We use the large sieve inequality to show that if $a_1, \ldots, a_n$ are odd and coprime positive integers, then for a positive proportion of integral vectors $(m_1, \ldots, m_n)$ the values of the $m_1^{a_1} \cdots m_n^{a_n} - 1$ are rather smooth.

Address:
Étienne Fouvry
Université Paris-Sud 11
Laboratoire de Mathématiques
UMR 8628 CNRS
Orsay F-91405 Orsay Cedex
France

Address:
Igor E. Shparlinski
Department of Computing
Macquarie University
Sydney, NSW 2109
Australia