

Overall, this is an interesting, thorough, and well-written paper. I would certainly recommend it for publication, but I do have some minor comments and suggestions.

page 3:

- In the second paragraph, just above eqn. (5), it would be useful to have a page number for reference [9], as is done immediately afterwards [20, p. 43] and indeed throughout the paper.
- A reference would be useful for eqn. (8).
- Near the end of the page, just above eqn. (9), the authors state, “Before engaging in a detailed study of the b_n , we note a few simple facts about their elementary properties,” but do not give any such properties of b_n . Instead, there is a discussion of the related quantities δ_n .

page 4:

- In analytic number theory, the function $\psi(x)$ is used to denote the summatory function of the von Mangoldt function. It would be desirable to use a different notation for the logarithmic derivative of Γ , which appears between eqns. (10) and (11).
- As far as I can tell, the first equality in (12) is nontrivial. Either a reference or an indication of how this result was obtained would be necessary, in my opinion.
- At the beginning of section 2, it is recommended that the authors provide more detail on how the b_n were numerically evaluated (at the very least, which software package was used).
- At the bottom of the page, the polynomial $q(k)$ merits some explanation. One assumes that “the k th zero” refers to zeroes of the sequence b_n , but unless there is something else going on, this should make sense only for integer values of n . Why then should irrational coefficients be used in this polynomial? Is there perhaps something more subtle at work?

page 5:

- In eqn. (13) and the discussion immediately above it, the value of K is given as 3.6 ± 0.1 , but in light of Theorem 1, the precise value of K can be given as $2\sqrt{\pi}$. It seems counterintuitive to include the exact values related to π in the $q(k)$ polynomial (as mentioned above) but to settle for a decimal approximation in K .

page 6:

- Eqn. (15) is correct, but the subsequent justification is, in this referee's opinion, not as rigorous as one would hope. Choose $T > n$, and consider the finite contour (negatively oriented) consisting of the line from $\frac{3}{2} - iT$ to $\frac{3}{2} + iT$, followed by the clockwise arc of $|s| = \sqrt{T^2 + 9/4}$ that lays to the right of the given line. The contribution from the circular arc is $O(T^{-n-1})$ and thus vanishes as $T \rightarrow +\infty$.
- An equivalent form of the functional equation for the zeta function is:

$$\zeta(s) = 2\Gamma(1-s)(2\pi)^{s-1} \sin \frac{\pi s}{2} \zeta(1-s).$$

Using this first in (16) and then replacing s by $-s$ gives (18) on the next page in a more obvious way.

page 7:

- In the paragraphs between eqns. (18) and (19), it is stated that the integrand in (18) “decays fast enough” to move the vertical line of integration. Given the estimates (20)-(22), it is possible to replace this with a more precise big-oh statement without much difficulty.

page 12:

- The statement below eqn. (37) should instead read, “Any Dirichlet L-function...” since there are more general L-functions which can't be written in terms of Hurwitz zetas.