



COMPLEMENTARY PAYMENT SYSTEMS

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INTRODUCTION

DIGIPAY 4 GROWTH: European Project (2014)

MAIN GOAL: To analyse the way of introducing several complementary payment systems in Catalonia (in three pilots).

The differential element of these three pilots was the crucial participation of a public administration in the development of such complementary payment systems.

The unique successful pilot was introduced in Santa Coloma de Gramenet. And the name of the involved local money is **Gramma**.

WHAT A COMPLEMENTARY PAYMENT SYSTEM IS?

A CPS is a monetary system where money has **one main function**: to work as a medium of exchange. That is, money is not useful to accumulate wealth and, for this reason, when possessing local money, the best option is to use it in transactions (instead of euros).

The main objective is to achieve the fast and smooth circulation of money with a double goal:

1. To boost local consumption, local trade, and local job creation
2. To increase local velocity of circulation of money

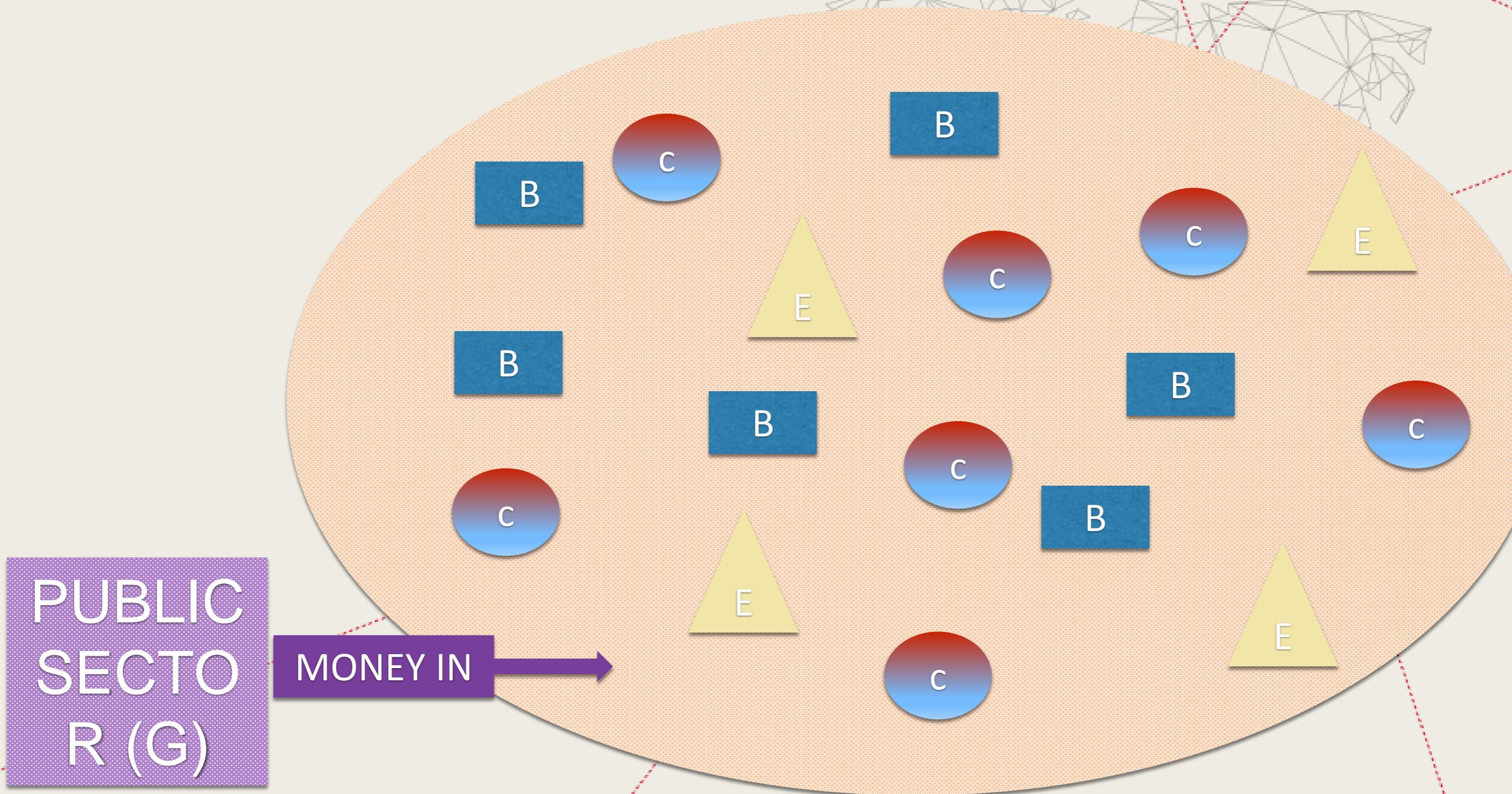
In these scenarios, fostering local development becomes the first goal in the political agenda.

WHAT A COMPLEMENTARY PAYMENT SYSTEM IS?

GOALS:

- 1) Increase the local multiplier effect of money
 - 2) Prevent leakage of money outside the territory considered
 - 3) Foster local consumption
 - 4) Increase local job creation
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WHAT A COMPLEMENTARY PAYMENT SYSTEM IS?



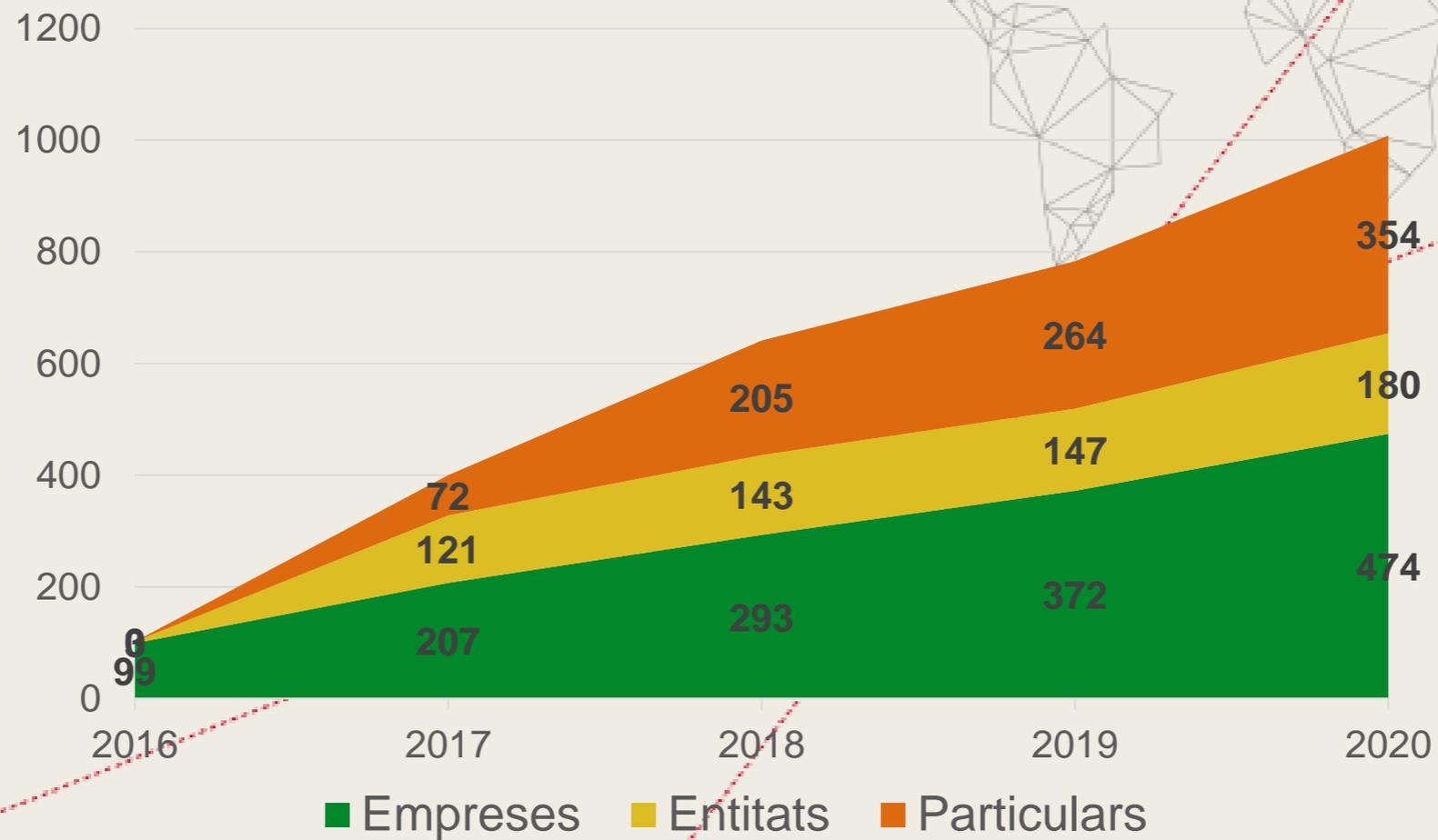
TRANSACTIONS TYPOLOGY:

- 1) B2B
- 2) B2C
- 3) B2E
- 4) C2B
- 5) C2C
- 6) C2E
- 7) E2B
- 8) ERC
- 9) ...



SOME KPIs IN #gramamonedada case:

EVOLUCIÓ DEL NOMBRE I LA TIPOLOGIA D'USUARIS



SOME KPIs IN #gramamonedada case:

TOTALS	B2B	12.137	8.952	312.543,58	34,91	1.204.552,31
	B2C		287	57.745,15	201,20	
	B2E		207	100.660,86	486,28	
	C2B		2.028	48.131,87	23,73	
	C2C		134	457,90	3,42	
	C2E		10	790,67	79,07	
	E2B		214	134.891,12	630,33	
	E2C		18	3.218,18	178,79	
	E2E		5	775,00	155,00	
	MONEYINB		124	141.150,24	1.138,31	
	MONEYINC		1	1.600,00	1.600,00	
	MONEYINE		22	112.051,50	5.093,25	
	RETEF		53	130.479,12	2.461,87	
	TAXES		15	894,22	59,61	
	TRETC		59	112.399,86	1.905,08	
TRETB	3	2.779,50	926,50			
TRETE	5	42.983,54	8.596,71			

SOME KPIs IN #gramamonedada case:



MULTIPLICADORS	2017	2018	2019	2020
Multiplicador considerant totes les subvencions i operacions	2,05608901	2,66338439	14,37523365	7,328989376
Multiplicador ponderant subvencions i operacions	1,95127543	2,88807690	11,16022571	6,733561431

AND...WHICH IS MY CONTRIBUTION? (I)

I am trying to apply statistical analysis in three different moments of time.

1) In the initial steps (ex-ante analysis), when identifying the model to follow and the set of most relevant parameters to introduce in it. In this sense, it becomes crucial to define the CPS main characteristics. There are a lot of decisions to take, depending on the characteristics of the system and, of course, of the main goals to achieve. Moreover, in this ex-ante analysis, it becomes crucial to identify the key partners that should be convinced to enter in the CPS (considering both economic and social facts).

AND...WHICH IS MY CONTRIBUTION? (II)

2) During the development of the CPS. In this sense, we present a traceability analysis every year, to identify potential fails of the system and, additionally, to propose improvement areas. Continuous analysis.
Set of key performance indicators (KPI).

AND...WHICH IS MY CONTRIBUTION? (III)

3) And, finally, the ex-post analysis, with the aim of comparing results and evaluating the effectiveness of the CPS in terms of local trade, local consumption, local employment creation and so on.

This field is dominated by sociologists, anthropologists, political scientists, teachers, NGOs, neighbourhood associations, platforms for the defence of the circular economy, etc. and the accuracy level that it is applied in justifying the viability of certain models is very limited.

... And this is a clear advantage for econometricians

WHICH KIND OF STATISTICAL METHODS CAN WE USE IN THIS TYPE OF ANALYSIS?

- **Basic data treatment.** In this case the unique difficulty is the huge amount of information to process.
- **Regression analysis.** With the aim of establishing complementary relationships within variables, for example, when evaluating the scope of the local multiplier.
- **Time series analysis.** With the aim of forecasting future behavioural patterns.
- **Survival analysis.** To exploit the possibility of calculating some probabilities inside the system.

PAPERS

Muns, Ll.; Segura, M. y Torrens, Ll. (2019) 'Aspectos clave del diseño de una moneda complementaria liderada por la Administración Pública' International Journal of Community Currency Research 23 (Winter) 30-47 www.ijccr.net ISSN 1325-9547.

DOI: <http://dx.doi.org/10.15133/j.ijccr.2019.004>

Segura, M. y Muns, Ll. (2019) 'La importancia de conocer la trazabilidad de las monedas complementarias' International Journal of Community Currency Research 23 (Winter) 63-70 <www.ijccr.net> ISSN 1325-9547.

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Any question?

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**Thank you very much for
your attention!**