Online Supplement for Multi-Vehicle Sequential Resource Allocation for a Nonprofit Distribution System by Burcu Balcik, Seyed Iranavi and Karen Smilowitz

A. Comparison of Δ_{2-1} and Δ_{3-1}

Table 1: Δ_{2-1} and Δ_{3-1} values (for a set of instances with 6 donors and 6 agencies)

		Δ_{2-1}			Δ_{3-1}		
		scarce	equal	ample	scarce	equal	ample
identical demand distributions	low CV	2.5%	1.8%	-0.7%	6.5%	3.6%	-1.0%
	high CV	7.8%	4.3%	1.4%	13.1%	7.5%	2.9%
partially identical demand distributions	low CV	2.5%	1.8%	-0.7%	6.5%	3.6%	-1.0%
	high CV	7.8%	4.3%	1.4%	13.1%	7.5%	2.9%

B. Pseudocode for the DBH Improvement Moves

S0. Inputs

κ : iteration limit
 ν : iteration index; Set $\nu = 0$.
 $C, \hat{C}$: set of clusters; Set $\hat{C} = C$.
 $f(c)$: expected minimum fill-rate of cluster $c \in C$
 Z_ν = MSRA-e objective value at iteration ν
 $\hat{P}$: parameter to limit the number of cluster pairs ($\hat{P} \leq C - 1$); Set $\hat{p} = 1$.

S1. Initialization

S1a. $\nu = \nu + 1$. If $\nu = \kappa$, STOP.
S1b. c_{min} : worst-performing cluster; $c_{min} = \arg \min_{c \in C} f(c)$
S1c. c_{max} : best-performing cluster; $c_{max} = \arg \max_{c \in \hat{C}} f(c)$
S1d. $Z_\nu = \min_{c \in C} f(c)$.
S1e. If c_{min} includes more than one agency, go to S2; else, go to S3.

S2. Remove/Insert Agency

S2a. Select the agency with minimum demand mean to remove from c_{min} : $\alpha = \arg \min_{i \in c_{min}} (\mu_i)$.
S2b. Apply: $DeleteAddNode(\alpha, c_{min}, c_{max})$, $Sequence(c_{min})$, $Sequence(c_{max})$, $Allocate(c_{min})$, and $Allocate(c_{max})$.
S2c. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (remove and insert α) and go to S1. Else, do not make the move and go to S2d.
S2d. Select the agency with minimum demand standard deviation to remove from c_{min} : $\alpha = \arg \min_{i \in c_{min}} (\sigma_i)$.
S2e. Apply: $DeleteAddNode(\alpha, c_{min}, c_{max})$, $Sequence(c_{min})$, $Sequence(c_{max})$, $Allocate(c_{min})$, and $Allocate(c_{max})$.
S2f. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (remove and insert α) and go to S1. Else, do not make the move and go to S3.

S3. Exchange Agencies

S3a. Calculate $\Delta_{i,i'} = \mu_i - \mu_{i'}, \mu_{i'} < \mu_i, \forall i \in c_{min} \text{ and } \forall i' \in c_{max}$.
S3b. If $\exists \Delta_{i,i'} > 0$, then select agencies for exchange: $(\alpha, \beta) = \arg \min_{i,i'} (\Delta_{i,i'})$ and go to S3c. Else, go to S3e.
S3c. Apply: $DeleteAddNode(\alpha, c_{min}, c_{max})$, $DeleteAddNode(\beta, c_{max}, c_{min})$, $Sequence(c_{min})$, $Sequence(c_{max})$, $Allocate(c_{min})$, and $Allocate(c_{max})$.
S3d. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (exchange agencies α and β) and go to S1. Else, do not make the move and go to S3e.
S3e. Calculate $\Delta_{i,i'} = \sigma_i - \sigma_{i'}, \sigma_{i'} < \sigma_i, \forall i \in c_{min} \text{ and } \forall i' \in c_{max}$.
S3f. If $\exists \Delta_{i,i'} > 0$, then select agencies for exchange: $(\alpha, \beta) = \arg \min_{i,i'} (\Delta_{i,i'})$ and go to S3g. Else, go to S4.
S3g. Apply: $DeleteAddNode(\alpha, c_{min}, c_{max})$, $DeleteAddNode(\beta, c_{max}, c_{min})$, $Sequence(c_{min})$, $Sequence(c_{max})$,

$Allocate(c_{min})$, and $Allocate(c_{max})$.

S3h. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (exchange agencies α and β) and go to S1. Else, do not make the move and go to S4.

S4. Remove/Insert Donor

S4a. If c_{max} includes more than one donor, then continue with S4b; else, go to S5.

S4b. Select the smallest donor to remove from c_{max} ; $\gamma = \arg \min_{j \in c_{max}}(q_j)$.

S4c. Apply: $DeleteAddNode(\gamma, c_{max}, c_{min})$, $Allocate(c_{min})$, and $Allocate(c_{max})$.

S4d. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (remove and insert γ) and go to S1. Else, do not make the move and go to S5.

S5. Exchange Donors

S5a. Calculate $\Delta_{j,j'} = q_j - q_{j'}, q_{j'} < q_j, \forall j \in c_{min} \text{ and } \forall j' \in c_{max}$.

S5b. If $\exists \Delta_{j,j'} > 0$, select donors for exchange: $(\gamma, \eta) = \arg \min_{j,j'}(\Delta_{j,j'})$ and go to S5c. Else, apply: $SelectNextBestCluster(\hat{C}, \hat{p})$.

S5c. Apply: $DeleteAddNode(\gamma, c_{min}, c_{max})$, $DeleteAddNode(\eta, c_{max}, c_{min})$, $Allocate(c_{min})$, and $Allocate(c_{max})$.

S5d. If $\min(f(c_{min}), f(c_{max})) > Z_\nu$, make the move (exchange donors γ and η) and go to S1. Else, do not make the move and apply: $SelectNextBestCluster(\hat{C}, \hat{p})$.

Subprocedures:

$DeleteAddNode(\tilde{\eta}, c1, c2)$

s1. Remove node $\tilde{\eta}$ from cluster $c1$ and insert $\tilde{\eta}$ to cluster $c2$.

$Sequence(c1)$

s1. Order the agencies in cluster $c1$ based on decreasing coefficient of variation (CV). If CVs are the same, order based on decreasing mean.

$Allocate(c1)$

s1. Apply the TND allocation heuristic in cluster $c1$.

$SelectNextBestCluster(\hat{C}, \hat{p})$

s1. Update $\hat{C} = \hat{C} \setminus c_{max}$.

s2. If $\hat{C} = \emptyset$ or $\hat{p} = \hat{P}$, STOP. Else, set $\hat{p} = \hat{p} + 1$ and go to S1.

C. Demand and Supply Scenarios

Table 2: Demand scenarios

# of agencies	similarity of agency demand distributions*	demand distributions (mean, CV)							
4	all identical	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)
	all identical	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(50, 0.5)	(50, 0.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(25, 0.5)	(25, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
	partially identical	(25, 0.5)	(25, 0.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
	partially identical	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
5	all different	(25, 0.5)	(25, 1.5)	(75, 0.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	all identical	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)
	all identical	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(50, 0.5)	(50, 0.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(25, 0.5)	(25, 0.5)	(25, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
	partially identical	(25, 0.5)	(25, 0.5)	(25, 0.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
6	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	all different	(25, 0.5)	(25, 1.5)	(50, 0.5)	(50, 1.5)	(75, 0.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	all identical	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)	(50, 0.5)
	all identical	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(50, 0.5)	(50, 0.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)	(50, 1.5)
	partially identical	(25, 0.5)	(25, 0.5)	(25, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
	partially identical	(25, 0.5)	(25, 0.5)	(25, 0.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
7	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)	(75, 0.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)
	partially identical	(25, 1.5)	(25, 1.5)	(25, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)	(75, 1.5)

* We do not consider demand scenarios with entirely different agencies for the instances with 7 agencies due to computational limitations.

Table 3: Supply scenarios

# of agencies	# of donors	total supply level	supply amounts		
			~ equal	narrow range	wide range
4	2	scarce	(75,75)	(90,60)	(100,50)
	4		(38,38,37,37)	(45,45,30,30)	(50,50,25,25)
	6		(25,25,25,25,25,25)	(30,30,30,20,20,20)	(33,33,33,17,17,17)
	8		(19,19,19,19,19,18,18)	(23,23,22,22,15,15,15,15)	(26,26,25,25,12,12,12,12)
4	2	equal	(100,100)	(120,80)	(133,67)
	4		(50,50,50,50)	(60,60,40,40)	(67,67,33,33)
	6		(34,34,33,33,33,33)	(40,40,40,27,27,26)	(44,44,44,23,23,22)
	8		(25,25,25,25,25,25,25,25)	(30,30,30,30,20,20,20,20)	(34,34,34,34,16,16,16,16)
4	2	ample	(125,125)	(150,100)	(166,84)
	4		(63,63,62,62)	(75,75,50,50)	(84,84,41,41)
	6		(43,42,42,41,41,41)	(50,50,50,34,33,33)	(55,55,55,29,28,28)
	8		(32,32,31,31,31,31,31,31)	(38,38,37,37,25,25,25,25)	(43,43,42,42,20,20,20,20)
5	2	scarce	(94,94) or (85,84)	(113,75) or (101,68)	(125,63) or (113,56)
	4		(47,47,47,47) or (43,42,42,42)	(56,56,38,38) or (51,50,34,34)	(62,62,32,32) or (56,56,29,28)
	6		(32,32,31,31,31,31) or (29,28,28,28,28,28)	(38,38,37,25,25,25) or (34,33,33,23,23,23)	(42,41,41,22,21,21) or (38,38,37,19,19,18)
	8		(24,24,24,24,23,23,23,23) or (22,21,21,21,21,21,21,21)	(28,28,28,28,19,19,19,19) or (26,25,25,25,17,17,17,17)	(31,31,31,31,16,16,16,16) or (28,28,28,28,15,14,14,14)
5	2	equal	(125,125) or (113,112)	(150,100) or (135,90)	(166,84) or (150,75)
	4		(63,63,62,62) or (57,56,56,56)	(75,75,50,50) or (68,67,45,45)	(83,83,42,42) or (75,75,38,37)
	6		(42,42,42,42,41,41) or (38,38,38,37,37,37)	(50,50,50,34,33,33) or (45,45,45,30,30,30)	(56,55,55,28,28,28) or (50,50,50,25,25,25)
	8		(32,32,31,31,31,31,31,31) or (29,28,28,28,28,28,28,28)	(38,38,37,37,25,25,25,25) or (34,34,34,33,23,23,22,22)	(42,42,41,41,21,21,21,21) or (38,38,37,37,19,19,19,18)
5	2	ample	(157,156) or (141,140)	(188,125) or (168,113)	(208,105) or (188,93)
	4		(79,78,78,78) or (71,70,70,70)	(94,93,63,63) or (85,84,56,56)	(104,104,53,52) or (94,94,47,46)
	6		(53,53,53,52,51,51) or (48,48,48,46,46,45)	(63,63,63,42,41,41) or (56,56,56,38,38,37)	(70,69,69,35,35,35) or (63,63,62,31,31,31)
	8		(40,39,39,39,39,39,39,39) or (36,35,35,35,35,35,35,35)	(48,47,47,47,31,31,31,31) or (43,42,42,42,28,28,28,28)	(53,52,52,52,26,26,26,26) or (47,47,46,46,24,24,24,23)
6	2	scarce	(113,112)	(135,90)	(150,75)
	4		(57,56,56,56)	(68,67,45,45)	(75,75,38,37)
	6		(38,38,38,37,37,37)	(45,45,45,30,30,30)	(50,50,25,25,25,25)
	8		(29,29,28,28,28,28,28,27)	(34,34,33,33,23,23,23,22)	(38,38,37,37,19,19,19,18)
6	2	equal	(150,150)	(180,120)	(200,100)
	4		(75,75,75,75)	(90,90,60,60)	(100,100,50,50)
	6		(50,50,50,50,50,50)	(60,60,60,40,40,40)	(66,66,66,34,34,34)
	8		(38,38,38,38,37,37,37,37)	(45,45,45,45,30,30,30,30)	(50,50,50,50,25,25,25,25)
6	2	ample	(188,187)	(225,150)	(250,125)
	4		(94,94,94,93)	(113,112,75,75)	(125,124,63,63)
	6		(63,63,63,62,62,62)	(75,75,75,50,50,50)	(83,83,83,42,42,42)
	8		(48,48,48,48,46,46,46,45)	(56,56,56,56,38,38,38,37)	(63,63,63,63,31,31,31,30)
7	2	scarce	(132,131) or (122,122)	(158,105) or (146,98)	(175,88) or (162,82)
	4		(66,66,66,65) or (62,61,61,60)	(78,78,53,53) or (74,73,49,48)	(88,88,44,43) or (81,81,41,41)
	6		(44,44,44,44,44,43,43) or (41,41,41,41,40,40)	(53,53,53,35,35,34) or (49,49,49,33,32,32)	(59,59,58,29,29,29) or (54,54,54,28,27,27)
	8		(33,33,33,33,33,33,33,32) or (31,31,31,31,30,30,30,30)	(40,40,40,39,26,26,26,26) or (37,37,37,36,25,25,24,23)	(44,44,44,43,22,22,22,22) or (41,41,41,41,20,20,20,20)
7	2	equal	(175,175) or (163,162)	(210,140) or (195,130)	(233,117) or (216,109)
	4		(88,88,87,87) or (82,81,81,81)	(105,105,70,70) or (98,97,65,65)	(117,117,58,58) or (108,108,55,54)
	6		(59,59,58,58,58,58) or (54,54,54,54,54,54)	(70,70,70,47,47,46) or (65,65,65,44,43,43)	(78,78,77,39,39,39) or (72,72,72,37,36,36)
	8		(44,44,44,44,44,44,43,43) or (41,41,41,41,40,40,40,40)	(53,53,52,52,35,35,35,35) or (49,49,49,48,33,33,32,32)	(59,59,58,58,29,29,29,29) or (54,54,54,54,28,27,27,27)
7	2	ample	(219,219) or (203,203)	(263,175) or (244,162)	(292,146) or (270,136)
	4		(110,110,109,109) or (103,101,101,101)	(131,131,88,88) or (123,121,81,81)	(146,146,73,73) or (135,135,68,68)
	6		(73,73,73,73,73,73) or (69,68,68,67,67,67)	(88,88,88,58,58,58) or (81,81,81,55,54,54)	(97,97,97,49,49,49) or (90,90,90,46,45,45)
	8		(55,55,55,55,55,55,54,54) or (52,52,51,51,50,50,50,50)	(66,66,65,65,44,44,44,44) or (61,61,61,61,41,41,40,40)	(74,74,73,73,36,36,36,36) or (68,68,67,67,34,34,34,34)

D. MSRA-e Insights - Data and Results

Table 4: Demand scenarios

# of agencies	similarity of agency demand distributions	demand distributions (mean, CV)
2	all identical	(150, 0.5) (150, 0.5)
	all identical	(150, 1.0) (150, 1.0)
	all identical	(150, 1.5) (150, 1.5)
	all different	(150, 0.5) (150, 1.5)
	all different	(100, 0.5) (200, 0.5)
	all different	(100, 1.0) (200, 1.0)
	all different	(100, 1.5) (200, 1.5)
	all different	(100, 1.5) (200, 0.5)
	all different	(100, 0.5) (200, 1.5)
4	all identical	(75, 0.5) (75, 0.5) (75, 0.5) (75, 0.5)
	all identical	(75, 1.0) (75, 1.0) (75, 1.0) (75, 1.0)
	all identical	(75, 1.5) (75, 1.5) (75, 1.5) (75, 1.5)
	partially identical	(75, 0.5) (75, 0.5) (75, 1.5) (75, 1.5)
	partially identical	(50, 1.0) (50, 1.0) (100, 1.0) (100, 1.0)
	partially identical	(50, 1.5) (50, 1.5) (100, 1.5) (100, 1.5)
	partially identical	(50, 1.5) (50, 1.5) (100, 0.5) (100, 0.5)
	partially identical	(50, 0.5) (50, 0.5) (100, 1.5) (100, 1.5)
6	all identical	(50, 0.5) (50, 0.5) (50, 0.5) (50, 0.5) (50, 0.5) (50, 0.5)
	all identical	(50, 1.0) (50, 1.0) (50, 1.0) (50, 1.0) (50, 1.0) (50, 1.0)
	all identical	(50, 1.5) (50, 1.5) (50, 1.5) (50, 1.5) (50, 1.5) (50, 1.5)
	partially identical	(50, 0.5) (50, 0.5) (50, 0.5) (50, 1.5) (50, 1.5) (50, 1.5)
	partially identical	(25, 0.5) (25, 0.5) (25, 0.5) (75, 0.5) (75, 0.5) (75, 0.5)
	partially identical	(25, 1.0) (25, 1.0) (25, 1.0) (75, 1.0) (75, 1.0) (75, 1.0)
	partially identical	(25, 1.5) (25, 1.5) (25, 1.5) (75, 1.5) (75, 1.5) (75, 1.5)
	partially identical	(25, 1.5) (25, 1.5) (25, 1.5) (75, 0.5) (75, 0.5) (75, 0.5)
	partially identical	(25, 0.5) (25, 0.5) (25, 0.5) (75, 1.5) (75, 1.5) (75, 1.5)
	partially identical	(25, 0.5) (25, 0.5) (50, 0.5) (50, 0.5) (75, 0.5) (75, 0.5)
	partially identical	(25, 1.0) (25, 1.0) (50, 1.0) (50, 1.0) (75, 1.0) (75, 1.0)
	partially identical	(25, 1.5) (25, 1.5) (50, 1.5) (50, 1.5) (75, 1.5) (75, 1.5)
	partially identical	(25, 0.5) (25, 0.5) (50, 0.5) (50, 1.5) (75, 1.5) (75, 1.5)
	partially identical	(25, 1.5) (25, 1.5) (50, 1.5) (50, 0.5) (75, 0.5) (75, 0.5)

Table 5: Supply scenarios

# of donors	total supply level	supply amounts		
		~ equal	narrow range	wide range
2	scarce	(113,112)	(135,90)	(150,75)
4		(57,56,56,56)	(68,67,45,45)	(76,75,37,37)
6		(38,38,38,37,37,37)	(50,50,38,37,25,25)	(50,50,50,25,25,25)
2	equal	(150,150)	(180,120)	(200,100)
4		(75,75,75,75)	(90,90,60,60)	(100,100,50,50)
6		(50,50,50,50,50,50)	(67,67,50,50,34,33)	(67,67,66,34,33,33)
2	ample	(188,187)	(225,150)	(250,125)
4		(95,94,93,93)	(113,112,75,75)	(125,125,63,62)
6		(63,63,63,62,62,62)	(84,83,63,62,42,41)	(84,83,83,42,42,41)

Table 6: Differences in expected minimum fill rates (Δ_{2-1} values)

# of agencies	demand distributions	donor supplies (# of donors = 2)					
		scarce		equal		ample	
		(identical)	(wide)	(identical)	(narrow)	(identical)	(wide)
2	(150,0.5) (150,0.5)	8.3%	-2.0%	-10.4%	-13.4%	0.5%	-6.2%
	(150,1.0) (150,1.0)	9.9%	-3.9%	-5.3%	-6.7%	2.3%	-3.0%
	(150,1.5) (150,1.5)	8.7%	5.1%	4.8%	-2.3%	3.2%	-1.3%
	(150,1.5) (150,0.5)	3.8%	3.6%	0.8%	-6.3%	-1.2%	-2.6%
	(100,0.5) (200,0.5)	-5.7%	3.0%	-9.2%	-2.8%	-1.2%	-0.2%
	(100,1.0) (200,1.0)	-1.5%	4.7%	-3.4%	4.0%	-5.6%	-0.6%
	(100,1.5) (200,1.5)	0.7%	5.3%	-2.0%	3.4%	-3.5%	0.6%
	(100,1.5) (200,0.5)	-9.0%	-0.3%	-8.6%	0.4%	-6.2%	-2.5%
	(100,0.5) (200,1.5)	-0.9%	3.7%	-4.7%	-1.4%	-6.2%	-0.4%
	(75,0.5) (75,0.5) (75,0.5)	5.2%	-7.1%	-5.2%	-6.9%	-0.7%	-6.0%
4	(75,1.0) (75,1.0) (75,1.0)	8.5%	-1.1%	-2.5%	-4.0%	1.4%	-6.7%
	(75,1.5) (75,1.5) (75,1.5)	8.4%	1.0%	-1.0%	-2.5%	2.2%	-3.1%
	(75,1.5) (75,1.5) (75,0.5)	6.6%	-2.5%	-3.1%	-3.8%	0.7%	-5.5%
	(50,0.5) (50,0.5) (100,0.5)	5.0%	-1.9%	4.2%	1.7%	-0.3%	-4.8%
	(50,1.0) (50,1.0) (100,1.0)	8.1%	2.4%	6.8%	3.6%	1.6%	0.7%
	(50,1.5) (50,1.5) (100,1.5)	8.4%	3.8%	7.1%	3.8%	2.1%	-1.4%
	(50,1.5) (50,1.5) (100,0.5)	7.0%	-1.6%	3.8%	0.6%	0.2%	-1.7%
	(50,0.5) (50,0.5) (100,1.5)	6.6%	0.1%	2.8%	3.1%	1.4%	-0.6%
	(50,0.5) (50,0.5) (50,0.5) (50,0.5)	2.5%	-4.9%	1.1%	0.8%	-1.3%	-1.4%
	(50,1.0) (50,1.0) (50,1.0) (50,1.0)	6.2%	-2.2%	3.2%	2.3%	0.6%	-5.0%
6	(50,1.5) (50,1.5) (50,1.5) (50,1.5)	7.8%	-0.1%	4.5%	2.5%	1.4%	-3.2%
	(25,0.5) (25,0.5) (50,1.5) (50,1.5)	5.0%	-2.7%	3.0%	1.3%	-1.6%	-0.1%
	(25,1.0) (25,1.0) (75,0.5) (75,0.5)	2.2%	1.3%	1.7%	1.0%	-1.3%	-0.7%
	(25,1.0) (25,1.0) (75,1.0) (75,1.0)	3.9%	4.9%	3.6%	2.2%	0.8%	-0.1%
	(25,1.5) (25,1.5) (75,1.5) (75,1.5)	4.8%	6.6%	4.5%	2.4%	1.4%	0.9%
	(25,1.5) (25,1.5) (75,0.5) (75,0.5)	4.5%	4.9%	2.8%	2.5%	-2.5%	-0.4%
	(25,0.5) (25,0.5) (75,1.5) (75,1.5)	5.9%	5.7%	3.7%	1.9%	-0.7%	0.5%
	(25,0.5) (25,0.5) (50,0.5) (75,0.5)	3.1%	3.2%	2.1%	1.4%	-0.9%	-0.8%
	(25,1.0) (25,1.0) (50,1.0) (75,1.0)	6.4%	5.2%	4.0%	2.8%	0.8%	0.1%
	(25,1.5) (25,1.5) (50,1.5) (75,1.5)	7.7%	7.3%	6.5%	3.2%	1.5%	1.2%
2	(25,0.5) (25,0.5) (50,1.5) (75,1.5)	6.9%	7.5%	5.9%	2.7%	-0.5%	1.0%
	(25,1.5) (25,1.5) (50,0.5) (75,0.5)	4.0%	4.7%	4.3%	1.3%	-1.7%	-0.6%
	(150,0.5) (150,0.5)	8.3%	8.3%	8.3%	3.8%	0.5%	0.5%
	(150,1.0) (150,1.0)	9.9%	9.9%	9.9%	5.3%	2.3%	2.3%
	(150,1.5) (150,1.5)	8.7%	8.7%	8.7%	4.8%	3.2%	3.2%
	(150,1.5) (150,0.5)	3.8%	3.8%	3.8%	0.8%	-1.1%	-1.2%
	(100,0.5) (200,0.5)	-5.6%	3.0%	7.4%	2.8%	-8.9%	-0.2%
	(100,1.0) (200,1.0)	-1.3%	4.8%	8.6%	4.0%	-5.4%	-1.5%
	(100,1.5) (200,1.5)	0.7%	5.6%	6.9%	3.4%	-3.2%	2.3%
	(100,1.5) (200,0.5)	1.3%	6.5%	4.7%	0.4%	-6.0%	-2.5%
4	(100,0.5) (200,1.5)	-0.9%	3.7%	2.0%	0.7%	-4.0%	-0.4%
	(75,0.5) (75,0.5) (75,0.5)	5.2%	5.2%	2.8%	2.8%	-0.4%	-0.7%
	(75,1.0) (75,1.0) (75,1.0)	8.5%	8.5%	8.5%	4.8%	1.4%	1.4%
	(75,1.5) (75,1.5) (75,1.5)	8.4%	8.4%	8.4%	5.0%	2.2%	2.2%
	(75,1.5) (75,1.5) (75,0.5)	6.6%	6.6%	6.6%	3.1%	0.7%	0.7%
	(50,0.5) (50,0.5) (100,0.5)	5.0%	5.0%	5.0%	2.7%	-0.3%	-0.3%
	(50,1.0) (50,1.0) (100,1.0)	8.1%	8.1%	8.1%	4.8%	1.6%	1.6%
	(50,1.5) (50,1.5) (100,1.5)	8.4%	8.4%	8.4%	5.0%	2.1%	2.4%
	(50,1.5) (50,1.5) (100,0.5)	7.0%	7.0%	7.0%	3.2%	0.2%	0.2%
	(50,0.5) (50,0.5) (100,1.5)	6.6%	6.6%	6.6%	3.5%	1.4%	1.4%
6	(50,0.5) (50,0.5) (50,0.5) (50,0.5)	2.5%	2.5%	2.5%	1.8%	-1.3%	-0.7%
	(50,1.0) (50,1.0) (50,1.0) (50,1.0)	6.2%	6.2%	6.2%	4.1%	0.6%	0.6%
	(50,1.5) (50,1.5) (50,1.5) (50,1.5)	7.8%	-0.1%	4.5%	2.5%	1.4%	-3.2%
	(25,0.5) (25,0.5) (50,1.5) (50,1.5)	5.0%	-2.7%	3.0%	1.3%	-1.6%	-0.1%
	(25,1.0) (25,1.0) (75,0.5) (75,0.5)	2.2%	1.3%	1.7%	1.0%	-1.3%	-0.7%
	(25,1.0) (25,1.0) (75,1.0) (75,1.0)	3.9%	4.9%	3.6%	2.2%	0.8%	-0.1%
	(25,1.5) (25,1.5) (75,1.5) (75,1.5)	4.8%	6.6%	4.5%	2.4%	1.4%	0.9%
	(25,1.5) (25,1.5) (75,0.5) (75,0.5)	4.5%	4.9%	2.8%	2.5%	-2.5%	-0.4%
	(25,0.5) (25,0.5) (75,1.5) (75,1.5)	5.9%	5.7%	3.7%	1.9%	-0.7%	0.5%
	(25,0.5) (25,0.5) (50,0.5) (75,0.5)	3.1%	3.2%	2.1%	1.4%	-0.9%	-0.8%
	(25,1.0) (25,1.0) (50,1.0) (75,1.0)	6.4%	5.2%	4.0%	2.8%	0.8%	0.1%
2	(25,1.5) (25,1.5) (50,1.5) (75,1.5)	7.7%	7.3%	6.5%	3.2%	1.5%	1.2%
	(25,0.5) (25,0.5) (50,1.5) (75,1.5)	6.9%	7.5%	5.9%	2.7%	-0.5%	1.0%
	(150,0.5) (150,0.5)	8.3%	8.3%	8.3%	3.8%	0.5%	0.5%
	(150,1.0) (150,1.0)	9.9%	9.9%	9.9%	5.3%	2.3%	2.3%
	(150,1.5) (150,1.5)	8.7%	8.7%	8.7%	4.8%	3.2%	3.2%
	(150,1.5) (150,0.5)	3.8%	3.8%	3.8%	0.8%	-1.1%	-1.2%
	(100,0.5) (200,0.5)	-5.6%	3.0%	7.4%	2.8%	-8.9%	-0.2%
	(100,1.0) (200,1.0)	-1.3%	4.8%	8.6%	4.0%	-5.4%	-1.5%
	(100,1.5) (200,1.5)	0.7%	5.6%	6.9%	3.4%	-3.2%	2.3%
	(100,1.5) (200,0.5)	1.3%	6.5%	4.7%	0.4%	-6.0%	-2.5%
4	(100,0.5) (200,1.5)	-0.9%	3.7%	2.0%	0.7%	-4.0%	-0.4%
	(75,0.5) (75,0.5) (75,0.5)	5.2%	5.2%	2.8%	2.8%	-0.4%	-0.7%
	(75,1.0) (75,1.0) (75,1.0)	8.5%	8.5%	8.5%	4.8%	1.4%	1.4%
	(75,1.5) (75,1.5) (75,1.5)	8.4%	8.4%	8.4%	5.0%	2.2%	2.2%
	(75,1.5) (75,1.5) (75,0.5)	6.6%	6.6%	6.6%	3.1%	0.7%	0.7%
	(50,0.5) (50,0.5) (100,0.5)	5.0%	5.0%	5.0%	2.7%	-0.3%	-0.3%
	(50,1.0) (50,1.0) (100,1.0)	8.1%	8.1%	8.1%	4.8%	1.6%	1.6%
	(50,1.5) (50,1.5) (100,1.5)	8.4%	8.4%	8.4%	5.0%	2.1%	2.4%
	(50,1.5) (50,1.5) (100,0.5)	7.0%	7.0%	7.0%	3.2%	0.2%	0.2%
	(50,0.5) (50,0.5) (100,1.5)	6.6%	6.6%	6.6%	3.5%	1.4%	1.4%
6	(50,0.5) (50,0.5) (50,0.5) (50,0.5)	2.5%	2.5%	2.5%	1.8%	-1.3%	-0.7%
	(50,1.0) (50,1.0) (50,1.0) (50,1.0)	6.2%	6.2%	6.2%	4.1%	0.6%	0.6%
	(50,1.5) (50,1.5) (50,1.5) (50,1.5)	7.8%	-0.1%	4.5%	2.5%	1.4%	-3.2%
	(25,0.5) (25,0.5) (50,1.5) (50,1.5)	5.0%	-2.7%	3.0%	1.3%	-1.6%	-0.1%
	(25,1.0) (25,1.0) (75,0.5) (75,0.5)	2.2%	1.3%	1.7%	1.0%	-1.3%	-0.7%
	(25,1.0) (25,1.0) (75,1.0) (75,1.0)	3.9%	4.9%	3.6%	2.2%	0.8%	-0.1%
	(25,1.5) (25,1.5) (75,1.5) (75,1.5)	4.8%	6.6%	4.5%	2.4%	1.4%	0.9%
	(25,1.5) (25,1.5) (75,0.5) (75,0.5)	4.5%	4.9%	2.8%	2.5%	-2.5%	-0.4%
	(25,0.5) (25,0.5) (75,1.5) (75,1.5)	5.9%	5.7%	3.7%	1.9%	-0.7%	0.5%
	(25,0.5) (25,0.5) (50,0.5) (75,0.5)	3.1%	3.2%	2.1%	1.4%	-0.9%	-0.8%
	(25,1.0) (25,1.0) (50,1.0) (75,1.0)	6.4%	5.2%	4.0%	2.8%	0.8%	0.1%