2370	1300	997	1698	520	0	736	1694	1092	1031	193	982	2148	1440	323	704	2078	884	1034	439
8	275	752	1579	509	611	907	344	736	0	979	301	300	664	596	1357	1054	417	232	1692	498	648	187
9	1023	546	725	470	828	195	1423	1694	979	0	678	970	1588	1163	503	390	1361	1066	529	1065	884	1246
10	431	255	1278	208	364	606	645	1092	301	678	0	379	996	752	1056	634	769	474	1695	654	635	664
11	575	634	1657	500	743	898	499	1031	300	970	379	0	839	896	1348	1354	717	717	1992	798	948	480
12	565	1042	2274	1204	901	1602	334	193	664	1588	996	839	0	886	2052	1344	227	566	1982	788	938	477
13	321	617	1702	808	335	1358	771	982	596	1163	752	896	886	0	1808	683	659	407	1361	98	279	544
14	1487	1039	222	848	1321	450	1937	2148	1357	503	1056	1348	2052	1808	0	893	1825	1530	243	1710	1380	1710
15	779	379	928	570	348	585	1229	1440	1054	390	634	1354	1344	683	893	0	1117	822	678	588	407	1002
16	338	815	2047	977	674	1375	302	323	417	1361	769	717	227	659	1825	1117	0	313	1755	561	711	235
17	43	520	1752	682	379	1080	430	704	232	1066	474	717	566	407	1530	822	313	0	1460	266	416	204
18	1417	940	291	1131	1026	693	1867	2078	1692	529	1695	1992	1982	1361	243	678	1755	1460	0	1266	1085	640
19	223	519	1604	862	240	1260	673	884	498	1065	654	798	788	98	1710	588	561	266	1266	0	180	446
20	373	338	1423	529	59	927	823	1034	648	884	635	948	938	279	1380	407	711	416	1085	180	0	596
21	223	700	1766	696	559	1094	226	439	187	1246	664	480	477	544	1710	1002	235	204	640	446	596	0

TABLE-2

Sequence	Distance	Sequence	City names		Index	City names
0	0	1	Ulaanbaatar		0	Ulaanbaatar
13	321	2	Sukhbaatar		1	Tsetserleg
19	98	3	Darkhan		2	Ulgii
20	180	4	Erdenet		3	Bayankhongor
4	59	5	Bulgan		4	Bulgan
15	348	6	Murun		5	Altai
9	390	7	Uliastai		6	Sainshand
18	529	8	Ulaangom		7	Choibalsan
2	291	9	Ulgii		8	Mandalgovi
14	222	10	Khovd		9	Uliastai
5	450	11	Altai		10	Arvaikheer
3	398	12	Bayankhongor		11	Dalanzadgad
1	191	13	Tsetserleg		12	Baruun Urt
10	255	14	Arvaikheer		13	Sukhbaatar
11	379	15	Dalanzadgad		14	Khovd
8	300	16	Mandalgovi		15	Murun
21	187	17	Choir		16	Undurkhaan
6	226	18	Sainshand		17	Zuunmod
12	334	19	Baruun Urt		18	Ulaangom
7	193	20	Choibalsan		19	Darkhan
16	323	21	Undurkhaan		20	Erdenet
17	313	22	Zuunmod		21	Choir
0	43	23	Ulaanbaatar			
Total	6030					

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