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### 12005567, 12311476, 11822281, 11909727, 12009144
### 12316149, 12308432, 12319532, 12004501, 12314615
### 12309661, 12315630, 12308171
m = read.table("...", header=TRUE)
### exo 1 ###
mod1 = lm(log(Y)~X, data = m); su1 = summary(mod1)
par(mfrow = c(2,2))
plot(mod1)
###
mod2 = lm(Y~log(X), data = m); su2 = summary(mod2)
plot(mod2);
###
mod3 = lm(Y~X, data = m); su3 = summary(mod3)
plot(mod3)
###
R1 = 1-sum((m$Y-exp(mod1$fitted.values))^2)/sum((m$Y-
mean(m$Y))^2)
R2 = su2$r.squared
R3 = su3$r.squared
RR = round(c(su1$r.squared, su2$r.squared,
su3$r.squared), digits = 4)
RRp = round(c(R1, R2, R3), digits = 4);
odR = order(c(R1, R2, R3))
# RR; RRp; odR;
ab1 = round(c(mod1$coefficients, 0), digits = 4)
ab2 = round(c(mod2$coefficients, 0), digits = 4)
ab3 = round(c(mod3$coefficients, 0), digits = 4)
# ab1; ab2; ab3
ah = round(c(ab1[2], ab2[2], ab3[2]), digits = 4)
sah =
round(c(su1$coefficients[2,2],su2$coefficients[2,2],su3$
digits = 4)
a0 = trunc(ah)+1
tv = round(abs(ah-a0)/sah, digits = 4); pv =
round(pt(tv, su1$df[2], lower.tail = F)*2, digits = 4)
# tv; pv
res = rbind(RR, RRp, odR, ab1, ab2, ab3)
res = rbind(res, ah, sah, a0, tv, pv)
newdata=data.frame(X=17)
prel =
round(predict(mod1,newdata,interval="prediction"),
digits = 4)

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con1 =
round(predict(mod1,newdata,interval="confidence"),
digits = 4)
pre2 =
round(predict(mod2,newdata,interval="prediction"),
digits = 4)
con2 =
round(predict(mod2,newdata,interval="confidence"),
digits = 4)
pre3 =
round(predict(mod3,newdata,interval="prediction"),
digits = 4)
con3 =
round(predict(mod3,newdata,interval="confidence"),
digits = 4)
# pre1; con1; pre2; con2; pre3; con3
dimnames(pre1)[[1]]="pre1"; dimnames(con1)[[1]]="con1"
dimnames(pre2)[[1]]="pre2"; dimnames(con2)[[1]]="con2"
dimnames(pre3)[[1]]="pre3"; dimnames(con3)[[1]]="con3"
res = rbind(res, pre1, con1, pre2, con2, pre3, con3)
### 12306885, 12313691, 12002740, 12312118, 12316071
### 11904783, 12307879, 12314440, 12311105, 12310382
m = read.table("...", header=TRUE)
### exo 1 ###
mod1 = lm(log(Y)~log(X), data = m); su1 = summary(mod1)
par(mfrow = c(2,2))
plot(mod1)
###
mod2 = lm(log(Y)~X, data = m); su2 = summary(mod2)
plot(mod2);
###
mod3 = lm(Y~X, data = m); su3 = summary(mod3)
plot(mod3)
###
R1 = 1-sum((m$Y-exp(mod1$fitted.values))^2)/sum((m$Y-
mean(m$Y))^2)
R2 = 1-sum((m$Y-exp(mod2$fitted.values))^2)/sum((m$Y-
mean(m$Y))^2);
R3 = su3$r.squared
RR = round(c(su1$r.squared, su2$r.squared,
su3$r.squared), digits = 4)
RRp = round(c(R1, R2, R3), digits = 4);

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odR = order(c(R1, R2, R3))
# RR; RRp; odR;
ab1 = round(c(mod1$coefficients,
exp(mod1$coefficients[1])), digits = 4)
ab2 = round(c(mod2$coefficients, 0), digits = 4)
ab3 = round(c(mod3$coefficients, 0), digits = 4)
# ab1; ab2; ab3
ah = round(c(ab1[2], ab2[2], ab3[2]), digits = 4)
sah =
round(c(su1$coefficients[2,2],su2$coefficients[2,2],su3$
digits = 4)
a0 = trunc(ah)
tv = round((ah-a0)/sah, digits = 4); pv = round(pt(tv,
su1$df[2], lower.tail = F), digits = 4)
# tv; pv
res = rbind(RR, RRp, odR, ab1, ab2, ab3)
res = rbind(res, ah, sah, a0, tv, pv)
newdata=data.frame(X=20)
pre1 =
round(predict(mod1,newdata,interval="prediction"),
digits = 4)
con1 =
round(predict(mod1,newdata,interval="confidence"),
digits = 4)
pre2 =
round(predict(mod2,newdata,interval="prediction"),
digits = 4)
con2 =
round(predict(mod2,newdata,interval="confidence"),
digits = 4)
pre3 =
round(predict(mod3,newdata,interval="prediction"),
digits = 4)
con3 =
round(predict(mod3,newdata,interval="confidence"),
digits = 4)
# pre1; con1; pre2; con2; pre3; con3
dimnames(pre1)[[1]]="pre1"; dimnames(con1)[[1]]="con1"
dimnames(pre2)[[1]]="pre2"; dimnames(con2)[[1]]="con2"
dimnames(pre3)[[1]]="pre3"; dimnames(con3)[[1]]="con3"
res = rbind(res, pre1, con1, pre2, con2, pre3, con3)
### 12201701, 12006105, 11907220, 12216570

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### 12311720, 12314156, 11919353, 12307445
### 12312654, 12317112, 12308443
m = read.table("...", header=TRUE)
### exo 1 ###
mod1 = lm(log(Y)~X, data = m); su1 = summary(mod1)
par(mfrow = c(2,2))
plot(mod1)
###
N = 1/m$X
mod2 = lm(Y~N, data = m); su2 = summary(mod2)
plot(mod2);
###
mod3 = lm(Y~X, data = m); su3 = summary(mod3)
plot(mod3)
###
R1 = 1-sum((m$Y-exp(mod1$fitted.values))^2)/sum((m$Y-
mean(m$Y))^2)
R2 = su2$r.squared; R3 = su3$r.squared
RR = round(c(su1$r.squared, su2$r.squared,
su3$r.squared), digits = 4)
RRp = round(c(R1, R2, R3), digits = 4);
odR = order(c(R1, R2, R3))
# RR; RRp; odR;
ab1 = round(c(mod1$coefficients, 0), digits = 4)
ab2 = round(c(mod2$coefficients, 0), digits = 4)
ab3 = round(c(mod3$coefficients, 0), digits = 4)
# ab1; ab2; ab3
ah = round(c(ab1[2], ab2[2], ab3[2]), digits = 4)
sah =
round(c(su1$coefficients[2,2],su2$coefficients[2,2],su3$
digits = 4)
a0 = trunc(ah)
tv = round(abs(ah-a0)/sah, digits = 4); pv =
round(pt(tv, su1$df[2], lower.tail = F)*2, digits = 4)
# tv; pv
res = rbind(RR, RRp, odR, ab1, ab2, ab3)
res = rbind(res, ah, sah, a0, tv, pv)
newdata=data.frame(X=18)
prel =
round(predict(mod1,newdata,interval="prediction"),
digits = 4)
con1 =

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round(predict(mod1,newdata, interval="confidence"),
digits = 4)
newdata2=data.frame(N=1/18)
pre2 =
round(predict(mod2,newdata2, interval="prediction"),
digits = 4)
con2 =
round(predict(mod2,newdata2, interval="confidence"),
digits = 4)
pre3 =
round(predict(mod3,newdata, interval="prediction"),
digits = 4)
con3 =
round(predict(mod3,newdata, interval="confidence"),
digits = 4)
# pre1; con1; pre2; con2; pre3; con3
dimnames(pre1)[[1]]="pre1"; dimnames(con1)[[1]]="con1"
dimnames(pre2)[[1]]="pre2"; dimnames(con2)[[1]]="con2"
dimnames(pre3)[[1]]="pre3"; dimnames(con3)[[1]]="con3"
res = rbind(res, pre1, con1, pre2, con2, pre3, con3)
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