

## Script para ajustar minimos cuadrados de forma estadistica

datos que, una vez transformados, poseen tendencia lineal.

### Contents

- [Leemos nuestros datos:](#)
- [Regresion lineal en escala log-log:](#)
- [Regresion lineal en escala lineal-log:](#)

### Leemos nuestros datos:

Incluyo dos ejemplos de datos que ustedes me proporcionaron.

### Regresion lineal en escala log-log:

```
load balanza.txt
type balanza.txt

% Asignamos variables y escalamos.
maxt = max(balanza(:,1));
x2 = (balanza(:,1)/100);
y2 = (1e-4*balanza(:,2));% Los datos aqui estan escalados a 10^{-4}

[mw2, delta2] = minweights(log(x2), log(y2));
%
% Desplegar los valores parametricos
%
disp('Los valores parametricos son');
mw2
%
% Calculo de los intervalos de confianza de los parametros.
%
disp('Intervalos de confianza')
delta2
%
% Graficas de los datos y su regresion.
%
figure
plot(x2,y2,'o')
hold on
plot(x2,exp(mw2(1))*exp(mw2(2)*log(x2)),'--k')
title('Ajuste racional y = A * x^B')
xlabel('Tiempo/100')
```

```
%% AN~O | export | import | balanza comercial
1983 35259.00 22516.00 12743.00
1984 33456.20 23894.00 9562.20
1985 22450.00 20745.00 1705.00
1986 21956.27 19689.00 2267.27
1987 29126.23 24987.00 4139.23
1988 28685.20 27954.00 731.20
1989 30845.49 30896.00 -50.51
1990 33489.46 33478.00 11.46
```

1991 42687.52 49966.56 -7279.04  
1992 46195.62 62129.35 -15933.73  
1993 51885.97 65366.54 -13480.57  
1994 60882.20 79345.90 -18463.70  
1995 79541.55 72453.07 7088.49  
1996 95999.74 89468.77 6530.97  
1997 110431.50 109808.20 623.30  
1998 117539.29 125373.06 -7833.76  
1999 136361.82 141974.76 -5612.95  
2000 166120.74 174457.82 -8337.09  
2001 158779.73 168396.43 -9616.70  
2002 161045.98 168678.89 -7632.91  
2003 164766.44 170545.84 -5779.41  
2004 187998.56 196809.65 -8811.10  
2005 214232.96 221819.53 -7586.57  
2006 249925.14 256058.35 -6133.21  
2007 271875.31 281949.05 -10073.74  
2008 281342.60 308603.25 -17260.66  
2009 229703.55 234384.97 -4681.42  
2010 298473.15 301481.82 -3008.67  
2011 349375.04 350842.88 -1467.83  
2012 309298.32 308827.34 470.98

Los valores parametricos son

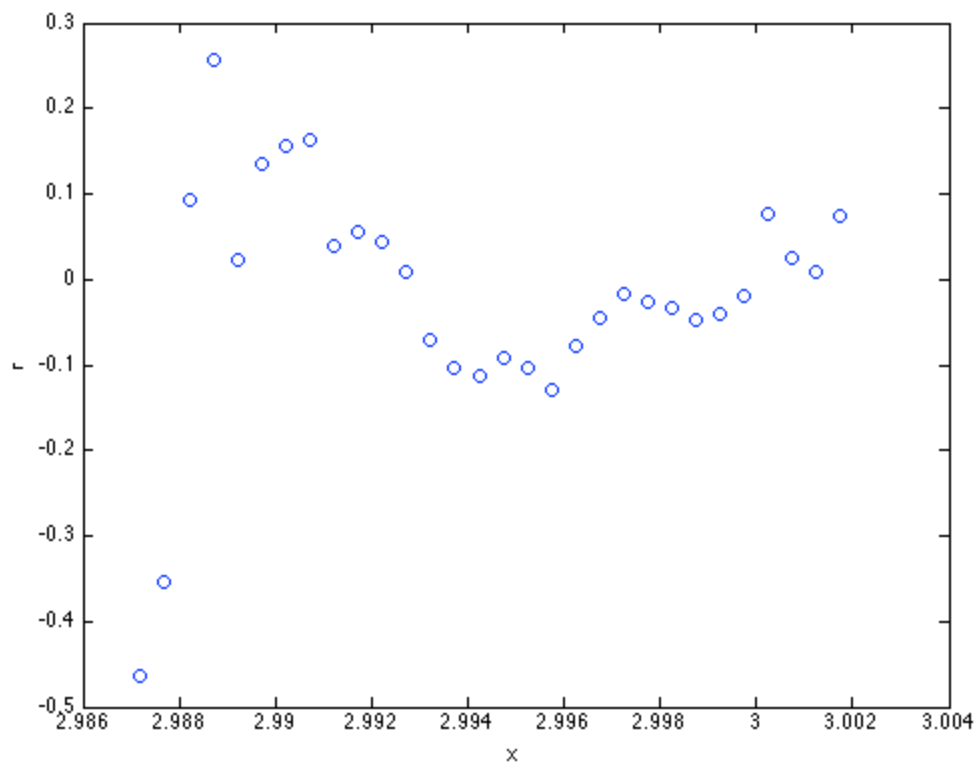
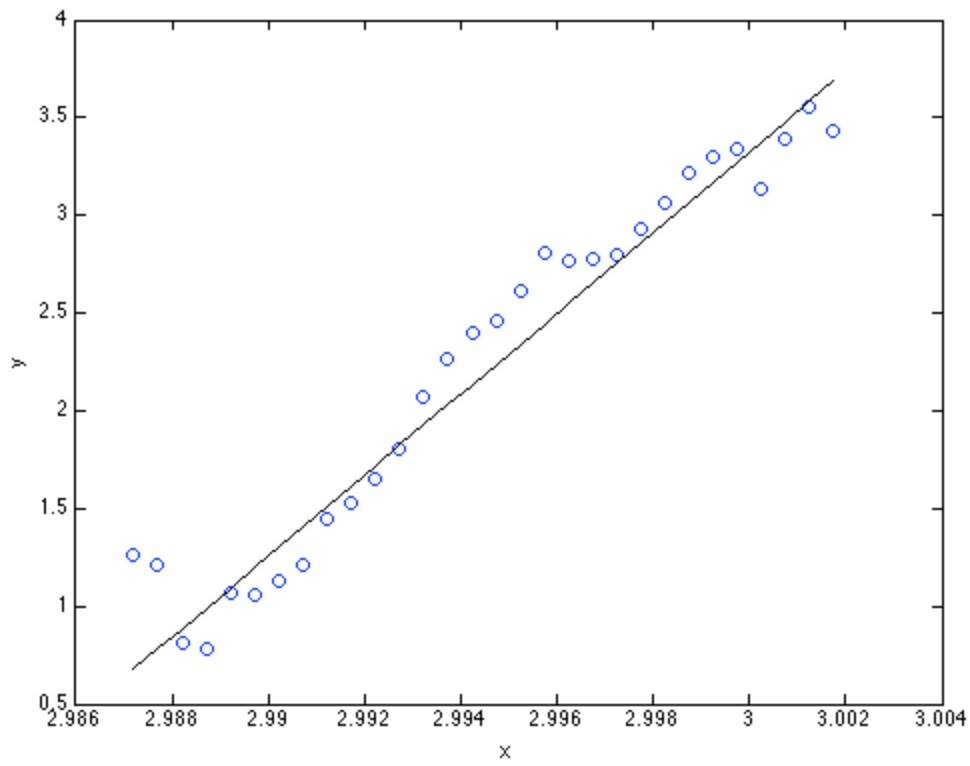
mw2 =

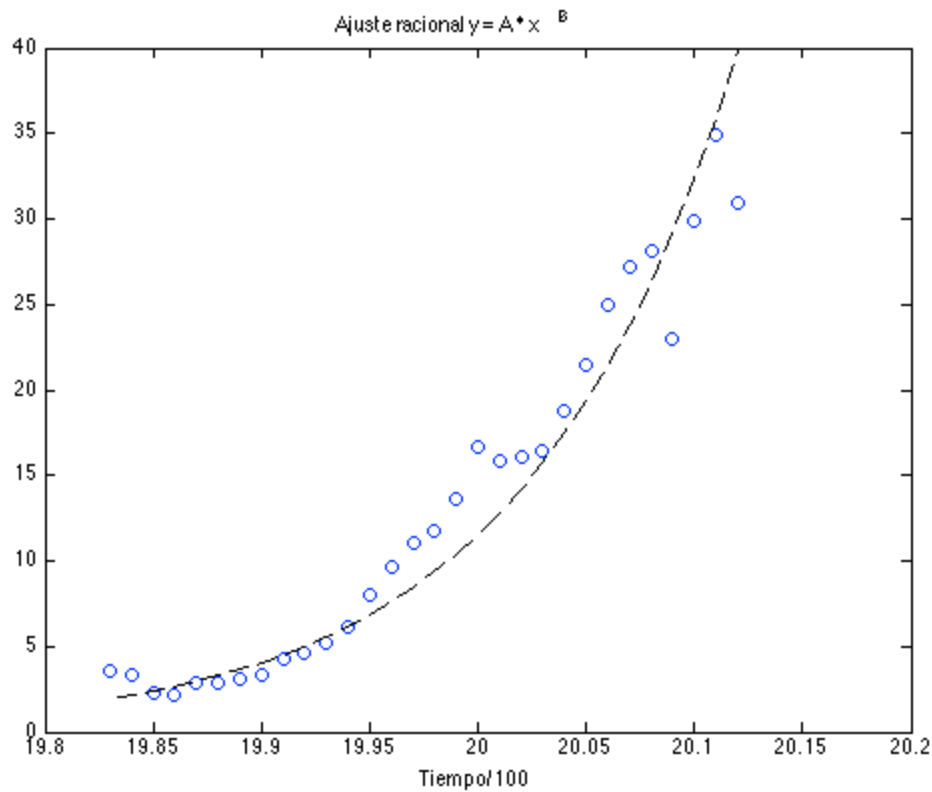
-618.3179  
207.2155

Intervalos de confianza

delta2 =

76.7246  
25.6531





### Regresion lineal en escala lineal-log:

```
load balanza.txt
type balanza.txt

% Asignamos variables y escalamos.
maxt = max(balanza(:,1));
x2 = (balanza(:,1));
y2 = (1e-4*balanza(:,2)); % Los datos aqui estan escalados a 10^{-4}

[mw2, delta2] = minweights(x2, log(y2));
%
% Desplegar los valores parametricos
%
disp('Los valores parametricos son');
mw2
%
% Calculo de los intervalos de confianza de los parametros.
%
disp('Intervalos de confianza')
delta2
%
% Graficas de los datos y su regresion.
%
figure
plot(x2,y2,'o')
hold on
plot(x2,exp(mw2(1))*exp(mw2(2)*(x2)),'--k')
```

```
title('Ajuste exponencial y = A * exp(B * x)')
xlabel('Tiempo')
```

```
%% AN~O | export | import | balanza comercial
```

```
1983 35259.00 22516.00 12743.00
1984 33456.20 23894.00 9562.20
1985 22450.00 20745.00 1705.00
1986 21956.27 19689.00 2267.27
1987 29126.23 24987.00 4139.23
1988 28685.20 27954.00 731.20
1989 30845.49 30896.00 -50.51
1990 33489.46 33478.00 11.46
1991 42687.52 49966.56 -7279.04
1992 46195.62 62129.35 -15933.73
1993 51885.97 65366.54 -13480.57
1994 60882.20 79345.90 -18463.70
1995 79541.55 72453.07 7088.49
1996 95999.74 89468.77 6530.97
1997 110431.50 109808.20 623.30
1998 117539.29 125373.06 -7833.76
1999 136361.82 141974.76 -5612.95
2000 166120.74 174457.82 -8337.09
2001 158779.73 168396.43 -9616.70
2002 161045.98 168678.89 -7632.91
2003 164766.44 170545.84 -5779.41
2004 187998.56 196809.65 -8811.10
2005 214232.96 221819.53 -7586.57
2006 249925.14 256058.35 -6133.21
2007 271875.31 281949.05 -10073.74
2008 281342.60 308603.25 -17260.66
2009 229703.55 234384.97 -4681.42
2010 298473.15 301481.82 -3008.67
2011 349375.04 350842.88 -1467.83
2012 309298.32 308827.34 470.98
```

Los valores parametricos son

```
mw2 =
```

```
-205.3117
  0.1039
```

Intervalos de confianza

```
delta2 =
```

```
25.5555
  0.0128
```

