

Ability to make money develops before birth, study suggests

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Credit: National Research University Higher School of Economics

Researchers from the Higher School of Economics have shown how the level of perinatal testosterone, the sex hormone, impacts a person's earnings in life.

Prior research confirms that many skills and success are linked to the widely known 2D:4D ratio, also known as the digit ratio. This is the ratio of the index and ring fingers, and it is considered a reflection of the level of perinatal testosterone that acts on the development of the fetus during pregnancy.

A new study conducted by a team of scientists from HSE's Centre for Institutional Studies has been published in the journal *Economics and Human Biology* using Russian data to show the link between the 2D:4D ratio and a person's income.

The researchers conducted [regression analysis](#) using the results of the 20th round of the Russia Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE). The number of observations in the base regressions totaled nearly 700 for men and 900 for women, and the age of the subjects varied between 25 and 60. A 2D:4D ratio was made for each participant using a specialised apparatus. In addition, the respondents, whose identities remained anonymous, were asked a number of questions concerning income and salaries.

The results of the regression analysis showed a negative correlation between the income and 2D:4D ratios of women. In other words, the higher the salary, the lower the ratio. The effect was negative even when taking into account salary predictors such as gender, age, education level, job position, and the position's economic sector. What is interesting is that this quantitative association is seen in men as well, though only after taking into account respondents' level of education. This peculiarity, the authors note, is the subject of future research on broader, more multidisciplinary topics such as the connection between 2D:4D and academic success, as well as associations between [education level](#) and 2D:4D.

Researchers are carefully studying income variation. In particular, they

are analysing income predictors such as intellectual capabilities and psychological factors, as well as a person's biological characteristics, notes one of the study's authors, Maria Yudkevich. This is why 2D:4D research is truly a multidisciplinary topic.

How the Digit Ratio is Calculated

There are several ways to figure out the 2D:4D ratio. The above-mentioned research uses an electronic caliper. Respondents were asked to place their hands on a flat surface, palms facing upwards, and straighten out their fingers. A researcher then measured the length of the index and [ring fingers](#) on both hands (the paper notes that this measurement should be taken from the centre of the fold between the finger and palm up to the very tip of the finger so that the upper lip of the caliper does not press against the finger). Lastly, the interviewer recorded the results.

Another method for taking the measurement is more hands-on, but offers practically the same level of reliability. Respondents' palms are scanned and then the fingers measured using a photograph. The main advantage to this method is that secondary measurements can easily be taken. But when a large number of research subjects are participating, it can be quite expensive to equip each researcher with the special scanner.

More information: John V.C. Nye et al, The effects of prenatal testosterone on wages: Evidence from Russia, *Economics & Human Biology* (2017). [DOI: 10.1016/j.ehb.2016.11.003](https://doi.org/10.1016/j.ehb.2016.11.003)

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