# Pertemuan 10 (4 x 1 SKS tutorial = 4 x 170 menit praktikum)

Judul Modul 3	Uji Normalitas dan Regresi Linier
Tempat	Laboratorium Komputer (Ruang C.2.3)
Alat Bantu	SPSS
Dosen	Yuniarti Reny Renggo, S.Kom., M.Sc
Asisten Dosen	1. Ni Luh Meylani Widyanti Rambu Upa
	2. Cricentia Reksiana Ranna

### Ketentuan

- 1. Semua hasil kerja disimpan pada lembaran word sesuai dengan 4 hasil uji beda.
- 2. Hasil word kemudian simpan dalam bentuk pdf dan dikirimkan ke google classroom.
- 3. File diberi nama Modul 4 Nama depan (NIM).
- 4. Berikan judul pada bagian atas setiap hasil kerja anda.
- 5. Penjelasan diletakan pada bawah setiap tabel output.

## Soal 1

Berikut tersedia data 30 rumah beserta harga jualnya yang ditentukan sejumlah variabel bebas. Berikut penjelasan variabel

Definisi variabel

- Y = harga jual rumah (ribuan dolar) *Price*
- X1 = Ukuran rumah (meter persegi) SqFt
- X2 = Luas rumah (ribuan meter persegi) *LotSize*
- X3 = Jumlah kamar mandi *Baths*

Home	Price	SqFt	LotSize	Baths	Home	Price	SqFt	LotSize	Baths
1	505.5	2,192	16.4	2.5	16	675.1	3,076	19.8	3.0
2	784.1	3,429	24.7	3.5	17	710.4	3,259	20.8	3.5
3	649.0	2,842	17.7	3.5	18	674.7	3,162	19.4	4.0
4	689.8	2,987	20.3	3.5	19	663.6	2,885	23.2	3.0
5	709.8	3,029	22.2	3.0	20	606.6	2,550	20.2	3.0
6	590.2	2,616	20.8	2.5	21	758.9	3,380	19.6	4.5
7	643.3	2,978	17.3	3.0	22	723.7	3,131	22.5	3.5
8	789.7	3,595	22.4	3.5	23	621.8	2,754	19.2	2.5
9	683.0	2,838	27.4	3.0	24	622.4	2,710	21.6	3.0
10	544.3	2,591	19.2	2.0	25	631.3	2,616	20.8	2.5
11	822.8	3,633	26.9	4.0	26	574.0	2,608	17.3	3.5
12	637.7	2,822	23.1	3.0	27	863.8	3,572	29.0	4.0
13	618.7	2,994	20.4	3.0	28	652.7	2,924	21.8	2.5
14	619.3	2,696	22.7	3.5	29	844.2	3,614	25.5	3.5
15	490.5	2,134	13.4	2.5	30	629.9	2,600	24.1	3.5

1. Ujilah apakah data di atas terdistribusi normal atau tidak?

2. Ujilah apakah Ukuran rumah, luas rumah dan jumlah kamar mandi mempengaruhi harga jual rumah?

### Uji Normalitas Data

Asumsi 1: *error* (residual) harus berdistribusi normal (Menggunakan Uji Kolmogorov Smirnov). Asumsi ini harus terpenuhi untuk pengujian regresi.

Langkah-Langkah Pengujian dengan SPSS:

1. Tampilan SPSS sama dengan ms. excel dalam bentuk sel yang terdiri atas baris dan kolom. Serta perhatikan tampilan bagian kiri bawah yaitu *data view* dan *variable view* (lihat tanda bagian kiri bawah berwarna kuning.

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#### Data View Variable View

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Data View Variable View

2. Inputlah / isilah variabel penelitian pada *variable view*. Isilah nama variabel pada kolom nama dan pastikan *type* adalah *numeric*, kolom *width* untuk membuat kolom lebar atau sempit, label diisi keterangan yang memperjelas name dari variabel.

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4	Baths	Numeric	8	1		None	None	8	i Right	🛷 Scale	🔪 Input		
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3. Setelah mengisi *variable view*, kembali ke data *view* untuk mengisi data sesuai soal.

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4. Setelah itu, klik *analyze* lalu pilih *regression*, lalu klik *linear*.

🔚 Harga Sewa.sav [DataSet0] - IBM SPSS Statistics Data Editor

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5. Setelah itu muncul kotak dialog berikut.

🍓 Linear Regression		$\times$
<ul> <li>✓ Price</li> <li>✓ SqFt</li> <li>✓ LotSize</li> <li>✓ Baths</li> </ul>	Dependent  Block 1 of 1  Previous  Independent(s):	Statistics Plots Save Options Style Bootstrap
	Method: Enter 💌	
	Selection Variable: Case Labels:	
OK	Paste Reset Cancel Help	

6. Masukan price ke bagian *dependent* dan tiga variabel sisanya ke dalam bagian *independent(s)*.

<mark>∳∲ SqFt</mark> I otSize I Baths	Dependent	Statistics         Plots         Save         Options         Style         Bootstrap
ОК	Selection Variable:         Case Labels:         WLS Weight         Paste       Reset         Cancel       Help	

7. Klik *save*, lalu beri tanda centang (□) pada bagian "residual – unstandardized". Lalu pilih *continue*.

🔚 Linear Regression: Save	×								
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✓ Include the covariance matrix									
Continue Cancel Help									

8. Setelah kembali ke kotak dialog, klik ok.

<mark>∳ SqFt</mark> ∳ LotSize ∳ Baths	Dependent:	Statistics Plots Save Options Style Bootstrap
	Selection Variable: Case Labels: WLS Weight	

9. Abaikan dan tutup hasil *output*, kembali ke data awal maka akan terlihat hasil sebagai berikut.

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10. Setelah itu analisis normalitas dilakukan dengan cara, klik analyze lalu pilih nonparametric test, lalu legacy dialogs dan pilih 1-Sample K-S.

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11. Masukan muncul kotak dialog One-Sample Kolmogorov-Smirnov Test dan masukan Unstandardized Residual ke bagian tes variabel list. Pastikan tercentang  $(\Box)$  pada normal. Lalu ok.



🔚 One-Sample Kolmogorov-Smirnov Test

### 12. Hasilnya termuat pada *output*.



Jelaskan hasil / output uji normalitas.

### Regresi Linier Berganda pada SPSS

1. Tampilan SPSS sama dengan ms. excel dalam bentuk sel yang terdiri atas baris dan kolom. Serta perhatikan tampilan bagian kiri bawah yaitu "data view" dan "variable view" (lihat tanda bagian kiri bawah berwarna kuning).

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Inputlah / isilah variabel penelitian pada variable view. Isilah nama variabel pada kolom nama dan pastikan *type* adalah *numeric*, kolom *width* untuk membuat kolom lebar atau sempit, label diisi keterangan yang memperjelas name dari variabel.
 Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor

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1	Price	Numeric	8	1		None	None	8	疆 Right	🛷 Scale	🔪 Input
2	SqFt	Numeric	8	0		None	None	8	疆 Right	🔗 Scale	🦒 Input
3	LotSize	Numeric	8	1		None	None	8	遭 Right	🛷 Scale	🦒 Input
4	Baths	Numeric	8	1		None	None	8	遭 Right	🛷 Scale	🦒 Input
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3. Setelah mengisi *variable view*, kembali ke *data view* untuk mengisi data sesuai soal.

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4. Klik *analyze* lalu pilih *regression*, lalu klik *linier*.

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🕼 Linear Regression	-	×
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	Selection Variable: Rule Case Labels: WLS Weight:	
OH	Paste <u>R</u> eset Cancel Help	

5. Setelah itu muncul kotak dialog berikut.

6. Masukan price ke bagian *dependent* dan tiga variabel sisanya ke dalam bagian independent(s).

<ul> <li>✓ SqFt</li> <li>✓ LotSize</li> <li>✓ Baths</li> </ul>	Dependent:	Statistics         Plots         Save         Options         Style         Bootstrap
ОК	Selection Variable: Rule Case Labels: WLS Weight: Paste Reset Cancel Help	

7. Lalu klik ok, maka akan muncul lembaran hasil yang disebut *output*.

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### Soal 2

[Petunjuk] kerjakan pada file yang sama dengan Soal 1.

Berdasarkan pada teori penawaran, maka dapat diduga adanya pengaruh antara produksi dengan harga. Apabila harga meningkat, maka produksi meningkat pula. Jadi hubungan antara produksi dan harga adalah positif. Buktikan bahwa hal tersebut benar dengan menggunakan data produksi dan harga minyak kelapa sawit di Indonesia dari tahun 1991 sampai tahun 2002 berikut ini.

Tahun	Produksi (juta ton)	Harga (US\$/ton)
1991	4,54	271
1992	4,53	319
1993	5,03	411
1994	6,05	348
1995	6,09	287
1996	6,14	330
1997	6,37	383
1998	7,40	384
1999	7,22	472
2000	7,81	610
2001	8,49	640

1. Ujilah apakah data terdistribusi secara normal atau tidak?

2. Ujilah apakah produksi berpengaruh terhadap harga?