Selcuk Koyuncu* (skoyuncu@ung.edu) and Lei Cao (leicaomath@gmail.com). Sub-defect of Product of Doubly Substochastic Matrices.

The sub-defect of an \( n \times n \) doubly substochastic matrix \( S \), denoted by \( sd(S) \), is defined to be the smallest integer \( k \) such that there exists an \( (n + k) \times (n + k) \) doubly stochastic matrix containing \( S \) as a submatrix. Let \( A \) and \( B \) be arbitrary doubly substochastic matrices. We show that \( AB \) is also a doubly substochastic matrix and \( \max\{sd(A), sd(B)\} \leq sd(AB) \leq \min\{n, sd(A) + sd(B)\} \). (Received September 20, 2016)