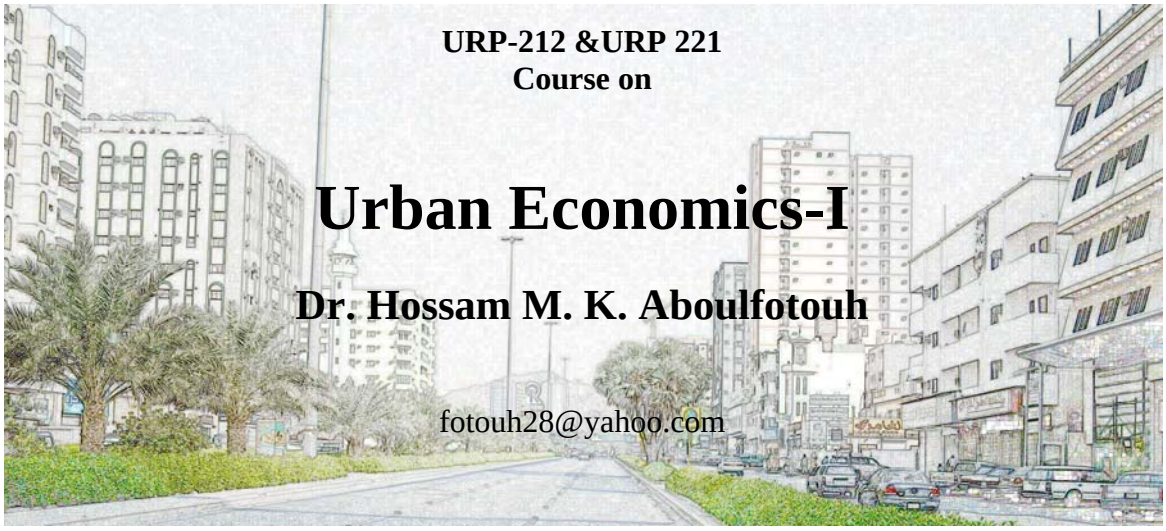
KING ABDULAZIZ UNIVERSITY
Faculty of Environmental Design
Department of Urban & Regional Planning



URP-212 &URP 221
Course on

Urban Economics-I

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Lecture note#4: Creating the Demand Graph from Survey Data.

In the previous lectures we discussed the linear/power equation(s) of the demand schedule, and how to use its linear form in urban planning, based on assuming the values of some of its variables: (X, Y, T, & E) or (X, Y, *a,* & *b*). In this lecture, we will discuss how to get the nearest real values of these variables, based on doing a sample survey in the districts of the city. An example, how to create the demand graph for houses, how to reckon the real income elasticity of demand, using the Excel software.

Among the basic data in the survey sheet is either the monthly affordable rent (for a renter of a house) or the monthly affordable installment (for a buyer of a house). Any of these numbers should be per a fixed housing unit. By sorting either of these data in a descending way, which represents *P* (or *Y*), the corresponding sum of the intervals of *Q* (or *X*) could be reckoned, and the result will be as shown in the table, in the left side, in fig-1. The light-blue curve in the graph in the right side, represents the survey data; and the orange curve is the fitting-curve that its power equation is: $Y = T * X^{-E}$; and its *Y* values are shown in the third column (*P* values) for the same *X* (or Q) values. Using the solver command in Excel program, for the total sum of square the difference in *P* values (or changing the values of *T* and/or *E*) will minimize the gap between the two curves, in order to get the nearest fitting curve (in orange color).

					Curve Fitting of Demand Schedule
Revenue		x	y		
(Q*P)		Q	P	P value	Diff^2
800000		2000	400	1166.184	587038.3
1110000		1850	600	1237.563	406486.1
1400000		1750	800	1291.092	241170.9
2310000		1650	1400	1350.297	2470.399
2635000		1550	1700	1416.183	80552.27
3045000		1450	2100	1490.011	372086
3125000	Q2	1250	2500	1668.425	691517.5
3105000	Q1	1150	2700	1777.871	850321.7
3000000		1000	3000	1977.662	1045175
2975000		850	3500	2238.385	1591672
2600000		650	4000	2746.073	1572333
2082500		425	4900	3795.943	1218942
1755000		300	5850	4949.777	810401.4
1300000		200	6500	6741.665	58402.02
1050000		150	7000	8394.03	1943318
937500		125	7500	9645.097	4601441
800000		100	8000	11432.78	11784012
					27857341
		0.083333	0.076923		
	Elasticity	E (Q1,Q2)	1.083333		
				T	382078
				E	-0.762

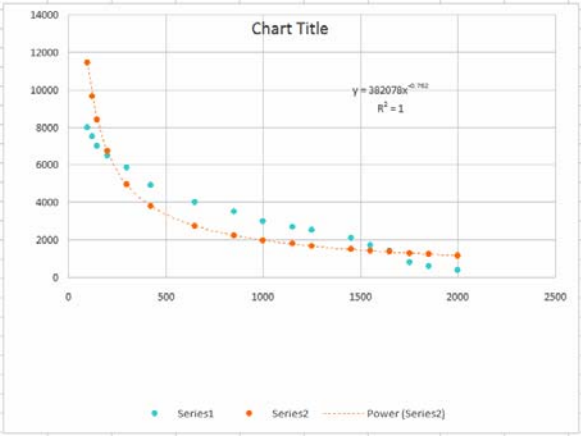

Figure-1: Fitting Curve of a Housing Demand Schedule

URP-212 and URP-221 Course on Urban Economics-I
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