Duration of Unemployment - Logit Model

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At first the "unemployment" data from the "catdata" package are loaded and attached.

```
> library(catdata)
> data(unemployment)
> attach(unemployment)
```

Now a frequency table is created and used to fit a Logit model based on grouped data.

```
> durbin <- as.factor(durbin)
> table.durbin <- ftable(subset(unemployment, select=c("age", "durbin")),
+ col.vars="durbin")
> rels<-table.durbin[,1]/rowSums(table.durbin)
> age.new <- min(age):max(age)
> model1 <- glm(table.durbin ~ age.new, family=binomial)
> summary(model1)
```

Here the observed frequencies are plotted against the fitted probabilities.

```
> plot(age.new, model1$fitted.values, xlab="Age", ylab="Observed/Fitted values",
+ type="l", ylim=c(0,1))
> points(age.new,table.durbin[,1]/rowSums(table.durbin))
```

The standardized deviance residuals are plotted against the predicted values and a quantile plot is created.

```
> plot(model1$fitted.values,sqrt(rowSums(table.durbin))*rstandard(model1),
+ xlab="Predicted values", ylab="Residuals")

> qqnorm(sqrt(rowSums(table.durbin))*rstandard(model1), main="",
+        ylab="Standardized deviance residuals")
> qqline(sqrt(rowSums(table.durbin))*rstandard(model1), lwd=2.5,
+        lty="dashed", col="red")
```