ROUGH ESTIMATE OF PATHOLOGICAL LIARS ON EARTH

ZULFIKAR MOINUDDIN AHMED

The work of Serota, Levine and Boster [1] leads to an $R^2 = 0.7$ fit of an exponential model of per-day lying with 60% who do not lie at all and the liars following an exponential distribution with parameter $\lambda = 0.42$.

We define pathological liar as someone who tells 20+ lies per day. The easy estimate for the number of pathological liars on Earth is

$$p\ell = 56m$$

Now 56 million people is quite a large estimate, but the rest would be quite bounded in their lies per day. The total population of not too dishonest people is 7,744 million.

1. Serota-Levine-Boster Distribution Fit by Exponential Distribution

```
> summary(mod.lies)

Call:
lm(formula = log(lies + 1e-05) ~ tlies)

Residuals:
    Min      1Q  Median      3Q     Max
-3.8461 -0.3942  0.0153  0.7735  2.5377

Coefficients:
            Estimate Std. Error t value
(Intercept) -0.52010    0.74984  -0.694
```

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```
tlies       -0.42039    0.06577  -6.392
            Pr(>|t|)
(Intercept)    0.497
tlies       6.69e-06 ***
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Signif. codes:
0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.57 on 17 degrees of freedom
Multiple R-squared:  0.7062,Adjusted R-squared:  0.6889
F-statistic: 40.86 on 1 and 17 DF,  p-value: 6.687e-06
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References

[1] Serota, Levine, Boster, "Prevalence of Lying in America: Three Studies of Self-Reported Lying",Human Communication Research 36(2010) 2–25