subtracting the demand from the real value of the cost function. Additionally, the probability associated with the risk is calculated by dividing the residual with the demand. The output is the risk magnitude.

Figure 2: Psuedo Supply Chain Model using Fuzzy Inference system

In Fig. 2, A Fuzzy Inference System (FIS) is used to evaluate the risk factor. A FIS is a rule-based system that operates on linguistic variables, which represents uncertainty or vagueness in the magnitude of the input variables. The FIS input parameters are demand, residual loss, probability of risk and the output is the risk magnitude.

Figure 3: Quasi-Experimental setup for Risk Analyses in Supply Chain Networks

As shown in Fig. 3, a sine-wave generator is used to synthesize a sinusoidal waveform expressed in equation 6 with amplitude equal to 'A'. The value 'A' denotes the peak magnitude of disruptions to be introduced to the supply chain system in order to evaluate its resilience. The demand is generated as a discrete waveform with constant amplitude of value 'd'. Both the input signals are introduced to the pseudo supply chain model, which then evaluates the risk factor.

4 Citing the Dataset

The dataset is available online in Mendeley Data library. To manually add the dataset in the bibliography, use the following:

"Banerjee, Heerok; Saparia, Grishma; Ganapathy, Velappa; Garg, Priyanshi; Shenbagaraman, V. M. (2019), “Time Series Dataset for Risk Assessment in Supply Chain Networks”, Mendeley Data, v2 http://dx.doi.org/10.17632/gystn6d3r4.2"
References


