Zbl 104.27202

Erdős, Pál; Schinzel, A.

Distributions of the values of some arithmetical functions (In English)

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A.Schinzel und *Y. Wang* proved: Given $a_1, a_2, a_3, ..., a_h \geq 0$, $\varepsilon > 0$, there exist $c > 0$ and $x_0 > 0$ such that the number of positive integers $n \leq x$ with $|\varphi(n+i)/\varphi(n+i-1) - a_i| < \varepsilon (1 \leq i \leq h)$ is greater than $cx/\log^{h+1} x$ if $x > x_0$ (Zbl 070.04201; Zbl 081.04203). Here φ is Euler's function. A similar result was proven for σ. *Shao Pin Tsung* (Zbl 072.03304) extended these results to all positive multiplicative functions satisfying certain density conditions. The present paper strengthens the results by way of replacing the lower estimate $cx/\log^{h+1} x$ by cx for positive multiplicative functions f_s satisfying : $\sum (f_s(p) - p^s)^2 p^{-2s-1} < \infty$ (over primes p) and there exists an interval $\langle a, b\rangle$, with $a = 0$ or $b = \infty$, such that for every integer $M > 0$ the set of numbers $f_s(N)/N^s$, with $(N, M) = 1$, is dense in $\langle a, b\rangle$.

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