

Project : « Can we decrease violence in the suburban cities by tuning up the budget and empowering its inhabitants? »



A
B
M



Plan

1. Theoretical Background
2. Objective of the project
3. Model foundation
4. Short demonstration
5. Inspiration + thanks
6. Project status + conclusion

1. Theoretical Background

- a) “ The cities were put together place to live without any attribute producing **legal urbanity**, insuring a minimum of **self management** ”
“ [In the suburbs] France should implement a genuine participation as direct as possible and. ” *Marc Hatzfeld – Sociologist*
- b) The **French urban policy** (*the Politique de la ville*), designed to tackle the problems occurring in deprived neighborhoods, aims at **reducing territorial inequalities** between urban areas by mobilizing national and local resources.

Theoretical Background

- a) “ The cities were built as place to live without any attribute producing **legal urbanity**, insuring a minimum of **self management** ”
“ [In the suburbs] France should implement a genuine participative deocracy as direct as possible” *Marc Hatzfeld – Sociologist*
- b) The **French urban policy** (*the Politique de la ville*), designed to tackle the problems occurring in deprived neighborhoods, aims at **reducing territorial inequalities** between urban areas by mobilizing national and local resources.
- c) “Practically all the deep socio-economic difficulties that contributed to the **Oct. 2005 explosion** of violence in Clichy-sous-Bois and spread to similarly disaffected projects throughout France **still rage today**, remarkably **even worse** now than before.” *Global Spin blog*



Type 1 and Type 2 changes (*Palo Alto School*)

➤ **Perseverance**

- “ Insanity is doing the same thing over and over again and expecting different result.” *Albert Einstein*
- “ It is sufficient to persist " is surely the most disastrous recipe which for hundreds of millions of years has led entire species to extinction.” *Paul Watzlawick*



Type 1 and Type 2 changes (*Palo Alto School*)

➤ **Perseverance**

- “ Insanity is doing the same thing over and over again and expecting different result.” *Albert Einstein*
- “ It is sufficient to persist " is surely the most disastrous recipe which for hundreds of millions of years has led entire species to extinction.“ *Paul Watzlawick*

➤ **Type of changes**

- Type 1 change: replace a component of the system without changing the rules, trying to solve a problem with the same standards and rules and keeping the same context.
- Type 2 change: change the rules of the system
is what we propose with empowerment



Sociologist diagnostic

General

Ghetto = segregation initiated outside and nurtured by the population inside

Population flow exacerbates the situation


**Unemployment, financial insecurity ,
school underachievement
Underground Economy, drugs dealing**

**Inadequate cultural integration to the host
country**

**Social, racial, ethnic, religious segregation
within the ghetto (ethnic violence)**

Difficult boys / girls relationship

Sociologist diagnostic

General	Relevant for our project
Ghetto = segregation initiated outside and nurtured by the population inside	<p>✓ Sense of being externally driven</p> <p>⇒ Rebellion against the establishment</p>
Population flow exacerbates the difficulty	
Unemployment, financial insecurity , school underachievement Underground Economy, drugs dealing	
Inadequate cultural integration to the host country	<p>✓ Endemic individual and group violence</p>
Social, racial, ethnic, religious segregation within the ghetto (ethnic violence)	
Difficult boys / girls relationship	

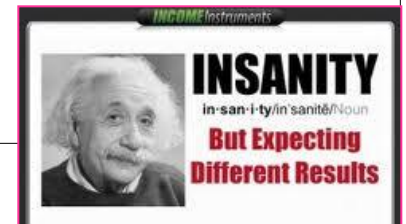
2. Objective of the project

- Apparently, the French City Policy consisted mainly of **“doing the same thing over and over again ”**
- Assumptions
 - 1) **“ Empowerment**, a *type 2 change*: **motivation** using the human needs of self-determination, participation and mobilization
 - 2) A change in the rules of the system causes a **chain reaction** that ends up changing the whole system.
 - 3) The **context** is very influential on people **behavior**



Objective of the project

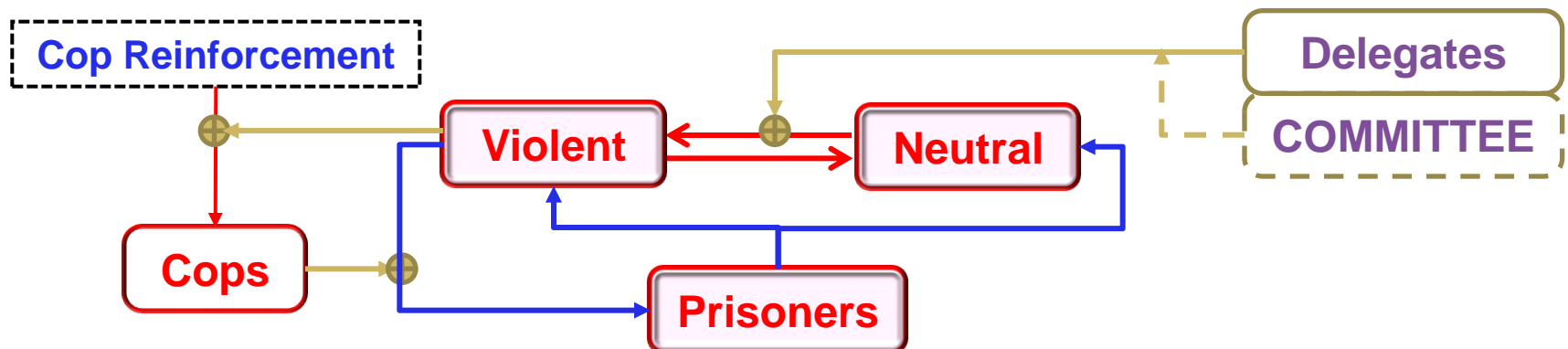
- Apparently, the French Policy of the City consisted mainly “ to doing the same thing over and over again ”
 - Assumptions
 - 1) “ **Empowerment**, a *type 2 change*: motivation using the human needs of self-determination, participation and mobilization
 - 2) A change in the rules of the system causes a **chain reaction** that ends up changing the whole system.
 - 3) The **context** is very influential on people **behavior**
- ⇒ **Proposal : *Test the impact of a fundamental change consisting in delegating responsibility to the public-housing-dwellers’ representatives .***



3. Agent-based model

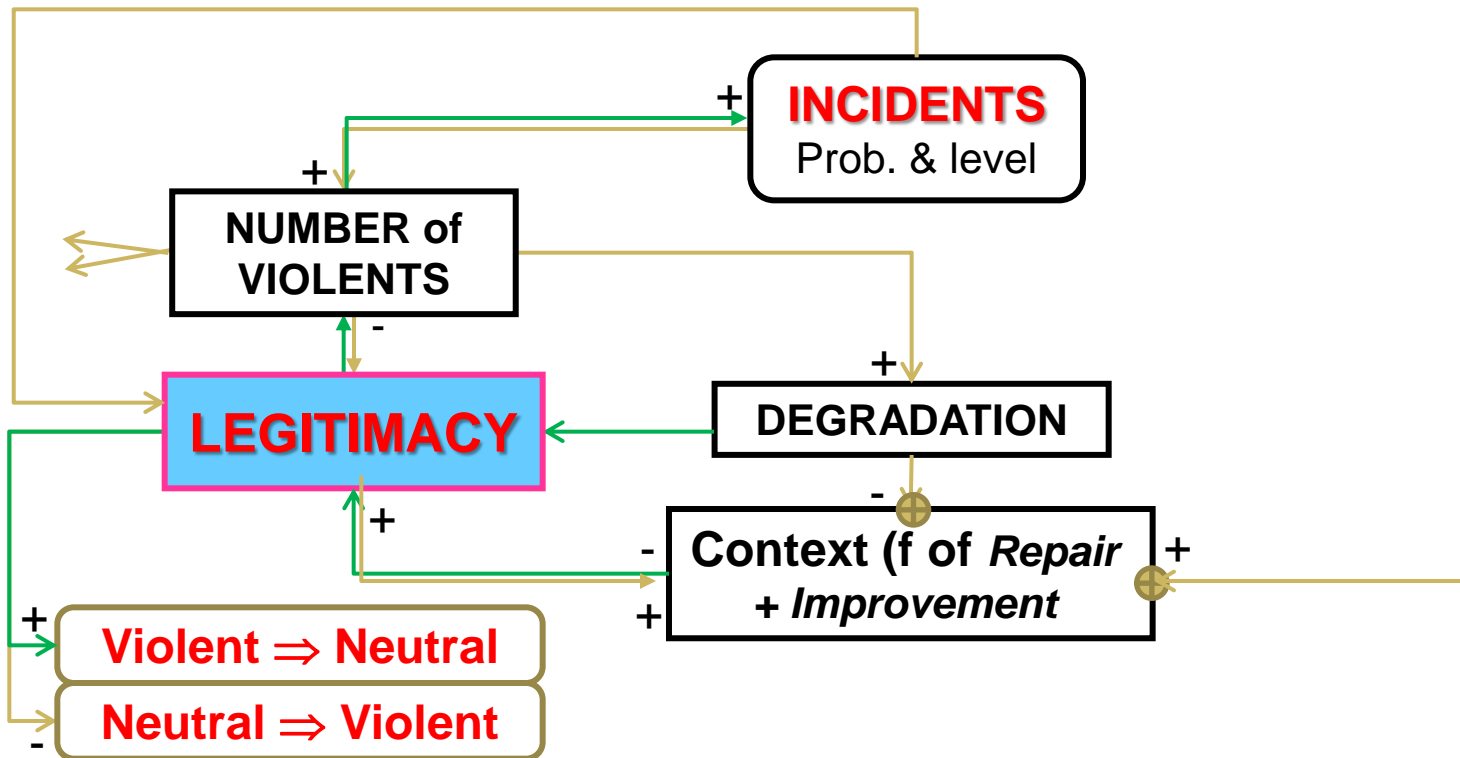
Violence Framework

- The “**Violent**” and “**Neutral**” have 2 randomly distributed imbedded inclinations (1) **to frustration** (2) **to accepting risks**
- Their actual entry into violence is determined by the differential between their **fear of prison** (F of Violent and Kops neighborhood) + their **envy to be violent** (F of **frustration** and illegitimacy)
- Kops puts in **jail the violent** within their vision radius
- According to the value of “**envy to be violent - fear of prison**” the personal **memory** of each neutral violent is incremented during each cycle ; when the value is beyond a given threshold, they **mutate**



Budget and empowerment

- ⇒ If **legitimacy** is high, the city accepts more easily the living conditions.
- ⇒ **Riots depend on the situation of the city but are triggered by incidents**

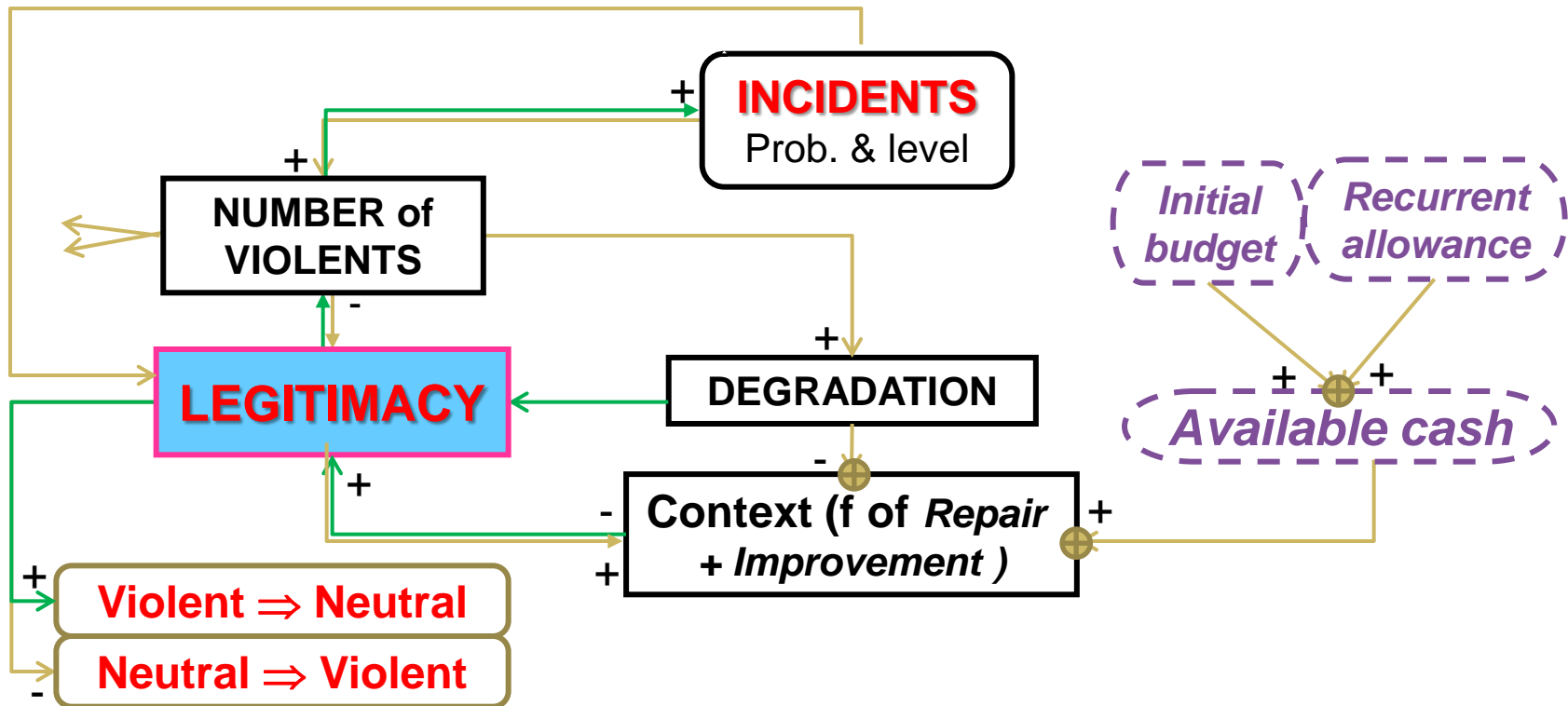


Budget and empowerment

⇒ If **legitimacy** is high, the city accepts more easily the living conditions.

⇒ Riots depend on the situation in the city but are triggered by **incidents**

⇒ **The committee has a budget for repairs + improvements**



4. Demonstration : Paramètres et grille

The screenshot displays the NetLogo interface for a simulation. On the left, there is a vertical list of 18 sliders, each with a red indicator showing its current value. The central area is a 3D view of a simulation grid with a black background, populated with numerous small, colored dots representing agents. The dots are primarily green, with some red, blue, and yellow dots scattered throughout. The top of the 3D view shows navigation icons and a 'ticks: 2123' counter. Below the 3D view, there are three columns of sliders, each with a red indicator and a numerical value. At the bottom, there are two more sliders with text descriptions explaining their functions.

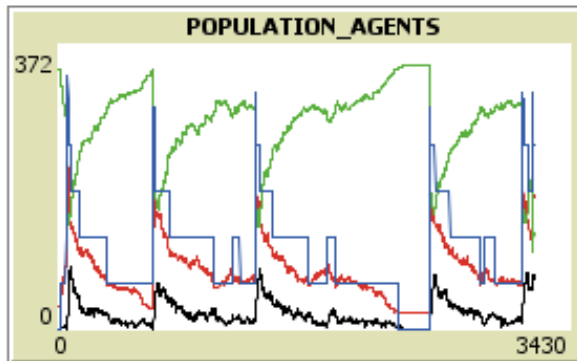
Parameter	Value
\$DENS_V_INI	0.030
\$DENS_N_INI	0.200
\$NOMBRE_F_INI	9
\$NOMBRE_DELEGUES	40
\$LEGITIMITE	0.60
\$N_FLICS_ARREST_VIOL	2
\$RADIUS_V_N	4.0
\$RADIUS_F	4.0
\$RADIUS_D	5.0
\$T_MAX_PRISON	40
\$KPEUR	5.0
\$KD	1.0
\$MEMORY_SIZE	20
\$PULSION_MUT	0.75
\$EFFECTIF_RENFORT_FLICS	9
\$SEUIL_VIOL_RENFORT	40
\$K_LEGITIMITE	0.20
\$INCID_INTENS%	15
\$INV_PROB_INCIDENT	130
\$PERIODE_DECISION	50
\$PERIODE_ALLOC	50
\$K_COUT_REPARATION	0.5
\$PROB_REPARATION	0.60
\$BUD_INI	300
\$BUD_ALLOC	68
\$KLEGIT_SITUATION	0.20
\$K_COUT_AMELIOR	2.0
\$EROSION	500
\$VIOLENTS_SEUIL_MUT	0.40
\$DELTA_MUT	0.03

Hausse \$VIOLENTS_SEUIL_MUT = baisse violents
Mutation des violents si "propension_violence - peur_prison" < \$VIOLENTS_SEUIL_MUT

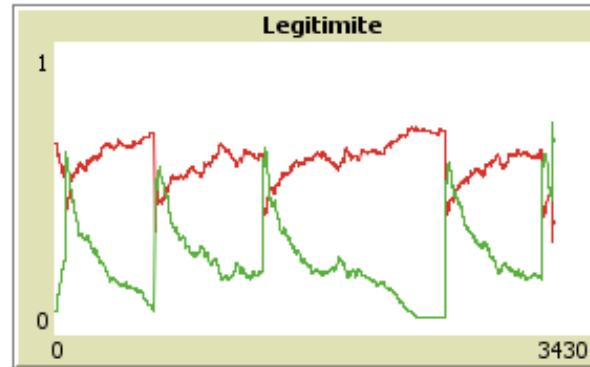
Hausse \$DELTA_MUT = hausse des neutres
Mutation des neutres si "propension_violence - peur_prison" > \$VIOLENTS_SEUIL_MUT + \$DELTA_MUT

- **Software: NetLogo**
- **Agents:**
 - Neutral
 - Cops
 - Violent
 - Delegates
- **5 random variables**
⇒ high variations between identically adjusted runs
- **After pretests, it will be easy to convert some of the many parameters into constants**
- **However the combinatory level is high and for the time being the automatic exploratory process is clumsy**

Résultat Simulation « Individual violence » (Simu 42a) Run 1



Rouge : nombre de violents
Vert : nombre de neutres
Bleu : nombre de flics * 10
Noir : nombre de prisonniers



vert : LEGITIMITE
rouge : RATIO_V+P

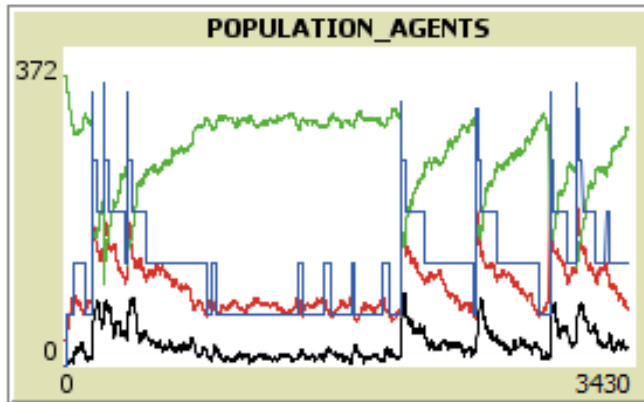
LEGITIMITE 0.39	MOY_LEGITIMITE 0.59
RATIO_V+P 0.66	MOY_RATIO_V+P 0.259
NF 24	MOY_NF 9.91

During the difficult periods:

⇒ **Vision of the Mayor: What did we do wrong?**

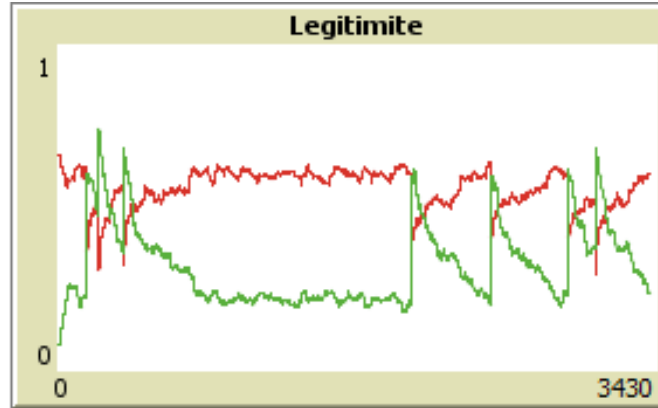
⇒ **Actually: Endogenous phenomena!**

Résultat Simulation « Individual violence » (Simu 42a) Run 2



Rouge : nombre de violents
Vert : nombre de neutres
Bleu : nombre de fics * 10
Noir : nombre de prisonniers

MOY_LEGITIMITE
0.56
MOY_RATIO_V+P
0.323
MOY_NF
11.97



vert : LEGITIMITE
rouge : RATIO_V+P

Reminder run #1

MOY_LEGITIMITE
0.59
MOY_RATIO_V+P
0.259
MOY_NF
9.91

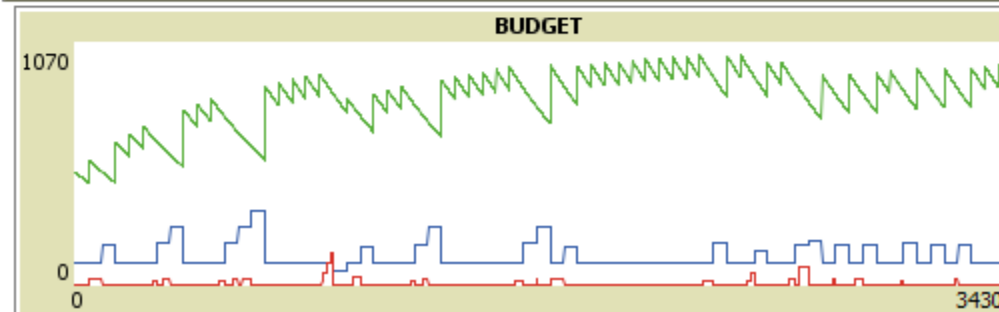
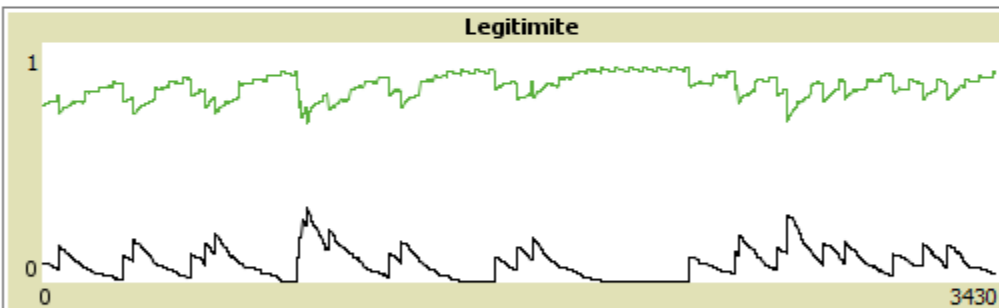
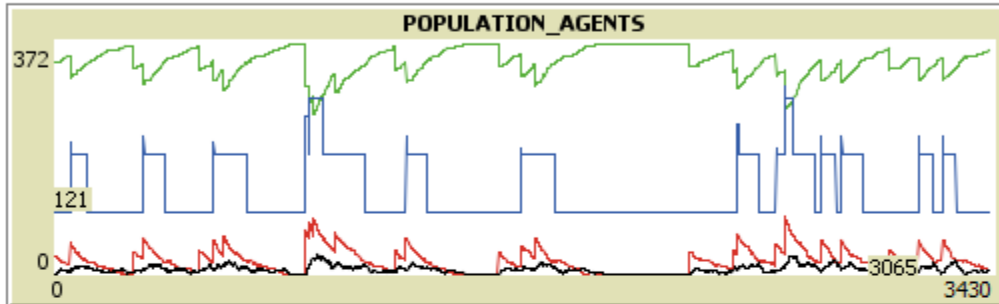
Run 1 & 2 differences:

- In #2 one **long period of stability** otherwise quasi cyclic
- Average legitimacy: 5% difference
- Average v+p% & Number of cops: close to 20% change

Résultats « Individual violence + budget + incidents »

violents	neutres	prisonniers	pop-tot	v-mutants	n-mutants	ticks	tresorerie
5	355	7	417	0	0	3410	100

LEGITIMITE	MOY_LEGITIMITE	RATIO_V+P	MOY_RATIO_V+P	NF	MOY_NF
0.88	0.82	0.03	0.078	10	13.23



Under the conditions tested:

- Recurrent allocation of 68 units led to long periods with significant delay to repair after incidents
- However, the situation remains under control

Résultats « Individual violence + budget + incidents »

Période		120		200		
		Incidents fréquents		Incidents moins fréquents		
		1	2	3	4	5
Budget	Bo	240	240	240	550	240
	Br	80	100	80	75	90
Moy.	F	37	37	36	44	17
	ρ	19%	19%	19%	25%	5%
	L	40	45	44	23	85
€	B	5040	6240	5040	5050	5640
	Δ	0%	24%	0%	0%	12%
Démarrage		Numerous incidents	Few incidents	Normal	Normal	Numerous incidents
After		Recovering	Very good	Recovering	Degradating	Very good

Under the conditions tested:

- For the same accrued expenses it seems better to give a high recurring budget rather than a high initial one (3/4)
- A budget increase of 12% improves significantly the situation
- If many incidents come early on, regaining control is hard

5. Inspiration and thanks

Fondamental

- *Partager la citoyenneté (Share citizenship), Marc Hartzfeld*
- *Ghetto Urbain, Didier Lapeyronnie*
- *Modeling Civil Violence: An Agent-Based Computational Approach, Joshua M. Epstein*

Inspirational

- *Change, Paul Watzlawick*
- *The tipping point, Malcolm Caldwell*
- *La (regrettable) complexité des systèmes économiques: un point de vue de physicien, Jean-Pierre Bouchaud*





Additional

- *Divers articles, Wikipedia and others*

6. Project status and conclusion

Domain	Included	To be evaluated	Difficulty
Violence	Individual violence		+
	Endogen + Incident		++
		Heterogeneous landscape	+++
		Inter group violence	+++
		Violence level and impact	+++++
Empowerment	Delegate influence		+
	Budget to repair		+
		Endogen decision process	+++++++
Tractability		Combinatorial Level	+++
		Shortage of data	+++++

6. Project status and conclusion

Domain	Included	To be evaluated	Difficulty	
Violence	Individual violence		+	
	Endogen + Incident		++	
	Heterogeneous landscape		++++	
	Inter group violence		++++	
	Violence level and impact		+++++	
Empowerment	Delegate influence		+	
	Budget to repair		+	
	Endogen decision process		+++++++	
Tractability	Combinatory Level		+++	
	Shortage of data		+++++	