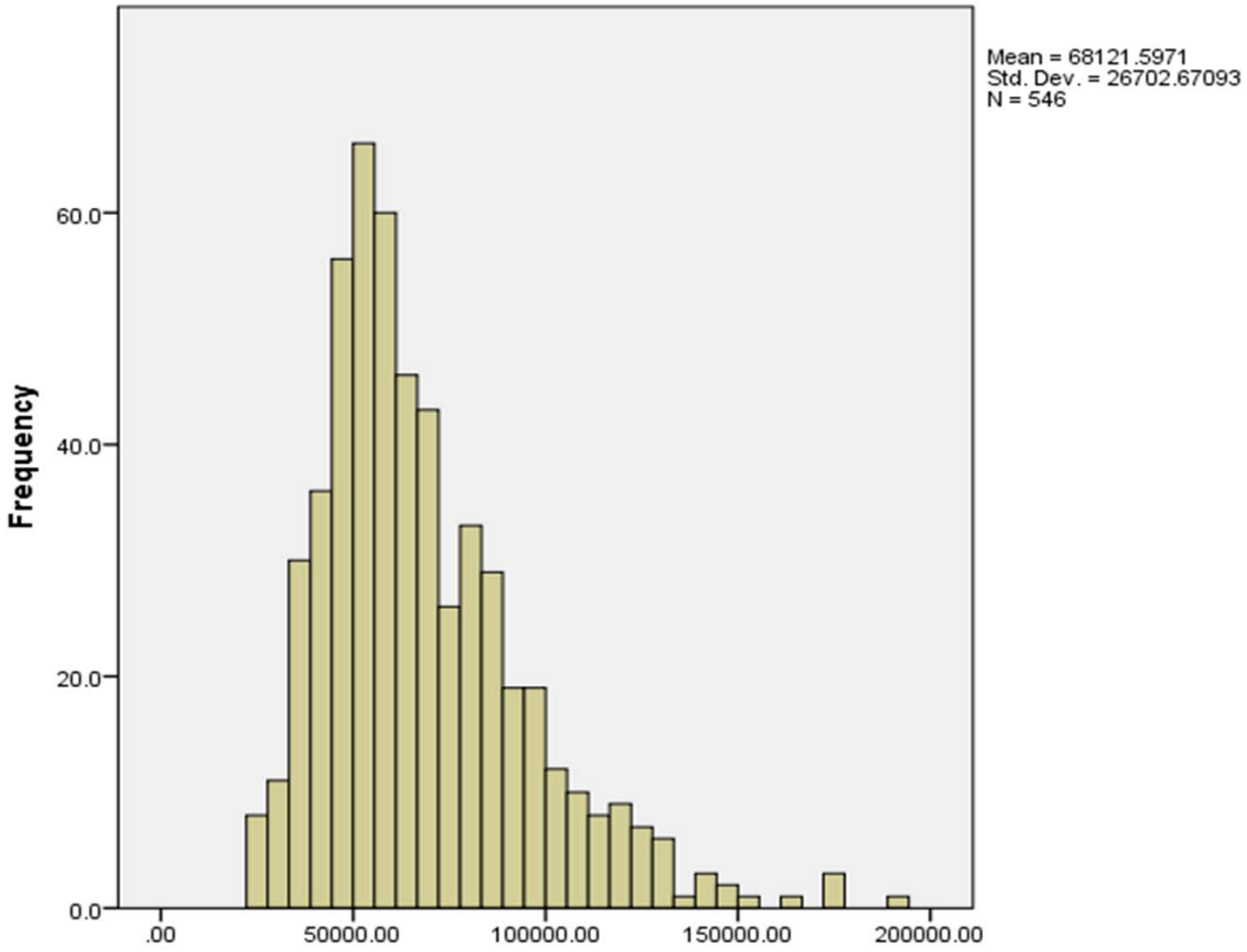
Final Test

Dec 17 2005

Analysis is made by SPSS package software

a)



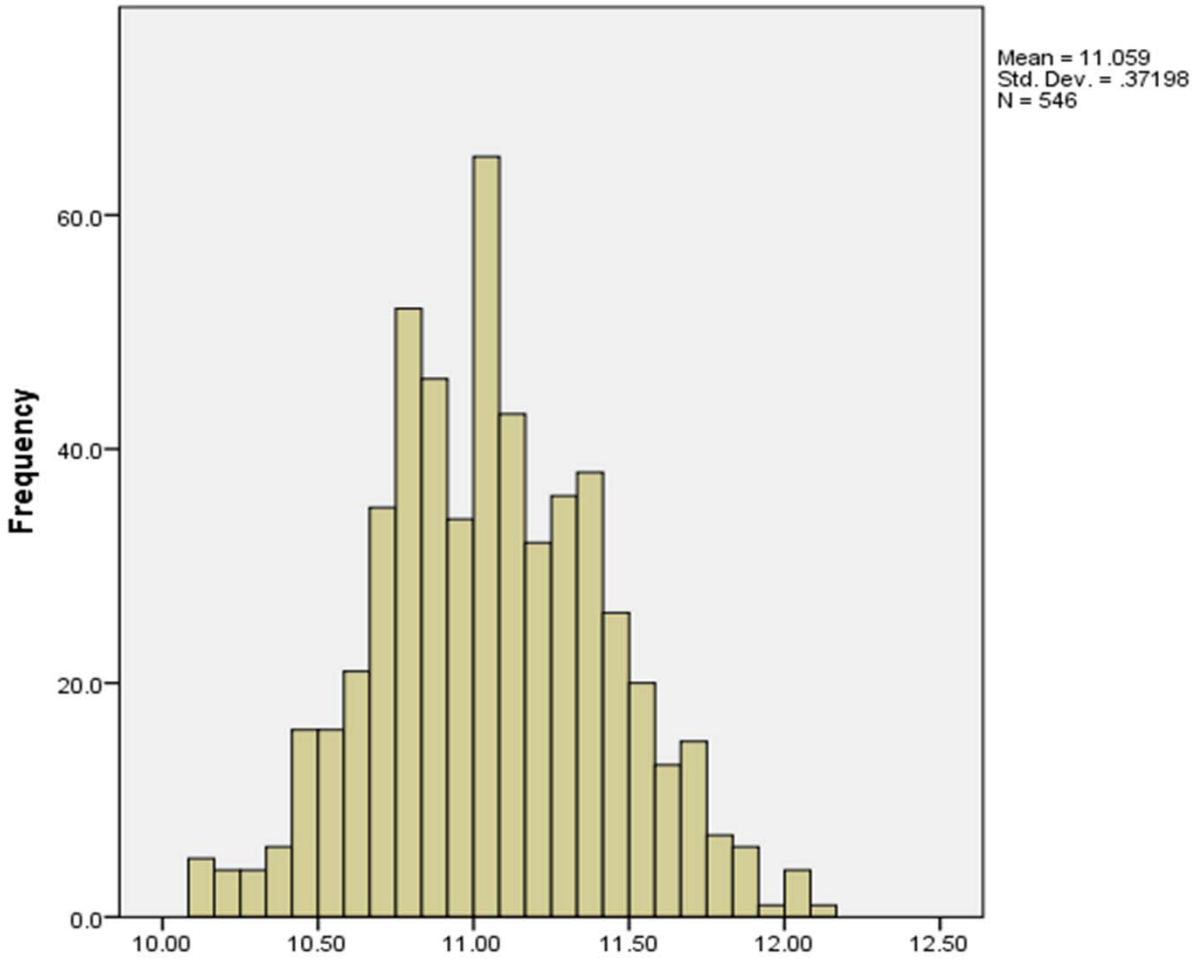
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-4038.350	3409.471		-1.184	.237					
	lot	3.546	.350	.288	10.124	.000	.536	.401	.250	.757	1.322
	bdms	1832.003	1047.000	.051	1.750	.081	.366	.076	.043	.732	1.366
	fb	14335.558	1489.921	.270	9.622	.000	.517	.384	.238	.780	1.282
	sty	6556.946	925.290	.213	7.086	.000	.421	.293	.175	.676	1.479
	drv	6687.779	2045.246	.087	3.270	.001	.297	.140	.081	.860	1.163
	rec	4511.284	1899.958	.065	2.374	.018	.255	.102	.059	.826	1.211
	ffin	5452.386	1588.024	.097	3.433	.001	.186	.147	.085	.760	1.317
	ghw	12831.406	3217.597	.101	3.988	.000	.093	.170	.099	.963	1.038
	ca	12632.890	1555.021	.220	8.124	.000	.453	.332	.201	.832	1.201
	gar	4244.829	840.544	.137	5.050	.000	.383	.214	.125	.833	1.201
	reg	9369.513	1669.091	.149	5.614	.000	.329	.236	.139	.871	1.148

a. Dependent Variable: sell

By doing linear regression, we see standard deviation of all coefficient is so much high and there is no escape.

b)


Mean = 11.059
Std. Dev. = .37198
N = 546
Frequency
60.0
40.0
20.0
0.0
10.00
10.50
11.00
11.50
12.00
12.50

Coefficients[a]

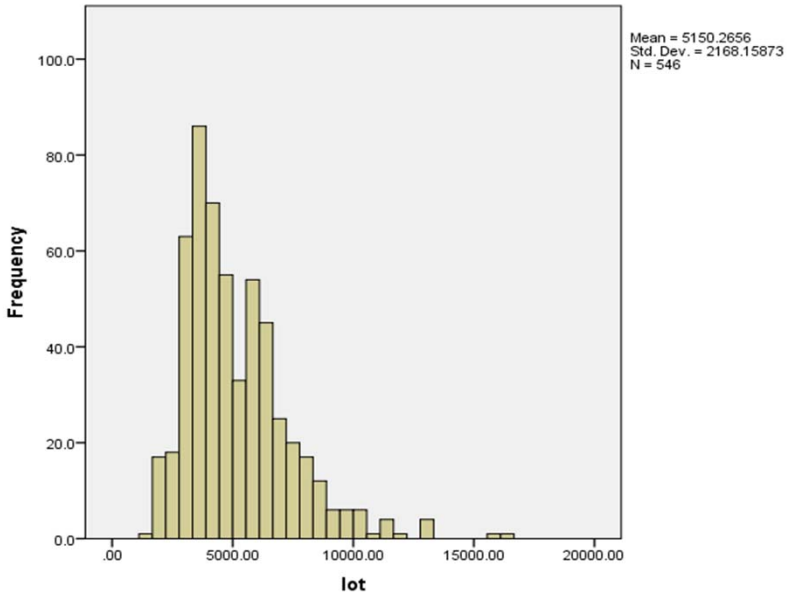
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	10.026	.047		212.210	0.000					
	lot	5.057E-05	.000	.295	10.418	.000	.543	.411	.256	.757	1.322
	bdms	.034	.015	.067	2.345	.019	.370	.101	.058	.732	1.366
	fb	.168	.021	.226	8.126	.000	.485	.332	.200	.780	1.282
	sty	.092	.013	.215	7.197	.000	.416	.297	.177	.676	1.479
	drv	.131	.028	.122	4.610	.000	.330	.196	.113	.860	1.163
	rec	.074	.026	.076	2.792	.005	.276	.120	.069	.826	1.211
	ffin	.099	.022	.128	4.517	.000	.217	.192	.111	.760	1.317
	ghw	.178	.045	.100	4.000	.000	.089	.171	.098	.963	1.038
	ca	.178	.022	.223	8.262	.000	.456	.337	.203	.832	1.201
	gar	.051	.012	.118	4.358	.000	.370	.185	.107	.833	1.201
	reg	.127	.023	.145	5.496	.000	.340	.231	.135	.871	1.148

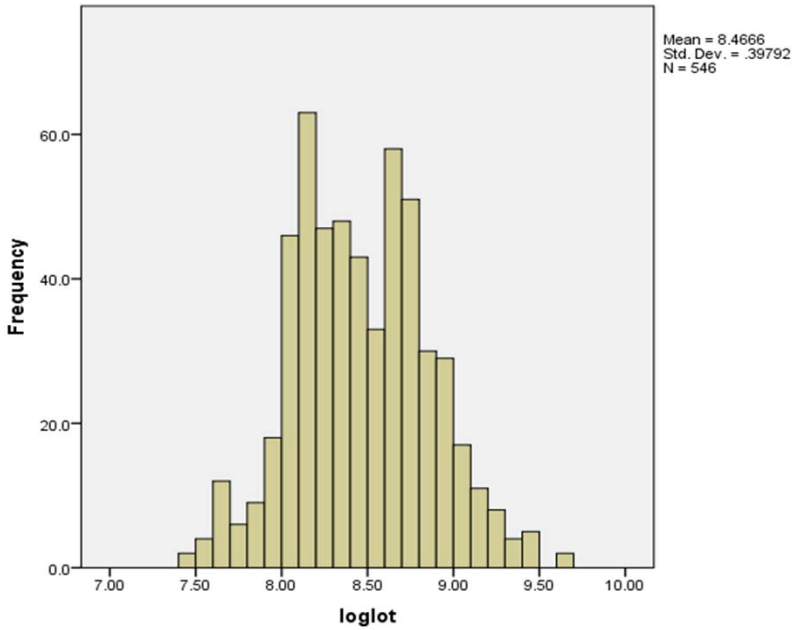
a. Dependent Variable: logsell

Clearly, histogram graph shows better normal distribution for log function of sell data. Standars deviation is much more better and normality is also good and adequate.

Now Standard error Is better that part a) and data is valid for linearity and any further calculation.

c)





Again, we see better normal distribution by log function of lot data than data only. We prefer to use loglot instead of lot resulting better answers. Therefore we prefer transformation of data.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.745	.216		35.801	.000					
	loglot	.303	.027	.324	11.356	.000	.580	.441	.275	.720	1.389
	bdms	.034	.014	.068	2.410	.016	.370	.104	.058	.733	1.364
	fb	.166	.020	.224	8.154	.000	.485	.333	.198	.779	1.283
	sty	.092	.013	.214	7.268	.000	.416	.300	.176	.677	1.477
	drv	.110	.028	.103	3.904	.000	.330	.167	.095	.840	1.190
	rec	.058	.026	.060	2.225	.026	.276	.096	.054	.818	1.223
	ffin	.104	.022	.134	4.817	.000	.217	.204	.117	.758	1.320
	ghw	.179	.044	.101	4.079	.000	.089	.174	.099	.963	1.038
	ca	.166	.021	.208	7.799	.000	.456	.320	.189	.823	1.216
	gar	.048	.011	.111	4.178	.000	.370	.178	.101	.831	1.203
	reg	.132	.023	.150	5.816	.000	.340	.244	.141	.879	1.138

a. Dependent Variable: logsell

On the other hand, comparing linear regression results, show better t-value and we can rely on loglot transformation more.

d)

Obviously, we see t value of rec, bdms, drv is so low and shows they are not so much significant. On the nest step, ffin, ghw and gar are not significant too. Therefore, we build a model by excluding bdms, rec and drv to build new model. Loglot and fb are individually significant.

e) Data is seperated to two equal part. It means n1=273

S1	20.25246	n	546
S2	14.31815	k	8
S0	34.67251		
	f	0.195287	

Therefore, null hepothesis is not rejected

f)

To start, we remove bdms from results from table in part c

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.777	.217		35.853	.000					
	loglot	.308	.027	.329	11.511	.000	.580	.446	.280	.724	1.382
	fb	.177	.020	.239	8.893	.000	.485	.359	.216	.822	1.217
	sty	.102	.012	.239	8.635	.000	.416	.350	.210	.773	1.293
	drv	.102	.028	.096	3.624	.000	.330	.155	.088	.852	1.173
	rec	.056	.026	.058	2.158	.031	.276	.093	.053	.818	1.222
	ffin	.112	.022	.144	5.190	.000	.217	.219	.126	.773	1.293
	ghw	.181	.044	.102	4.112	.000	.089	.175	.100	.964	1.038
	ca	.166	.021	.208	7.737	.000	.456	.317	.188	.823	1.216
	gar	.050	.011	.116	4.357	.000	.370	.185	.106	.836	1.196
	reg	.133	.023	.152	5.852	.000	.340	.245	.142	.880	1.137

a. Dependent Variable: logsell

Then removing rec

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.710	.215		35.788	.000					
	loglot	.315	.027	.337	11.862	.000	.580	.456	.290	.737	1.357
	fb	.178	.020	.241	8.950	.000	.485	.361	.219	.823	1.215
	sty	.104	.012	.242	8.742	.000	.416	.353	.213	.776	1.289
	drv	.103	.028	.097	3.654	.000	.330	.156	.089	.853	1.173

	ffin	.128	.020	.165	6.342	.000	.217	.264	.155	.884	1.132
	ghw	.181	.044	.102	4.100	.000	.089	.174	.100	.964	1.038
	ca	.169	.021	.211	7.859	.000	.456	.321	.192	.826	1.211
	gar	.049	.012	.113	4.224	.000	.370	.179	.103	.839	1.192
	reg	.135	.023	.154	5.918	.000	.340	.248	.145	.881	1.135

a. Dependent Variable: logsell

Then removing drv

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.583	.215		35.265	.000					
	loglot	.340	.026	.364	13.072	.000	.580	.491	.323	.787	1.270
	fb	.173	.020	.234	8.600	.000	.485	.348	.212	.828	1.208
	sty	.109	.012	.254	9.110	.000	.416	.366	.225	.786	1.273
	ffin	.130	.020	.167	6.372	.000	.217	.265	.157	.884	1.131
	ghw	.180	.045	.101	4.025	.000	.089	.171	.099	.964	1.038
	ca	.167	.022	.209	7.704	.000	.456	.315	.190	.826	1.210
	gar	.053	.012	.123	4.575	.000	.370	.194	.113	.848	1.179
	reg	.146	.023	.166	6.363	.000	.340	.265	.157	.895	1.117

a. Dependent Variable: logsell

Tehn removing ghw

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.590	.218		34.814	.000					
	loglot	.339	.026	.363	12.856	.000	.580	.485	.322	.787	1.270
	fb	.178	.020	.241	8.758	.000	.485	.353	.219	.831	1.203
	sty	.111	.012	.259	9.162	.000	.416	.367	.229	.787	1.270
	ffin	.132	.021	.170	6.369	.000	.217	.265	.160	.885	1.130
	ca	.154	.022	.193	7.080	.000	.456	.292	.177	.845	1.183
	gar	.057	.012	.131	4.851	.000	.370	.205	.121	.854	1.171
	reg	.141	.023	.160	6.064	.000	.340	.253	.152	.898	1.113

a. Dependent Variable: logsell

Then removing gar

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.280	.213		34.220	.000					
	loglot	.379	.026	.405	14.810	.000	.580	.538	.379	.872	1.147
	fb	.189	.021	.256	9.170	.000	.485	.367	.234	.842	1.188
	sty	.108	.012	.253	8.781	.000	.416	.354	.224	.789	1.268
	ffin	.134	.021	.172	6.314	.000	.217	.262	.161	.885	1.130
	ca	.161	.022	.201	7.246	.000	.456	.298	.185	.849	1.178
	reg	.141	.024	.161	5.966	.000	.340	.249	.153	.898	1.113

a. Dependent Variable: logsell

Then removing reg

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	7.046	.216		32.668	.000					
	loglot	.409	.026	.437	15.787	.000	.580	.562	.416	.906	1.103
	fb	.186	.021	.251	8.746	.000	.485	.352	.231	.842	1.187
	sty	.112	.013	.262	8.840	.000	.416	.356	.233	.791	1.264
	ffin	.163	.021	.209	7.651	.000	.217	.313	.202	.934	1.071
	ca	.166	.023	.208	7.261	.000	.456	.298	.191	.850	1.176

a. Dependent Variable: logsell

Tehn removing ca

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6.679	.219		30.432	.000					
	loglot	.452	.026	.483	17.111	.000	.580	.593	.472	.956	1.046
	fb	.193	.022	.261	8.670	.000	.485	.349	.239	.844	1.185
	sty	.136	.013	.319	10.635	.000	.416	.416	.294	.849	1.177
	ffin	.175	.022	.225	7.907	.000	.217	.322	.218	.940	1.063

a. Dependent Variable: logsell

Then removing ffin

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6.685	.232		28.862	.000					
	loglot	.459	.028	.491	16.479	.000	.580	.578	.480	.957	1.045
	fb	.222	.023	.299	9.561	.000	.485	.380	.278	.867	1.154
	sty	.114	.013	.266	8.633	.000	.416	.348	.251	.893	1.120

a. Dependent Variable: logsell

We reached to the model which loglot and fb are too important and sty is the thirs of importance as we observed before.

g)

Obviously, there are some factors whichhas not been seen. For instance the district level (expensive area or inexpensive area), the age of building, material used and so on. Some are clearly not inportant ans some are important. For instance age is too important. Of course some factors which are included in the model are obviously not important, for instance recreational room.

h)

Accroding to the model parameters for 400 data and calculations, we have

MAE 0.127842

according to standard error in paramters and variation, this amount is so high and the model is not enough good for predicting values