

# Seeking for a joint pmf given the sum of the marginal distributions

Damjana Kokol Bukovšek, Matjaž Omladič  
and Gregor Šega

*University of Ljubljana, Slovenia*

## Abstract

When a discussion of the exchange rates among currencies of several countries is given, the usual approach is to study the rates of all these currencies towards the currency of a given country, sometimes called the numeraire currency, and then compute their bilateral relations from there. It is our aim to discuss possible quantitatively based backgrounds on the exchange rates of countries without giving any of them a special role. For instance, if we take three comparable countries  $A$ ,  $B$  and  $C$  and denote by  $X$ , resp.  $Y$ , resp.  $Z$ , the logarithm of the nominal exchange rate of currency of the country  $B$ , resp.  $C$ , resp.  $A$ , in terms of the currency of country  $A$ , resp.  $B$ , resp.  $C$ , then we clearly must have  $X + Y + Z = 0$ . It is the aim of this paper to apply linear and multilinear algebra theory in order to shed some light on these and similar questions.