Supplementary Material of "Numerical Analysis of Pareto Set Modeling"

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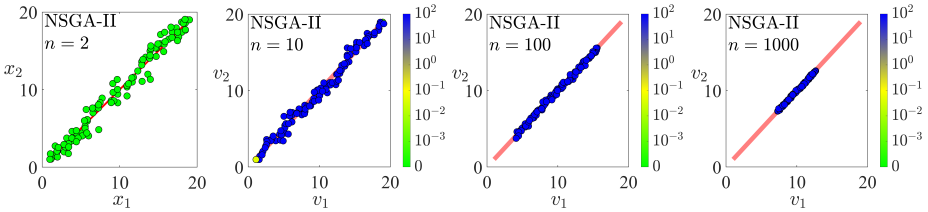
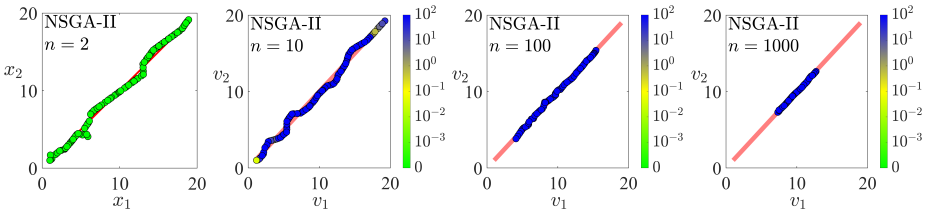
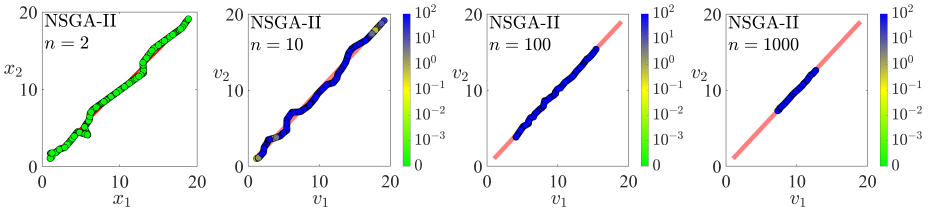


(a) Final populations (i.e., training data sets)



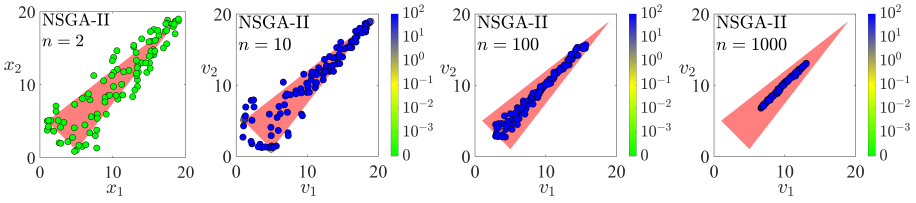
(b) Model outputs for training weight vectors as inputs



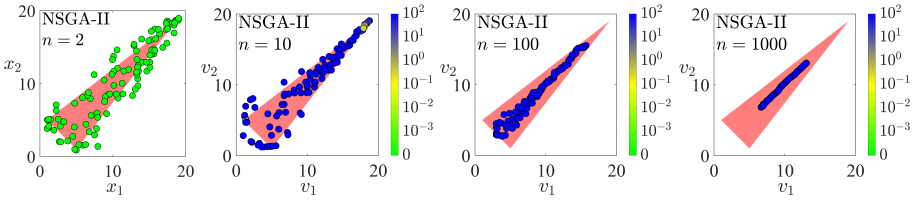
(c) Model outputs for interpolation-based weight vectors as inputs

Fig. 1: Results for NSGA-II on the two-objective distance minimization problem with different specifications of the number of decision variables.

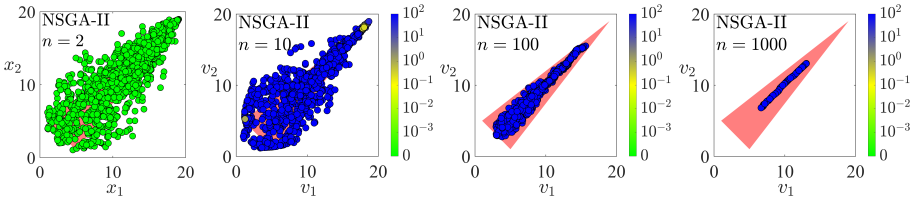
* Corresponding Author: Hisao Ishibuchi



(a) Final populations (i.e., training data sets)

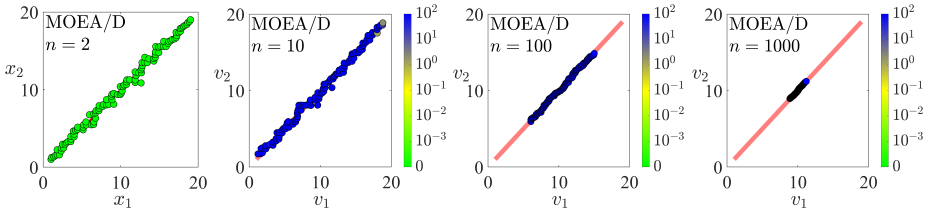


(b) Model outputs for training weight vectors as inputs

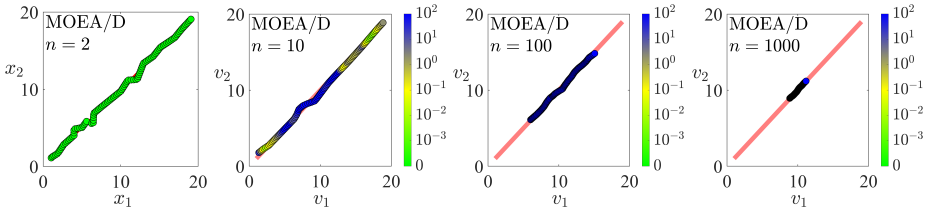


(c) Model outputs for interpolation-based weight vectors as inputs

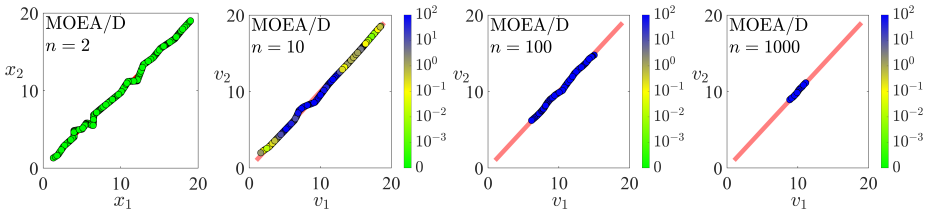
Fig. 2: Results for NSGA-II on the three-objective distance minimization problem with different specifications of the number of decision variables.



(a) Final populations (i.e., training data sets)

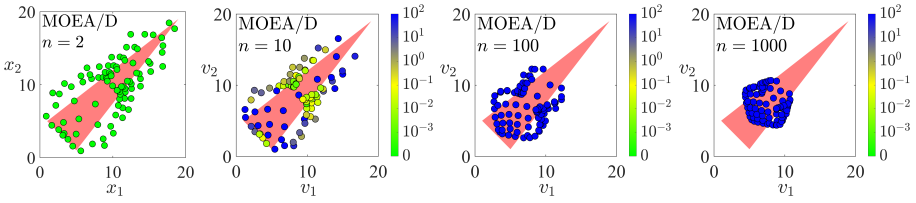


(b) Model outputs for training weight vectors as inputs

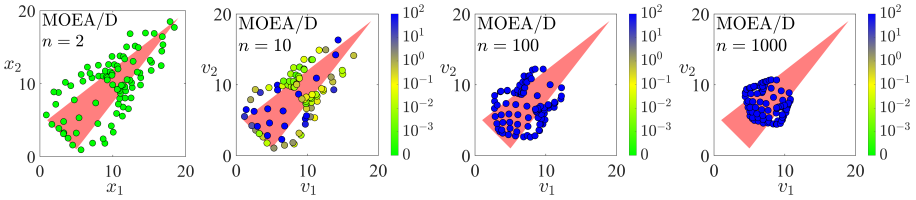


(c) Model outputs for interpolation-based weight vectors as inputs

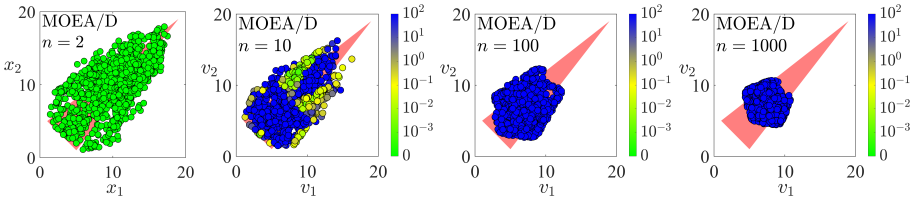
Fig. 3: Results for MOEA/D on the two-objective distance minimization problem with different specifications of the number of decision variables.



(a) Final populations (i.e., training data sets)

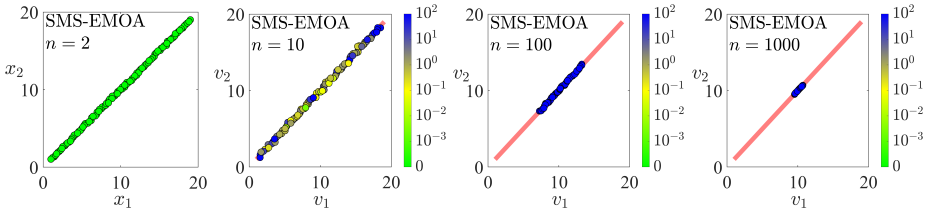


(b) Model outputs for training weight vectors as inputs

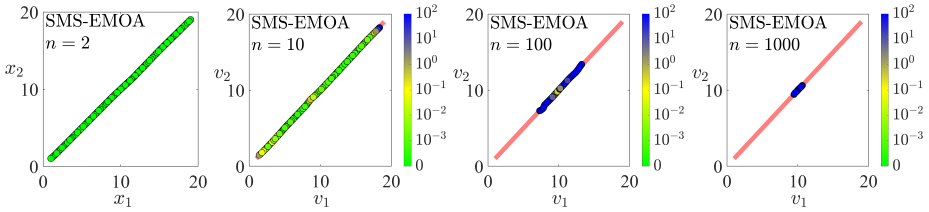


(c) Model outputs for interpolation-based weight vectors as inputs

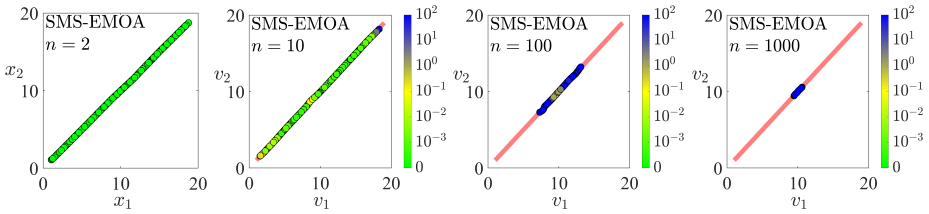
Fig. 4: Results for MOEA/D on the three-objective distance minimization problem with different specifications of the number of decision variables.



(a) Final populations (i.e., training data sets)

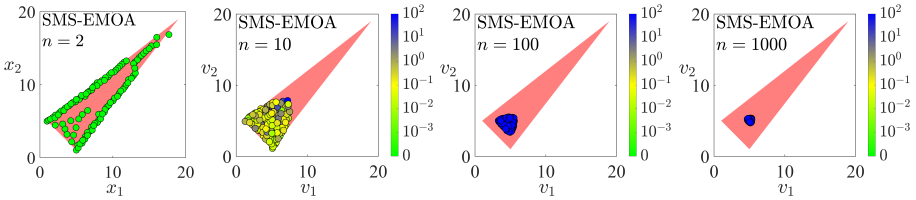


(b) Model outputs for training weight vectors as inputs

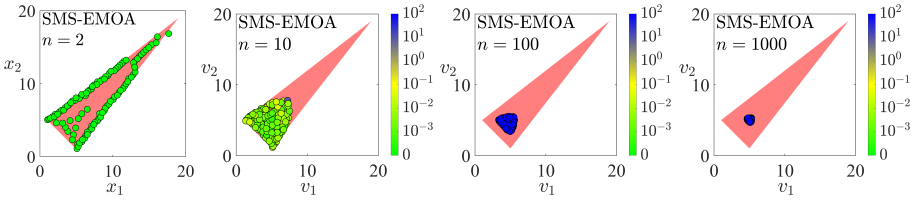


(c) Model outputs for interpolation-based weight vectors as inputs

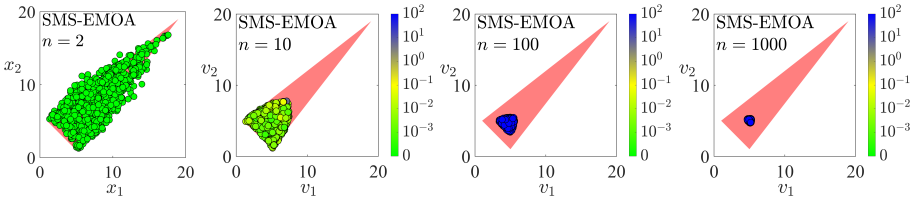
Fig. 5: Results for SMS-EMOA on the two-objective distance minimization problem with different specifications of the number of decision variables.



(a) Final populations (i.e., training data sets)

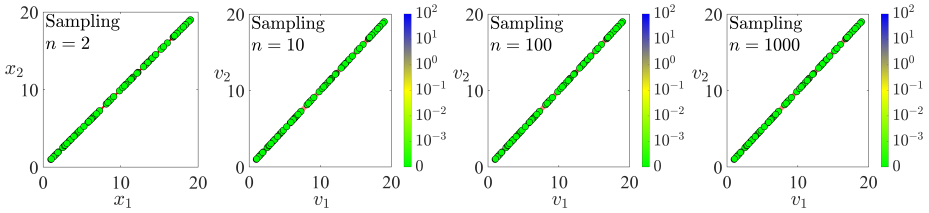


(b) Model outputs for training weight vectors as inputs

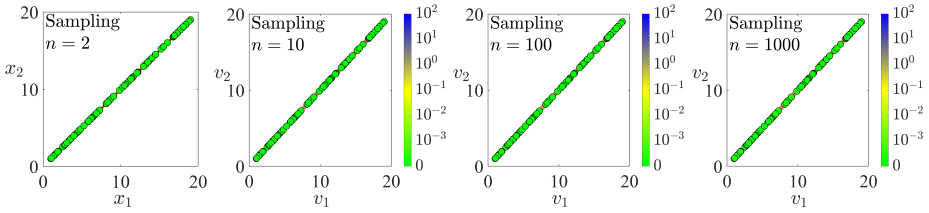


(c) Model outputs for interpolation-based weight vectors as inputs

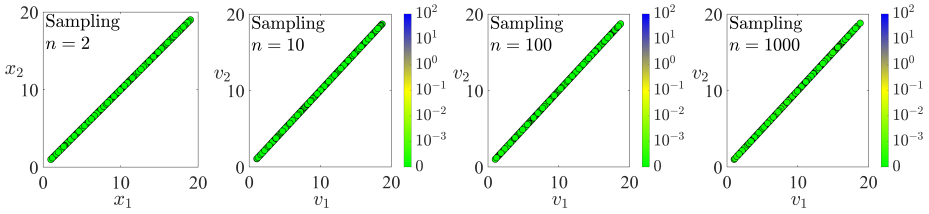
Fig. 6: Results for SMS-EMOA on the three-objective distance minimization problem with different specifications of the number of decision variables.



(a) Training data sets

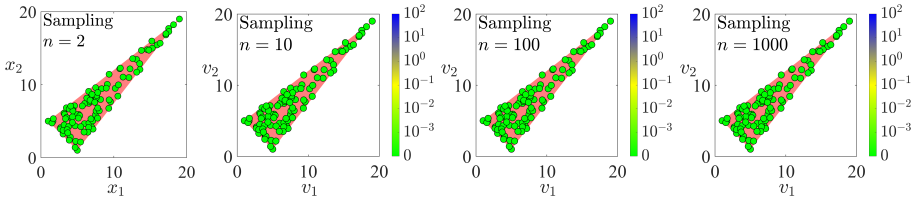


(b) Model outputs for training weight vectors as inputs

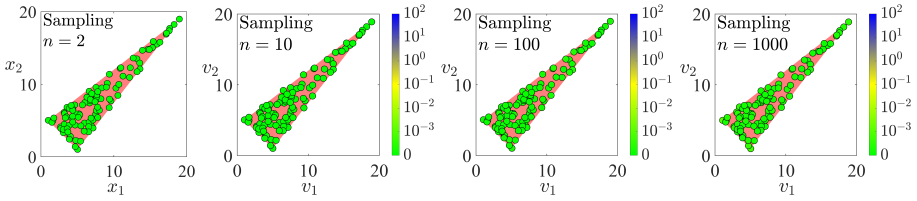


(c) Model outputs for interpolation-based weight vectors as inputs

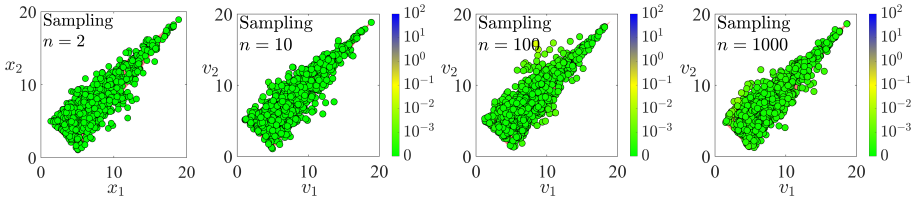
Fig. 7: Results for the two-objective distance minimization problem with different specifications of the number of decision variables. The training data sets are sampled from the true Pareto set of each test problem.



(a) Training data sets



(b) Model outputs for training weight vectors as inputs



(c) Model outputs for interpolation-based weight vectors as inputs

Fig. 8: Results for the three-objective distance minimization problem with different specifications of the number of decision variables. The training data sets are sampled from the true Pareto set of each test problem.