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**SUCCESS AND FAILURES OF INWARD-LOOKING
DEVELOPMENT IN CUBA (1990-2008): OPPORTUNITIES AND
PROBLEMS FOR SMALL FARMERS**

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Resumen

Mientras el resto de países latinoamericanos siguieron políticas de desarrollo 'mirando hacia fuera' en las décadas de los 90 y principios del siglo XXI, Cuba puso en marcha un modelo de desarrollo 'mirando hacia dentro' a lo largo del mismo período. Durante la crisis más grave de su historia, el Período Especial, Cuba pasó de forma dramática de la dependencia de las exportaciones al desarrollo 'mirando hacia dentro.' En este sentido Cuba representa un caso único de desarrollo agrario. El modelo cubano de desarrollo agrario provocó transformaciones importantes en el sector agropecuario del país. Revolucionó los patrones de producción de alimentos y descentralizó las estructuras agrarias y la comercialización. ¿Crearon estos cambios espacios para los pequeños productores privados de aumentar la producción de alimentos para el consumo interno durante los 90 y primeros años del siglo XXI? Y si así fuere, ¿qué espacios particulares fueron creados? Este artículo analiza estas cuestiones centrándose en tres dimensiones: 1) ingresos y empleo; 2) niveles de producción y productividad y 3) la contribución de los pequeños productores a la seguridad alimentaria nacional.

Palabras clave: Cuba, pequeños productores, desarrollo 'mirando hacia dentro', seguridad alimentaria, desarrollo agrario, estructura agraria.

Abstract

While the rest of Latin America followed outward-looking policies of agrarian development during the 1990s and early 2000s, Cuba implemented an inward-looking model during this period. In the midst of the most severe crisis in its history, the Special Period, Cuba dramatically shifted from export dependency to inward-looking development. Cuba is a unique case in terms of agricultural development. Cuba's agricultural development model provoked important transformations in the country's agriculture sector. It revolutionised food production patterns and decentralised land structures and commercialisation. But did these changes create spaces for private small farmers to increase national food production during the 1990s and early 2000s? And if so, what particular spaces were created? This paper explores these questions concentrating on three key dimensions: 1) income and employment; 2) production and productivity levels; and, 3) small farmers' contribution to national food security.

Keywords: Cuba, small farmers, inward-looking development, food security, agriculture development, land structures.

JEL Codes: N56, O11, Q15, Q18.

SUCCESS AND FAILURES OF INWARD-LOOKING DEVELOPMENT IN CUBA (1990-2008): OPPORTUNITIES AND PROBLEMS FOR SMALL FARMERS.¹

1. INTRODUCTION.

“Though they said we were a satellite of the Soviets, our planet has disappeared and we are still here circling around.” (Cuban officials interviewed by Rosset and Benjamin, 1994: 8)

While the rest of Latin America followed outward-looking policies of agrarian development during the 1990s and early 2000s, Cuba implemented an inward-looking model during this period.² In the midst of the most severe crisis in its history, the Special Period, Cuba dramatically shifted from export dependency to inward-looking development. Cuba is a unique case in terms of agricultural development. The island’s isolation from neoliberal policies due to its political system and the fall of communism in 1990 provided the initial stimulus for the development of this alternative agricultural strategy. Cuba’s agricultural development model provoked important transformations in the country’s agriculture sector. It revolutionised food production patterns and decentralised land structures and commercialisation. But did these changes create spaces for private small farmers to increase national food production during the 1990s and early 2000s? And if so, what particular spaces were created? This paper explores

¹ Cuban small farmers are grouped in two distinct types of cooperatives: Cooperative of Agriculture Production (CPAs) and Cooperative of Credit and Service (CCSs). In CPAs small farmers own the land collectively, while in CCSs small farmers own the land individually. Usufruct and disperse farmers are also engaged in small scale production on an individual basis with much smaller plots than CPAs and CCSs. Specifically, private small farmers are grouped in CCSs and other usufruct and disperse units (see Appendix II). Yet, there is not a standard size to define small holders in Cuba.

² This paper is based on chapter 4 of a PhD thesis defended at the Institute for the Study of the Americas, University of London, in November 2012.

The article defines inward-looking development as an agriculture strategy based on three pillars: 1) low-input and sustainable technologies based on small farming with little reliance on external inputs, machinery and imported technology; 2) food import substitution; and, 3) improved access to land (via redistributive agrarian reform) and domestic markets. The literature often calls Cuba’s agriculture model the ‘Alternative Paradigm’ (based on Funes *et al.*, 2002; Funes-Monzote, 2008; Rosset & Benjamin, 1994).

these questions concentrating on three key dimensions³: 1) income and employment; 2) production and productivity levels; and, 3) small farmers' contribution to national food security.

The paper is divided into six sections. Section two summarises the main results of inward-looking development in Cuba, specifically changing production patterns and land structures. Section three explores the sources of agricultural income and employment generated by inward-looking development for small farmers. The section shows that private small farmers received higher incomes and speculates that this may have been the result of better access to markets and higher efficiency. The analysis also shows that private farms increased significantly in numbers. Section four then analyses the contribution small farmers made to national food production. This section also evaluates the extent to which the implementation of inward-looking development created opportunities for small private farms to achieve greater productivity levels than large (state) farms. Although the section finds mixed evidence in terms of productivity, the analysis shows that private small farms were much more productive in basic crops. Section five analyses food security in Cuba from 1990 and the evolution of food import ratios between 1990 and 2008. Given small farms were more productive in basic crops, this section considers the extent to which private small holders may have contributed to food security in Cuba. The final section summarises the key findings of the paper and sets the basis for understanding small farming opportunities in small developing economies.⁴

³ The author created a specific framework of opportunities for small farmers to move from the macroeconomic dimension (agricultural policies) to the microeconomic level (opportunities for small farmers). Following a political economy approach, the author selected three specific dimensions for the analysis of small farmers' opportunities. These comprised of two economic dimensions - income and employment opportunities and production and productivity levels - and one socioeconomic dimension - small farmers' opportunities to increase food security. The author selected the socioeconomic dimension in light of political economy debates on the global food crisis.

⁴ In undertaking the data gathering procedure, organisation of fieldwork information and the writing-up process, the research has had to overcome different challenges. The author found several problems when

2. INWARD-LOOKING DEVELOPMENT (1990-2008): CHANGING PRODUCTION PATTERNS AND LAND STRUCTURES.

With the collapse of the Soviet Union in the early 1990s, Cuba lost the basis of its general economic policy (Canler, 2000). Cuban foreign trade fell by 75%, imports decreased 50% during the period 1990-93, GDP dropped 30%, gross domestic investment fell 86% and the fiscal deficit ballooned by 158% (Canler, 2000; ONE 1996). Without credit lines, exports were the country's only connection to international markets. Yet, they declined by 67% (Canler, 2000; ONE 1996). To make matters worse, the US economic sanctions became more restrictive in the early 1990s. In 1992 the Cuban Democracy Act (CDA) prohibited sales to Cuba by foreign subsidiaries of US companies, which during the period 1980-1992 alone exported US\$2.6 billion and imported US\$1.9 billion from Cuba (Canler, 2000; USCTEC, 1998). In 1996 the Cuban Liberty and Democratic Solidarity Act restricted foreign direct investment flows into Cuba (Canler, 2000).

The worst moment of the crisis occurred during the 1993 food crisis when average daily calorific intake declined from 2,908 to 1,863 kilocalories per person per day (Alvarez, 2004; Kost, 1998; Mesa-Lago, 2005; Nova, 2006).⁵ Within this context, the

drawing causal relations between inputs (agricultural policies) and outputs (opportunities and problems for small farmers). For example, the difficulties of understanding the opportunities created for small farmers in the context of Cuba's non-capitalist model and the crisis of the 1990s; whether or not they were a survival strategy, a result of inward-looking policies, or a mixture of both. The author developed semi-structured interviews and visits to different institutions and regions to overcome the aforementioned problems during the fieldwork period. During the writing-up process, these research methods helped the author to understand the causal relation between policies and opportunities for small farmers. In the case of Cuba, how the outcomes were a mixture of initial survival later supported by inward-looking development policies and how the country's long history of state intervention was influential in shaping policies and outcomes.

The author also realises that the use of Mesa-Lago and Granma information at some point might seem contradictory. However, they are only employed to support more specific data and ONE sources (ONE data is also employed by ECLAC and The Economist Intelligence Unit on Cuba).

⁵ According to FAO recommended levels, in the early 1990s the minimum intake was 2,100-2,300kcal/person/day. During the food crisis of 1993, minimum intake dropped significantly in Cuba. The situation of those people most dependent on state rations (very old and very young people) was more

Cuban government (under Fidel Castro) was forced to declare the ‘Special Period in Peacetime’ that put the country on a wartime economy style austerity programme. The programme implied a dramatic shift from dependent development (on Soviet Bloc trade relations) towards domestic options. The Cuban state was forced to ration food, fuel, and electricity (Castro, 1992; Fernández-Domínguez, 2005). Demonopolisation, deregulation and decentralisation policies were also applied to improve the country’s desperate foreign exchange position, diversify the economy (strongly based on export agriculture) and attract investment into different economic sectors (e.g. tourism) (Alvarez, 2004; Nova, 2006). Deregulation implied a new domestic economic policy based on liberalising foreign investment, the rules governing the possession of US dollars by Cuban citizens, and the granting of licenses for private work or self-employment in various activities (Fernández-Domínguez, 2005; Mesa-Lago, 2005). Finally, decentralisation encouraged new forms of mixed companies (joint-ventures) in different economic sectors (especially in the tourist sector) and the restructuring of management institutions and the banking system (Alvarez, 2004).

The overall economic model and the set of agricultural policies implemented in Cuba during the 1990s and early 2000s under the so-called inward-looking paradigm introduced new production patterns less reliant on external inputs and improved techniques for soil management.⁶ While in other countries and regions similar strategies were mere pilot projects rarely acknowledged by official policy, in Cuba these alternative technologies became official agricultural policy in the late 1990s. With much

dramatic. Their levels of nutrition fell to 1,450Kcal/person/day during the worst years of the crisis (Alvarez, 2004; Kost, 1998; Mesa-Lago, 2005).

⁶The aim of this article is to evaluate the opportunities generated for small farmers in Cuba from 1990-2008 considering a threefold dimension: income and employment, production and productivity levels and food security. Therefore, for further information on Cuba’s inward-looking development and the policies implemented, different land reforms laws applied, the creation of UBPCs and the changes during the Special Period and the early 2000s see Botella-Rodriguez, 2011. See also Botella-Rodriguez, 2012.

lower costs than imported technologies, an increasing number of small farmers abandoned the conventional production model. They began to develop sustainable biotechnology and supplied their members and neighbours with biological alternatives to poisonous pesticides, chemical fertilisers and expensive technologies imported from Western countries (Rosset & Benjamin, 1994; Wright, 2005). The return to animal traction (instead of heavy machinery) was another important pillar of the alternative model, having a particular significant impact on traditional small farms.

Inward-looking policies also promoted changes in Cuba's land structures during the 1990s and early 2000s. The process of land decentralisation broke state farms into smaller scale cooperatives (UBPCs) and also distributed unused lands in usufruct to new farmers. At the same time, internal market liberalisation opened the agriculture sector to foreign investment (in joint ventures with the state). These changes diversified Cuba's land tenure matrix in the early 1990s, generating a mixed agriculture sector based on ten different types of land organisations grouped in the state sector, the non-state sector, and the mixed sector⁷ (Alvarez, 2004; Figueroa Albelo, 1995, 2005; Martín, 2002). The creation of Basic Units of Cooperative Production in 1993 (UBPCs) was a substantial improvement over large state farms.⁸ However, these entities still faced

⁷ Fidel Castro (1959-2008) placed land reforms at the forefront of Cuba's political agenda. However dependency on sugar exports and CAME relations enlarged Cuba's large state farms. The UBPCs creation was one of the key advancements in land decentralisation under Fidel Castro's mandate. In the early 2000s, the state sector comprised of various types of large farms: state farms, new-types of state farms, Revolutionary Armed Forces farms, and self-provisioning areas at workplaces and public institutions. The mixed sector was comprised of state companies associated with foreign capital, generally large farms, in the citrus sector and other specific crops (rice, cotton or tomato). This type of association was only established by the state, maintaining its role as socioeconomic regulator (Martín, 2002, 2007). The non-state sector was comprised of two types of production entities: collective (UBPCs and CPAs) and individual production units (CCSs and individual farmers). Whereas the state and mixed sector were generally organised into large farms, the non-state sector was characterised by much smaller land holdings.

⁸ CPAs and UBPCs were collective forms of production. UBPCs were basically former state farms divided into smaller units after the implementation of the Third Land Reform Law in 1993. Although they imitated the size and patterns of production developed in CPAs, they were large (though much smaller than state farms), medium or small farms depending on the sector. The rest of the structures presented in Appendix II were small farms. Agriculture and Livestock production Cooperatives, CPAs, were voluntary

many problems such as the lack of further market decentralisation and access to basic inputs. However, the most important change experienced in Cuba's land ownership was the gradual expansion of the agricultural land owned or leased by private small farmers that took place between 1989 and 2007 (Hagelberg & Alvarez, 2009; Hagelberg, 2010). The most important reform was the so-called Law Decree 259 implemented by Raúl Castro in 2008 to distribute idle lands under long-term usufruct contracts, to 'anyone who wants to produce' (especially individuals, cooperatives, small farmers and even some UBPCs) (Granma, 18 July 2008). Although in 2008 51% of the land was idle, insufficiently exploited and covered by the invasive marabou weed, Raul Castro's decision was directed at revitalising the agricultural sector, particularly food production.⁹ Contracts were set at 10 years in the case of individuals and 25 years in the case of cooperatives or government institutions. In both cases, contracts could be extended for similar periods if recipients operated the land in accordance with government regulations (Gayoso, 2008).¹⁰ Although these transfers were surrounded by conditions, the mass grant in usufruct of idle state land, mainly to small farmers and the landless was highly revisionist in concept. Law Decree 259 was even more significant than the conversion of state farms in 1993. The Law represented the abandonment of the

associations of traditional peasants that jointly worked the land while management decisions were made through democratic processes within the cooperative (Martín, 2002; ONE, 1997).

Credit and Service Cooperatives (CCSs) were private small farms, grouping together former renters, sharecroppers, agrarian workers and small farmers. These individuals owned their own land but engaged in cooperatives to access services and credit, purchase inputs, and sell their produce. However, production itself remained at the individual level. They were able to sell any production above and beyond the contracted quantity in farmers' markets at free market prices (Alvarez, 2004; Martín, 2002, 2007; ONE, 1997).

⁹ *Marabou* (*Dichrostachys cinerea*) is a difficult to eradicate deep root variety of acacia, not usable for any productive purpose.

¹⁰ Land decentralisation and food import substitution gained much more relevance under Raúl Castro's agenda since 2008. Law Decree No. 259 of 10 July 2008 was enacted to distribute 'a considerable percentage of idle state lands which makes it necessary to grant lands in usufruct to individuals and corporate bodies in order to increase production of food and reduce its importation.' Accordingly, it was decreed that landless individuals could obtain up to 13.42ha and existing landholders could bring their total area up to 40.26ha under licenses valid for up to 10 years and successively renewable for the same period. Existing state farms, cooperatives and other legal entities could apply for the usufruct of an unlimited area for 25 years, renewable for another 25 years. Usufructs granted to individuals were only exceptionally transferable (because of age or death) to another person working on the land and authorised by the relevant authorities (Gayoso, 2008).

long-held Cuban doctrine of the superiority of state or parastatal, large-scale, mechanised agriculture reliant on hired labour and imported inputs (Hagelberg, 2010).

3. SMALL FARMERS' OPPORTUNITIES TO ENGAGE IN AGRICULTURE (1990-2008).

Agriculture is one of the main sources of employment in Cuba. Nearly 845,500 individuals were employed in agriculture in 1991 while in 2009 945,600 persons worked in the sector (ONE, 2000, 2008a, 2008b). This section discusses the extent to which income and employment opportunities reached collective and private small holders in Cuba between 1990 and 2008.

3.1. Employment opportunities.

Small farmers' capacity to respond to the challenging environment better than other actors during the Special Period coupled with the government's decision to expand the amount of land for private small holders prompted significant changes in the structure of employment in Cuba's agriculture sector. Considering cooperative (CPAs) and private small holders (CCSs and disperse peasants), ONE data (1998) show that employment growth on CPAs stagnated between 1988 and 1998. During the same period, agricultural developments had a significant impact on the number of private small farmers (CCSs members and individual farmers). This group increased from 3% to 8.2% (Dominguez *et al.*, 2004; ONE, 1998).

More recent data on the number of small holders who belonged to CPAs and CCSs show that members of CPAs (collective small farmers) declined from 61,963 in 1990 to 57,652 in 2008. By contrast, during the period 1994-2008, members of CCSs (private small farmers) increased from 90,000 to 273,404. Accordingly, private small holders experienced a significantly higher compound annual rate of growth than CPAs members

during the 1990s and 2000s (see Table 1) (ANAP, 2008a, 2008c; Figueroa Albelo, 2005).

Table 1
Number of CPAs and CCSs members in different years
1990-2008

Year	CPAs members	CCSs members	CARG CPAs & CCSs members (%)
1990	61,963	n.a.	CCS(1994-2008):
1994	n.a.	90,000	8.26%
1997	61,132	159,223	CPA (1990-2008):
2008	57,652*	273,404	-0.4%

Source: ONE, 1990, 1997, 2004, 2008b.

*In 2008 cooperative members slightly increased as a result of usufruct land redistribution.

Data presented by Espinosa-Burquet (2004) exhibit similar trends (see Table 2). Calculating the percentage variation between 1993 and 2001, Espinosa-Burquet (2004) shows that total CCSs members rose by 155% and women engaged in CCSs increased by 129%. Young farmers (119%), technicians (719%) and professionals (1,271%) working on CCSs also increased (Espinosa Burquet, 2004). As Tables 1 and 2 show, increasing employment opportunities were created for different groups in private farming, mainly young farmers, women, technicians and skilled-workers.

Table 2

The expansion of the private sector in CCS (1993-2001)

Selected indicators	Growth rate (in percentage terms)*
Total members	155% (1993-2001)
Area (Ha)	135% (1993-2001)
Young farmers	119% (1994-2001)
Women	129% (1993-2001)
Technicians	719% (1995-2001)
Skilled workers	1,271% (1995-2001)

Source: Espinosa Burquet, 2004.

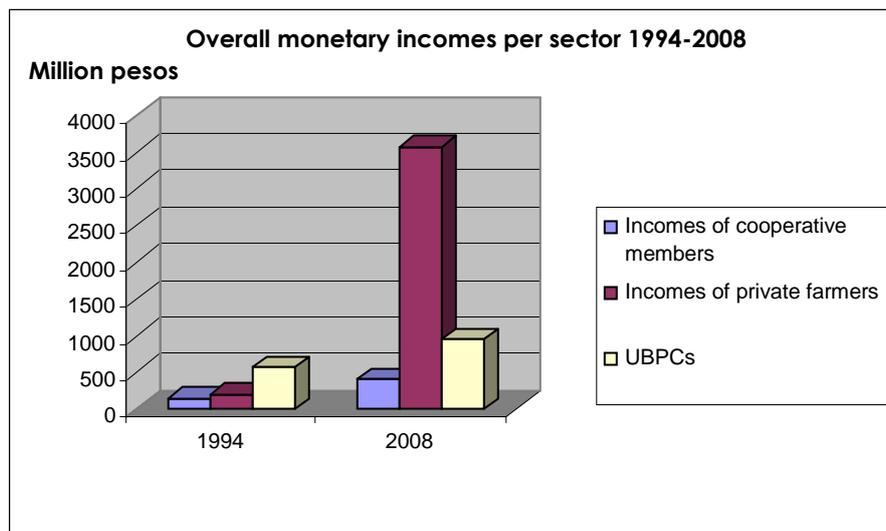
* Espinosa's calculations based on figures for 2001/ figures for 1993 are in percentage terms.

In short, private small farmers' capacity to respond better to tightening circumstances with sustainable technologies during the Special Period coupled with the process of land distribution encouraged by inward-looking policies resulted in a growing number of people employed in agriculture. During the 1990s and early 2000s, the number of collective small farmers grouped in CPAs declined while employment opportunities for private small farmers in CCSs significantly increased.

3.2. Income opportunities.

Data released by ONE (2007b, 2010) on the overall monetary incomes of various types of farms, point to sharp differences between cooperative and private forms of production throughout the 1990s and early 2000s (see Graph 1). The recorded overall incomes of private small farmers (CCSs) and cooperative members (CPAs) increased by an accumulated 42% and 32% between 2001 and 2008. The overall income of much larger cooperative producers grouped in UBPCs totalled 688 million pesos in 2006. This amount did not quite reach the 2000 figure (692.2 million pesos) (Hagelberg & Álvarez, 2007; ONE, 2007a).

Graph 1



Source: ONE, 2000, 2009. * Author's calculations from ONE, 2000, 2009.

Data presented in Table 3 provides much deeper insight into the income opportunities created for small farmers during the 1990s and early 2000s. The analysis of compound annual rates of growth and incomes per capita presented in Table 3 clarifies the trends in overall incomes presented in Graph 1. From 1994 to 2008 the group formed by private farmers (CCSs and individual producers) experienced a much higher compound annual rate of growth (22.5%) in terms of monetary incomes than UBPCs and CPAs (ONE, 2009). While in 1997 private small farmers and CPAs members achieved similar income levels, in 2008 the former experienced much higher levels of income per member (13,052.1) than CPAs (7,127.24 pesos). In the case of much larger units, UBPCs, which included many more farmers and workers than CPAs and CCSs, income per capita reached much lower levels (2,865 pesos in 2000).¹¹

These trends reflected the fact that during the 1990s and early 2000s private ownership decentralised production decisions and enabled producers to adapt to market trends. Market liberalisation generated opportunities for private small farmers to sell

¹¹ In the case of UBPCs there was no data available for 2008.

much larger percentages of their crops in farmers' markets at higher prices. Also, specialisation in vegetables, basic grains and tropical fruits in suburban and rural areas, which was encouraged by the process of land decentralisation, created higher income opportunities for this group of private farmers throughout the island. By contrast, large state farms stagnated and were less able to adapt to low input agriculture (Funes-Monzote, 2010).

Table 3
CARG and incomes per capita in UBPCs, cooperatives and CCS
(Cuban pesos)*

Concept	CARG of incomes per sector (1994-2008) (%)	Income per capita in 1997	Income per person in the early 2000s
Incomes of cooperative members (CPAs)	7.43%	3,196.3	7,127.24
Incomes of private farmers	22.5%	3,683.5	13,052.1
UBPC	3.66%	n.a.	2,865**

Source: Author's calculations from ONE, 2000, 2009.

* 25 Cuban pesos equals 1\$ /1Cuban Convertible Peso, CUC.

** CPA and CCS data for 2008. UBPC data for 2000.

Qualitative analyses show similar trends on the income streams for private small farmers. For example, Mesa-Lago's (1998, 2009b) estimation of the incomes obtained by the state and private sectors illustrates the substantial increase experienced by CCSs members and individual farmers during the 1990s. According to Mesa-Lago's (2009b) interviews, the monthly incomes for private farmers in 1998 were between US\$187 and US\$311 (based on Cuban Exchange Houses, CADECA) (Mesa-Lago, 1998). Compared to salaries in the state sector (e.g. doctors earned US\$12-22 per month in 2002), the income levels of private small farmers were substantial. Mesa-Lago (2009b) updates private sector incomes for March-April 2002 based on the CADECA exchange rate for

those months (25 Cuban pesos for US\$1/1 CUC). As shown by Table 4, private farmers with monthly earnings between 2,000 (US\$77) and 50,000 Cuban pesos (or US\$1,923) were among those with the highest incomes in Havana city province in 2002 (Mesa-Lago, 2009b).

Table 4

Monthly incomes in Havana, Cuba (Cuban pesos and US\$): March-April 2002 ¹²

Occupations	Cuban Pesos	U.S. Dollars (25 Cuban pesos = \$1/1CUC)
State Sector		
Lowest pension	100	4
Lowest salary	100	4
Teacher (primary & secondary)	200-400	8-15
University research/professor	300-560	12-22
Engineer, Doctor	300-650 ^b	12-25
Refuse collector	300-500	12-19
Police (regular)	200-500	8-19
Police (tourist security)	700-800	27-31
Army Official	350-700	13-23
Minister	450-600	17-23
Private Sector		
Housework	520-1,040	20-40
<u>Private farmers</u>	<u>2,000-50,000</u>	<u>77-1,923</u>
Bus/ transport driver (20-60 seats)	10,000-20,000	385-770
Prostitute (<i>Jinetera</i>)	n.a.	240-1400d
Landlord (room, apartment or house)	n.a.	250-4,000
Artist & Musicians (Internationally well-known)	n.a.	600-6000c 12,500-50,000
Paladar owner		

Source: Mesa-Lago, 2009b. Interviews undertaken by Mesa-Lago in Miami and Madrid with recent visitors and migrants. Much of this information is also supported by direct observation and informal interviews undertaken during the author's two fieldwork trips in Cuba.¹³

¹² The author only includes qualitative evidence presented by Table 4 to show the general patterns of income streams in agriculture already identified by ONE data in the early 2000s (see Tables 2 and 3).

¹³ a Rounded up numbers

In sum, forced by the scarce food conditions in Cuba during the Special Period, land decentralisation, market liberalisation and sustainable technologies opened opportunities for small farmers to achieve new levels of income in agriculture. These income levels were particularly significant for those producers engaged in CCSs and other private forms of tenancy. These farmers benefited from their ability to bring output to the market, their capacity to diversify production and adopt sustainable technologies.

4. PRODUCTION AND PRODUCTIVITY LEVELS (1990-2008).¹⁴

'Agriculture shows an unsatisfactory performance... marked by subjective management deficiencies [and] a decline in labour productivity and also in the average hours worked...., the weather effects in previous years and the impact of the Special Period... this sector must produce an important part of the food we now import at high prices, has to eliminate the negative factors in its management and raise its productivity.. —Commission for Economic Affairs to the National Assembly, 22 December 2006 (Granma, 25 December 2006).

Focussing on different types of farms, this section discusses the impact of inward-looking development on small farmers' opportunities to increase production and productivity levels. The analysis of production levels per type of farmer show the significant contribution private small farmers made to national food production. The second part of the section expands the discussion on productivity opportunities for small producers in Cuba.

^b Expert and experienced doctors were able to sign agreements with the state to set up private clinics. This way they earned 10-fold/20-fold their salary in the public sector

^c Unknown artists earned US\$10-13 per month. In contrast, Compay Segundo (Buena Vista Social Club) earned US\$6,000 net per one night performance; Silvio Rodríguez, Jorge Perugorria and Van-Van had contracts of US\$200,000, with a percentage of incomes destined to the government.

^d Monthly estimations based on US\$10-US\$50 per night, US\$70-\$350 on a weekly basis.

¹⁴ In Cuba, a communist country with different institutions and different ways of measuring social and economic phenomena, the author faced several problems when gathering data on productivity levels. Although there are data available on agrarian structures and the use of land by different types of producers, official statistics do not desegregate productivity per crop within the non-state sector. To overcome the lack of specific data on productivity levels per type of producer in Cuba, the author considered different proxies to estimate production and productivity levels.

4.1. The contribution of small farmers to national production.¹⁵

Family farmers have a long tradition in Cuba. They were the main agricultural producers until the early 20th century when sugar monocrop and US investment displaced them socially and economically. Before the Cuban Revolution of 1959, the ‘*campesino*’ sector practised diversified agriculture and traditional mixed farming (Funes-Monzote, 2008). According to the agricultural census of 1946, up to 90% of land holdings in Cuba were diversified small/medium farms (between 5ha and 75ha). These small and medium units practised mixed crop-livestock patterns and obtained better organisational efficiency than large estates (CAN, 1951). Before the nationwide emphasis on organic agriculture in the 1990s, small farmers had proven their efficiency: working only 20% of the total agricultural land surface they produced more than 40% of the domestic food (Rosset, 1996). These factors to some extent enabled small farmers to face the shock during the Special Period. Whereas state agricultural companies were dramatically affected by the loss in inputs, funding and material resources, small farmers were at least able to buffer scarcity and engage in food production for national consumption (Funes *et al.*, 2002; Funes-Monzote, 2008). In 1997, 70.7% of total food sales to the state were made by private small holders surpassing any other farm structure in Cuba. In the same year state farms produced 25.7% of food for national consumption (ONE, 1997).

However, the diversified strategies developed by small farmers before the 1990s were not the only factor that placed them at the forefront of the recovery from the food

¹⁵ ONE figures divide agriculture into two different sectors: sugar agriculture and non-sugar agriculture. In terms of production patterns, organisation and distribution, sugar production is considered a different sector from non-sugar agriculture in Cuba. Sugar production is managed by the Ministry of Sugar while non-sugar agriculture is managed by MINAGRI. The sugar sector has had a dismal performance since the beginning of the 1990s when sugarcane yields dropped by 33.4% in the non-state sector and by 35.0% in the state sector (Alvarez, 2000). This research only focuses on non-sugar agriculture mainly developed in much smaller production units.

crisis of 1993. State policy during the 1990s introduced significant production incentives for this group of producers. The reopening of the free farmers' market in 1994 coupled with the decentralisation of land structures stimulated higher small farming production levels and food availability relative to 1993-1994 levels (Gonzalez, 2003). In 2000, more than 50% of total agricultural direct sales to the state were made by private and cooperative small farmers (CCSs, CPAs and disperse *campesinos*) (Lugo-Fonte, 2000; Martín, 2002). As Table 5 illustrates, the most significant contributions small farmers made to total sales to the state in 2000 were equivalent to 60% or more in cases like beans, corn and tobacco (Lugo-Fonte, 2000).

Table 5
***Campesinos'* contribution (CPAs, CCSs and individual peasants)**
to total sales to the state for various products in 2000.

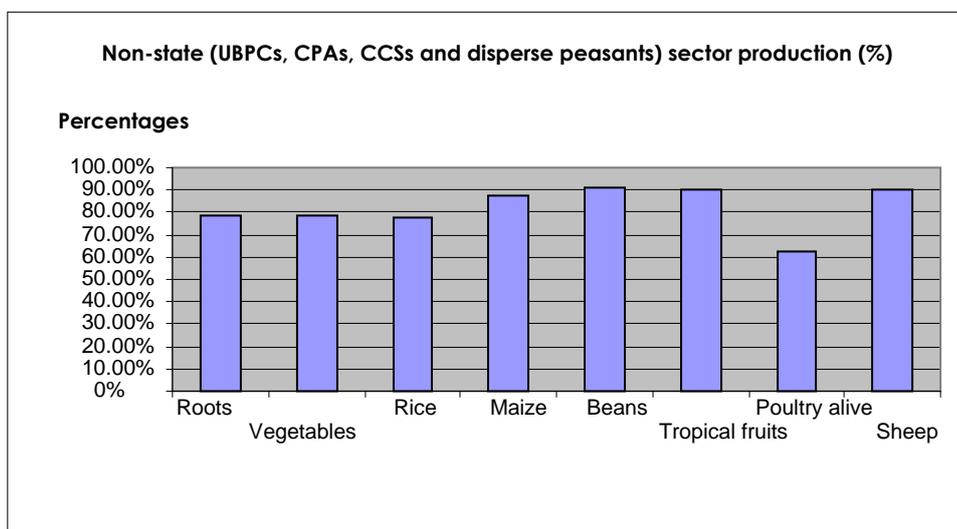
PRODUCT	PERCENTAGE OF TOTAL SALES TO THE STATE
Roots, tubers and vegetables	43%
Tobacco	85%
Coffee	55%
Cocoa	61%
Beans	74%
Corn	64%
Milk	32%
Rice	17%
Fruit	59%
Citrus	10%
Pork	43%
Fish	53%
Honey	55%

Source: Lugo-Fonte, 2000.

Considering the non-state sector as a whole (UBPC, imitating the size of CPA, CPA and private small farms), total production levels in 2000 ranged from 77.8% (or more in the case of rice, maize and beans) to 45.7% and 24.2% for citrus fruit and eggs. The

non-state sector therefore made substantial contributions to the increase in food availability during the early 2000s (see Graph 2) (ONE, 2000).

Graph 2



Source: Author's calculation from ONE, 2000.

The problem with Graph 2 is that the non-state sector includes various types of farms and producers. Within the non-state sector, the group formed by private small farmers during the 1990s widely engaged in national food production. In 2008, Cuba's private smallholders (CCSs and individual farmers) produced 64-70% of national food production across 26.80% of the farming land (ONE, 2007b). Focussing on this sector, data released by ONE for January-May 2008 show that CCSs and disperse peasants alone produced 50% of total national production of roots and vegetables, 64.1% of vegetables, and 74% of tropical fruits (see Table 6). In the same year, their contribution to basic grains production to sustain the Cuban diet was very high, especially in the case of maize (82%) and beans (81%) (ONE, 2010).

Table 6
Non-sugar cane agrarian production January-May
2008 (1,000 tonnes)*

Crops	State sector	Non-state sector	UBPC	CPA	Private**	Private % of the total**
Roots & vegetables	107.4	435.6	104.8	63.5	267.3	50.0%
Potatoes	57.3	129.4	82.3	35.7	11.4	6.1%
Bananas	55.1	189.8	43.7	20.2	125.3	51.1%
Vegetables	228.9	616.3	40.3	34.4	541.6	64.1%
Tomato	56.6	219.6	15.8	16.1	187.7	68.0%
Garlic	1.6	14.1	0.2	0.2	13.7	87.0%
Onions	7.1	50.8	0.9	0.9	49.0	85.0%
Peppers	5.3	22.1	0.9	1.5	19.7	72.0%
Cucumber	10.2	23.9	1.6	1.3	21.0	61.4%
Rice	10.5	26.3	12.0	1.0	13.3	36.0%
Maize	3.2	33.3	1.9	1.6	29.8	82.0%
Beans	2.0	30.1	1.6	2.5	26.0	81.0%
Citrus fruit	97.4	67.2	35.8	6.9	24.5	15.0%
Tropical fruits	16.7	101.5	8.8	5.2	87.6	74.0%

Source: ONE, 2009. *Excluding sugar cane, courtyards and plots.

** Includes CCSs and individual small farmers.

Livestock was one of the best examples of successful private small farming production in Cuba during and after the Special period (Gonzalez, 2000). Despite inconsistent trends during the 1990s, recent indicators show the significant contribution of private small farmers to total livestock production (except for the case of buffalo) (see Table 7) (ONE, 2000). From 1995 to 2000, the number of livestock under private management increased, as did the production of livestock products. During the same period, state and UBPCs livestock production experienced no signs of recovery (González, 2000). As Table 7 illustrates, by 2006 the private small farming sector (with only 12.9% of the grazing land) owned 43.5% of Cuba's livestock with an average of 7.3 head per owner (MINAGRI, 2007). This was almost double UBPCs' proportion of

the national herd (24.4%) and significantly higher than state enterprises (27.3%) and CPAs (4.8%) (MINAGRI, 2007).

Table 7
Structure of livestock production in Cuba, 2006

Type of production	Land area (Thousand of ha)	Percentage of land area	Owners	Head (Thousand)	Percentage of national herd	Head/owner
State enterprises*	1.221.6	48.3%	4.569	1.082.5	27.3%	236.9
UBPC	780.1	30.8%	2.470	969.6	24.4%	392.5
CPA	201.7	8.0%	1.063	191.8	4.8%	180.5
CCS + individuals	325.8	12.9%	236.088**	1.728.4	43.5%	7.3
Total	2529.3	100%		3972.3	100%	

Source: MINAGRI, 2007.

*Including livestock and crop enterprises dedicated to livestock rearing.

** Including individual owners or in CCS and farmers with or without land.

In summary, data presented on non-sugar agriculture and livestock production show Cuba's dependence on the non-state sector and to a greater extent on private small farmers to cover national food demand. The gradual expansion of the amount of agricultural land owned by private operators that took place between 1990 and 2008 increased their contribution to national food production (Hagelberg, 2010; Hagelberg & Alvarez, 2009). Other state incentives such as internal market liberalisation further encouraged private smallholders to increase their participation in national food production. Yet, they grew not only because of government's decisions but also because their traditional and diversified farming practices enabled them to respond better to the shock.

4.2. Productivity levels.

Alvarez (2000) and Puerta and Alvarez (1993) compare productivity per hectare of state farms versus non-state farms during the early 1990s. The authors use yields (metric tonnes per hectare) as the measure to determine productivity and select four

major groups of crops: *viandas* (roots and tuber crops), vegetables (tomatoes, peppers, onions), basic grains (rice, corn, beans) and the main Cuban export crops, sugar cane and tobacco. Alvarez (2000) and Puerta and Alvarez (1993) also take into account the degree of access to agricultural inputs, farm-related services and credit the two sectors enjoyed. Regarding access to inputs, from the revolution onwards state farms received well-organised technical and capital inputs and significant quantities of modern inputs (fertilizers, irrigation, and mechanisation) (Alvarez, 2000; Forster, 1989; Puerta & Alvarez, 1993; World Food Program, 1989). By contrast, the authors show that until 1993 private farmers had the most limited access to scarce agricultural inputs, such as fertilizers, irrigation equipment, farm machinery and vehicles. During their visits to the countryside, the scholars found farmers unable to obtain basic tools such as hoses for watering vegetable crops (Benjamin *et al.*, 1986; Puerta & Alvarez, 1993). These conditions worsened significantly during the years of the crisis. In the case of access to credit, data released by the Cuban National Bank's Credit Division for Cooperatives and Peasants on 21 February 1991 for the period 1979-90 (Deere, 1992) reveal drastic inequalities between the state and non-state sectors. Whereas CPAs received 47 million pesos in 1990, individual farmers obtained 4 million pesos in the same year (Puerta & Alvarez, 1993). Considering these developments, Alvarez (2000) and Puerta and Alvarez (1993) conclude that despite declining access to factors of production and other resources Cuba's non-state sector (UBPCs, CPAs, CCSs and disperse *campesinos*) produced more efficiently than the state sector (Álvarez, 2000; Puerta & Alvarez, 1993; Ricardo, 2003).

The abovementioned studies do not offer recent and disaggregated evidence on productivity levels at the sector level. The analysis of data for 1990 by Alvarez (2000) and more recent data released by ONE (2008b) on productivity levels per hectare of

various crops overcomes some of these limitations. As Table 8 shows, the results between the state and non-state sector were mixed. Whereas state farms (which generally had access to fertilizers, more logistical support and machinery) surpassed non-state productivity for potato, tomato, onion and pepper, the non-state sector significantly outperformed state growers for maize, rice, beans, tobacco and some vegetables during the period 1990-2008 (ONE, 2007a, 2007b, 2008b; Alvarez, 2000). As shown by Table 8, compound annual rates of growth differences between state and non-state sectors during the period 1990-2008 were significant for the basic crops required to sustain the Cuban diet, such as maize (-4.25) and beans (-9.86). Considering that in 2008 small private farmers produced 82% of maize and 81% of beans (and 36% of rice), differences between the state and non-state sectors in terms of productivity per hectare can be largely explained by this group of producers within the non-state sector (see Graph 3).

Table 8
Agricultural yield per selected crop from non-sugarcane agriculture,
state sector and non-state sectors
Compound annual rate growth of yields (tonnes/ha)* 1990-2008

Crops	CARG difference between state (large farms) and non-state (small/medium farmers grouped in UBPC, CPA, CCS and usufruct farms)** sectors (in percentage points)
Potato	0.89
Sweet potato	-1.36
Malanga	-2.57
Tomato	1.41
Onion	1.81
Pepper	5.07
Rice	-0.97
Maize	-4.25
Beans	-9.86
Tobacco	-0.11

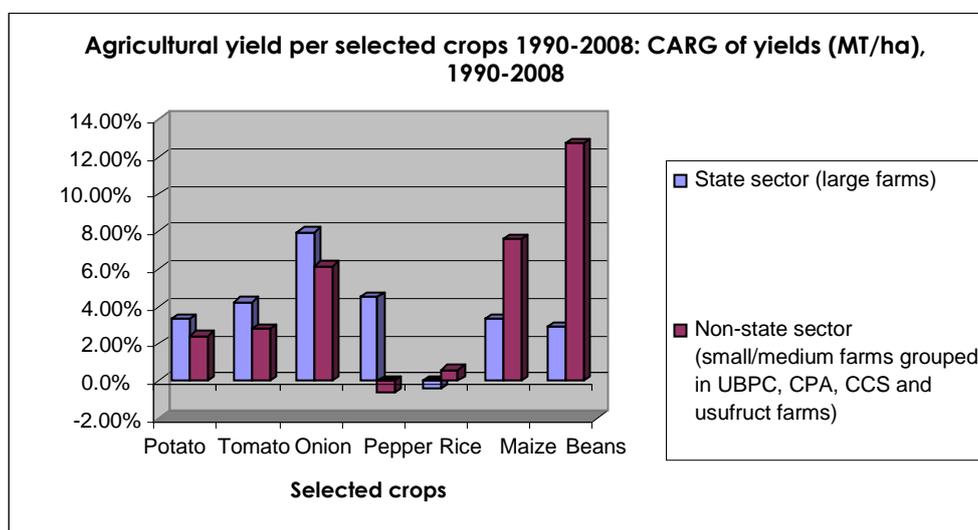
Source: Alvarez, 2000; ONE, 1990, 1997, 2008b.

Data of urban agriculture undertaken in quads, gardens and other individual forms are not included in this table. * Author's calculation based on Alvarez, 2000 and ONE, 1990-1997, 2008b.

** No data available on yields per crops under different land structures in the non-state sector.

Although *malanga*¹⁶, sweet potato and rice experienced differences between state and non-state sectors in terms of yields (metric tonnes/ha), the compound annual rate of growth on yields for other crops (e.g. potato, tomato, pepper and onion) precludes reaching definite conclusions concerning the performance of non-state farms (see Graph 3) (ONE, 2008b; Puerta & Alvarez, 1993).

Graph 3



Source: Alvarez, 2000; ONE, 1990,1997, 2009.

In short, evidence on average yields in state and non-state farms per crop is rather mixed. This may be partly due to the lack of further decentralisation and liberalisation in Cuba's land structures and commercialisation channels. Another reason could be the inclusion of UBPCs (though they imitate the size and patterns of CPAs) in the non-state sector with the high degree of inefficiencies these units continued to exhibit.¹⁷ This may

¹⁶ *Xanthosoma sagittifolium* - a root vegetable.

¹⁷ The strong influence of the state still remains in many of these cooperatives. UBPCs also face decreasing labour force availability and they have high debts with the Central Bank after the initial

have biased the returns for different crops achieved by private small farms (included in the non-state sector in Table 8). Another explanation could be that actually there were not clear productivity differences between sectors. However, in the case of basic grains (particularly, maize and beans), key to meeting Cubans' food requirements, evidence presented in Table 8 demonstrates noteworthy differences between the state and non-state sector. The relationship between the significant contributions of small private farmers to national food production with compound annual rates of growth of yields (t/ha) per crop is key to understanding the differences between the state and non-state sector. This relationship also helps to understand the potential of private small farmers to reach higher productivity levels per hectare than state farms and their opportunities to reduce food imports throughout the island, which was one of the main goals of inward-looking development.

5. OPPORTUNITIES TO IMPROVE FOOD SECURITY IN CUBA: FROM THE SPECIAL PERIOD TO THE WORLD FOOD CRISIS.

Approximately 50% of all food consumed in less developed economies during the 1980s and late 1990s was imported (FAO, 1994, 1997, 2004; Murphy, 1999). As stressed by Murphy (1999), in the Caribbean, food insecurity was a direct consequence of both the small size of these countries and the centuries of colonialism that prioritised production of sugar and other traditional export crops, neglecting food crops for domestic consumption. These historical patterns proved to be overwhelming for most

purchase of machinery and equipment from the state (in many cases this equipment has deteriorated) (Nova, 2006; Pérez-Villanueva *et al.*, 2004). Moreover, the unclear circumstances of usufruct contracts (until Law Decree 259 in 2008) have generally hindered UBPCs efficiency, encouraging the employment of cheap labour in many cases (particularly in the livestock sector) (Fernández-Domínguez, 2005). Although significant plot reductions have been achieved, the average size of many UBPCs is still large for several agricultural activities (e.g. livestock) (Alvarez, 2004; Nova, 2006, 2008). The lack of resources makes many UBPCs almost unmanageable while the sector still holds over 19% of idle areas in Cuba (ONE, 2008b).

Caribbean and Central American economies. In the global era, the majority of these countries remained net food importers. Like most small developing economies, Cuba was not able to feed itself during the (sugar) industrialisation development era. Castro (1996) himself recognises that even through the years of full economic stability and development of agricultural production, Cuba achieved considerably high levels of output but not enough to satisfy its food requirements. Within this context, this section focuses on the evolution of Cuba's food dependency during the 1990s and early 2000s. The second part of the section discusses the role small farmers performed in reducing food imports in Cuba during the period under investigation.

5.1. Cuba's food dependency: the Achilles' heel of the Revolution.

The Cuban Revolution established food as a basic human right through the implementation of the rationing system and other additional subsidies. Responding to the Revolutionary food commitment, much work was done to promote national agricultural production and increase Cuba's reliance on domestic production. Cuba's significant amount of fertile soils, aquifers and good climatic conditions were highly favourable to improve agricultural production across the island (Nova, 2006). However, like most small developing economies, Cuba historically imported a great proportion of the food necessary to feed its population (Nova, 2001, 2006). Dependency ratios were already significant before the 1959 Revolution, reaching 31% in 1954. Yet, with the passage of time Cuba progressively became more dependent on foreign (and subsidised) sources to feed its population (Nova, 1993; Rosset & Benjamin, 1994). As stressed by Rosset and Benjamin (1994:4) food import dependency 'has shown itself to be the Achilles' heel of The Revolution.' Until 1989 the special commercial arrangements that Cuba obtained through the CMEA fuelled high levels of food imports. In 1980 Cuba imported 70.7% of the food available for consumption. As the decade progressed,

import dependency ratios underwent modest decreases. In 1989 imports accounted for 60.2% of the food available for consumption (Álvarez, 2004; FAO, 1997; Nova, 1993).¹⁸

Table 9
Relationship between Cuba's selected food imports and food available for consumption, 1980-1997 (1,000 metric tonnes)

Year	Food available for consumption	Imports	Import dependency ratio*
1980	5,554	3,928	70.7%
1989	5,968	3,596	60.2%
1997	5,172	2,172	42.0%

Source: FAO, 1997. Data reporting was suspended after 1997;

*Imports divided by food available for consumption. *ONE, 2008a; estimated data.

The collapse of the Soviet Bloc in the early 1990s forced Cuba to confront a difficult dilemma: how to sustain the Cuban population without strategic imports from CMEA countries. Despite the national commitment to food security, in 1993 Cuba was thrown into a severe food crisis that significantly reduced nutritional intake below 2,400kcal/person/day throughout the island (see Graph 4) (Álvarez, 2004; FAO, 2009; Ferriol, 1996, 1998).¹⁹ In the worst moment of the Special Period daily per capita consumption went down to 1,863Kcal/person/day while the consumption of protein and fats decreased to 46grams and 26grams, both well below the recommended minimum daily requirements (FAO, 2004, 2007; Ferriol, 1998; Granma, 29 September 2000).²⁰

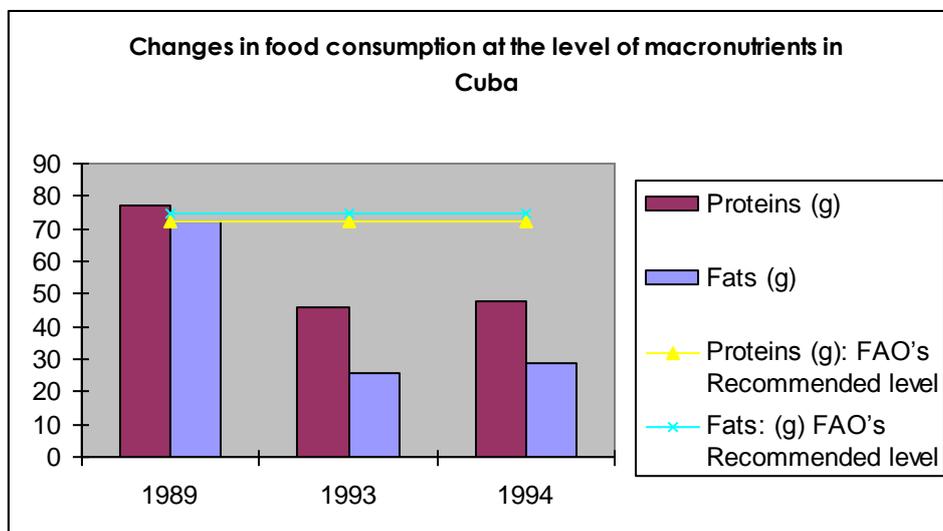
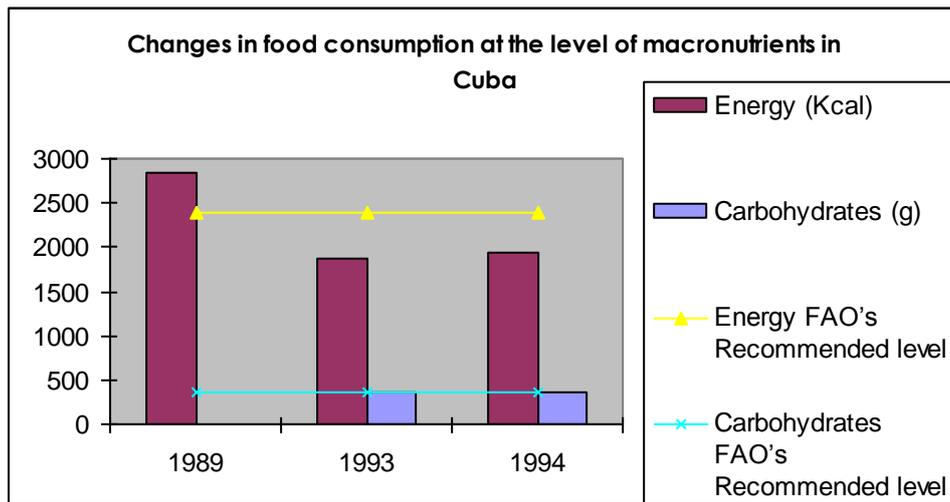
¹⁸ As an example of Cuba's food import dependency before 1989, Deere (1992) point out that in the late 1980s of the top thirteen items (which accounted for 75% of the value of food imports), the ex-Soviet Union supplied 50% or more of the tonnage of nine items, including 100% of the wheat flour, condensed milk, and fish, and 89% of the wheat (Deere, 1992).

¹⁹ Cuban figures reported to the FAO came from the following sources: the rationing system, food sold at subsidised prices in public institutions such as dining rooms in factories, schools, nurseries, and in cafeterias and stands; food distributed in places such as hospitals and nursing homes; food produced in rural and urban self-provisioning plots sold by workers or farmers and food purchased in other food outlets such as the recently created parallel markets (Álvarez, 2004; FAO, 2009).

²⁰ During the worst years of the food crisis, the only foodstuffs available were sugar, rice, roots and tubers (Wright, 2005). Mortality increased among older adults, the incidence of tuberculosis was dramatic due to poor nutrition, inadequate housing and unhealthy conditions (Mesa-Lago, 1998; Wright, 2005).

Once Cuba lost its highly favourable terms of food imports granted through the CMEA the island's food import ratios plunged, reaching 42% in 1997 (Alvarez, 2004; FAO, 1997).

Graph 4²¹



Source: FAO, 1997; ONE, 1997.

Urban areas and surrounding suburban zones faced severe food shortages. Given

Vitamin deficiency was also the source of an epidemic eye disorder called 'optic neuritis' associated with low levels of vitamin B1, which between 1993 and 1994 affected over 50,000 people, approximately 20,000 of whom went blind (Hatchwell & Calder, 1995).

²¹ Note, no carbohydrate data were reported for 1989.

Havana's historical dependency on food imports and provisions from rural areas, the capital was particularly badly affected (Murphy, 1998, 1999). Overall, the crisis pushed the entire island to search for alternatives to feed the population. Small farmers, mainly private producers, were at the forefront of this search.

5.2. Small farmers' opportunities to face the food crisis.

Despite the severe circumstances of the early 1990s, in 1996, shortly after the food crisis, energy availability (2,335kcal/person/day) was 15.8% higher than in 1993. During the period 1995-97 fat contribution to dietary energy balances increased 19.6%. In 1999 per capita availability of vegetables recorded the largest yield in 30 years (223.8 g per person per day), 2.2 times higher than the 1993-levels (102.7 g person per day) (ONE, 2000; Rodriguez-Ojea *et al.*, 2001). In keeping with these trends, FAO (2009) data show how food consumption (Kcal/person/day) increased from 2,440 in 1995-97 to 3,280 in 2003-05 and the number of undernourished people, according to the World Food Summit (WFS), indicator declined from 1.5% to 0.1% during the same period (see Graph 5). Moreover, by 2003-05 the prevalence of undernourishment in Cuba was lower than 5%; well below average levels in Latin America and the Caribbean (8% and 23% respectively) (FAO, 2009). These achievements were particularly noteworthy given the circumstances of agriculture during the Special Period. In short, the lack of strategic food imports from the Soviet Bloc after 1990 needed to be replaced by local production to feed the population.

Using FAO data (2009) on food imports (Kg/person/year) and food available for consumption (Kg/person/year) the computation of import dependency ratios per food group were calculated for two different periods: 1990-92 and 2005-07.²² As Table 10 shows, from 1990-92 to 2005-07 the island experienced decreasing ratios of imported

²² Table 10 considers total food available for consumption as the sum of food imports and food production per group of products (Kg/person/year).

(Kg/person/year) cereals, starchy roots, pulses, vegetable oils, vegetables and meat, basic food crops to sustain the Cuban diet. By contrast, during the same period, import ratios for other food groups increased. This was the case of sugar, oil-crops, fruits, offal, animal fats and milk (FAO, 2009; Ross, 2004).

Table 10
Evolution of ratios of imported food (Kg/person/year)
(1990-2007)

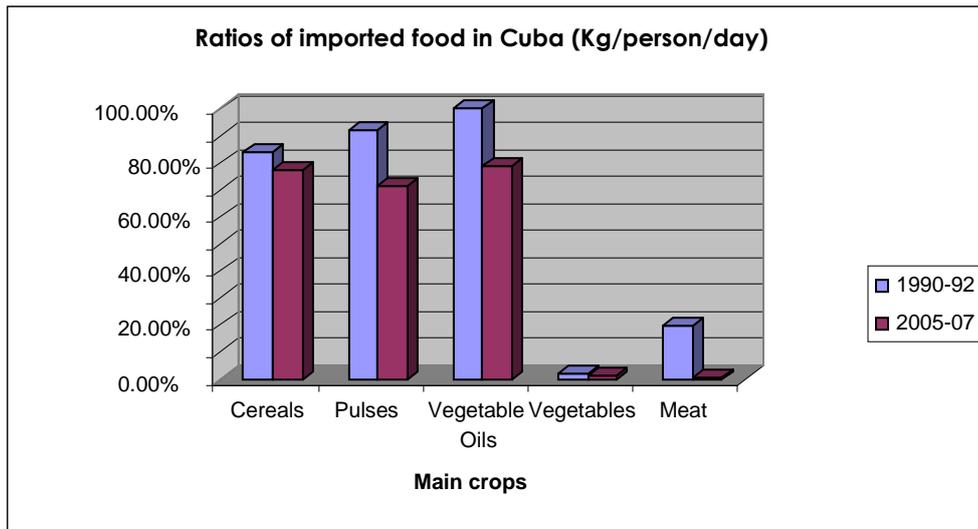
Food groups	Difference in percentage points (2005-07/1990-92)
Cereals - Excluding Beer	-6.7
Starchy Roots	-1.28
Sugar & Sweeteners	14.06
Pulses (e.g. peas, beans and lentils)	-20.6
Oilcrops	58.2
Vegetable Oils	-21.3
Vegetables	-0.66
Fruits - Excluding Wine	0.28
Meat	-19.04
Offal	9.09
Animal Fats	53.65
Milk - Excluding Butter	24.2

Source: Author's calculation from FAO country statistics, 2009.

Developments on import ratios per group of products can be better understood when connected to private small farmers' contributions to national food production (see Graphs 6 and 7). Special attention should be paid to the group of products oriented towards covering basic food needs in Cuba, which are mainly produced by small farmers. This is the case of most cereals, roots, pulses (peas, beans and lentils), vegetables and meat. In the group of cereals and pulses, decreasing import ratios were largely attributable to the contribution of the non-state sector to the basic grains available for national consumption. This sector produced 77.8% of rice, 87.1% of maize, and 91.5% of beans in 2000 (ONE, 2000). Moreover, in 2008 private small farmers alone produced 82% of maize, 81% of beans and 36% of rice available for

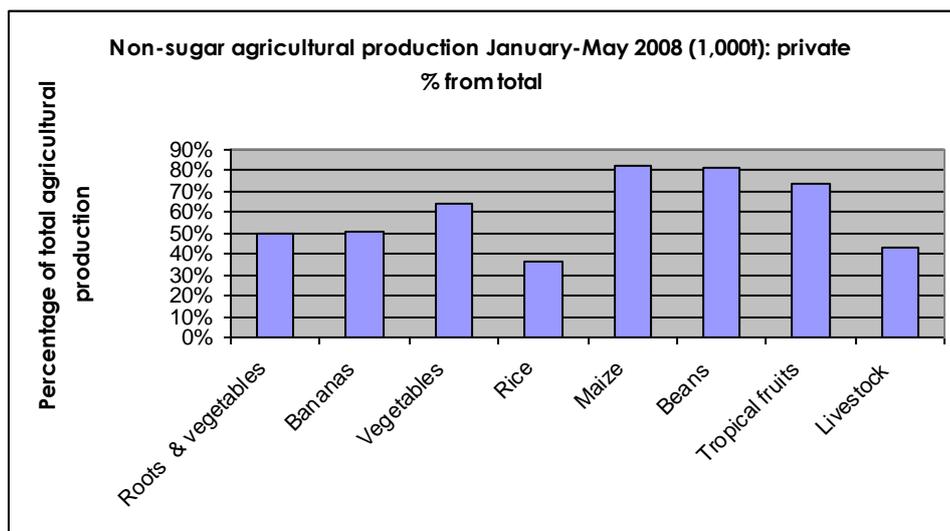
national consumption. Another example is meat, which also exhibited decreasing ratios from 1990 to 2007. These trends in meat production can be related to the fact that in 2006 the private small farming sector only accounted for 12.9% of the grazing land but owned 43.5% of Cuba's livestock (MINAGRI, 2007; ONE, 2010).

Graph 6



Source: Author's calculation from FAO country statistics, 2009.

Graph 7



Source: ONE, 2009.

In the case of milk and animal fats, though they were also important in sustaining the Cuban diet, their ratios increased during the 1990s and early 2000s. This may be partly explained by the extended use of imported powdered milk from the 1980s. Also, the Cuban dairy sector was afflicted by several limitations and continued to depend on imports. In 2006, of the 878 million litres of milk that were consumed in Cuba, 50% were imported (Ponce, 2009). The main problems were limited production, different distribution problems to place milk in national markets and the low quality of raw milk. Yet, increasing import ratios were also related to the large control that state farms (and UBPCs to a lesser extent) still held on this type of livestock. The application of a new payments system in 2006 increased milk production by cooperative and private farmers. This was also linked to a new system of raw milk distribution in local markets that reduced imports by over 20% (Ponce, 2009). Still, in 2008, state farms controlled approximately 50% of beef production and 100% of buffalo (ONE, 2009).

In short, the evolution of food import ratios show that like most small developing economies Cuba never held autonomy over its food system, either during the socialist period or during the Special Period. Yet, the end of strategic imports at highly subsidised prices from the Soviet Bloc and the difficult circumstances of the Special Period forced the Cuban government to adopt inward-looking policies to improve and reframe food security. The change in the direction of agrarian policy, which involved a decisive shift to small farming, significantly reduced Cuba's dependence on imports from the early 1990s onwards. This was particularly evident in the food groups of cereals, vegetables, meat, pulses and vegetable oils, key to meeting Cuban food requirements. The contribution private small farmers made to total agricultural production, which in 2008 ranged from 50% in the case of roots to 82% in the case of

maize, was a significant factor behind the decline in Cuba's import ratios from 1990-92 to 2005-7.

6. CONCLUDING REMARKS.

This paper has discussed the extent to which 'inward-looking' development in Cuba created opportunities for small farming production, especially private small units, between 1990 and 2008. In doing so, the paper has illustrated that whereas an increasing number of people were engaged in agriculture during the 1990s and early 2000s compared to other economic activities (apart from tourism), a decreasing number of agricultural workers were employed in large forms of production (state farms) and CPAs. During the same period, Cuba experienced important increases in the proportion of private small producers engaged in agriculture. This was clear in three areas: 1) the number of private small producers; 2) the amount of land they controlled; and, 3) and the incomes they received. Recent developments in agricultural policy suggest that these trends will be maintained in the future. In 2010 Orlando Lugo Fonte (ANAP's president) noted that the small farmer sector had grown by 'more than 100,000 new members' as a result of the transfer of idle lands under Decree-Law No. 259 (Fernández, 2010; Hernández, 2010).

The paper also illustrated that while several pillars of inward-looking development tried to boost national food production, especially after Raul Castro came to power, improvements in total production levels were extremely variable during the period 1990-2008. The government traditionally blamed external factors, particularly the US trade embargo and climatic adversities, for the inability of agricultural production to cover food requirements. It is true that hurricanes in 2005 (Dennis, Katrina and Wilma) and 2008 (Ike, Gustav and Paloma) caused severe losses in agriculture. However,

climate conditions in 2006 were favourable and agricultural production still declined (Mesa-Lago, 2008). According to a good number of the civil servants and economists the author interviewed during her fieldwork, this might be partly caused by the lack of further and parallel changes within agricultural and macroeconomic policies.²³ Existing land structures lacked autonomy (e.g. many livestock UBPCs); cooperative and private small farmers had limited access to inputs, basic tools and credits (Puerta & Álvarez, 1993); and, non-complementarities between local and national initiatives of rural development may have hindered higher growth rates in total production levels. Yet, the paper has highlighted that in the context of the crisis, given the absence of subsidised machines and imported chemicals, Cuba's small farms generated much higher levels of agricultural production for national consumption than large production units. Higher private small farmers' production levels were particularly evident in the case vegetables, tropical fruits, basic grains and meat.

The second part of the paper provided mixed evidence in terms of productivity levels per crop in (large) state and (smaller) non-state farms. The lack of further decentralisation, liberalisation, credit and basic tools, clearly hindered small and private farmers' possibilities to increase productivity levels further in the non-sugar sector. Yet, there was insufficient evidence available to demonstrate the lack of access to productive assets by different type of producers, even if productivity levels demonstrated that non-

²³ Interview with BA. C. Arteaga, ACTAF, Havana, Cuba, 9 Oct. 2008.

Interview with G. Betancourt, INIE, Havana, Cuba, 15 October-25 Nov. 2008.

Interview with Dr. F. Funes, ACTAF, Havana, Cuba, 2-15 October, 2008.

Interview with Dr. J. Cruz, Facultad de Economía, Universidad de La Habana, Havana, Cuba, 1-15 Nov. 2006.

Interview with Dr. A. Nova, University of Havana, Centre for the Study of the Cuban Economy (CEEC), 2 October-27 Nov. 2008.

state farms significantly surpassed the productivity per hectare of state farms engaged in basic grains and vegetable production. These crops were primarily oriented towards national consumption and were produced by private small farmers.

Finally, this paper has illustrated how the lack of strategic imports from the Soviet Bloc and the difficult circumstances of the Special Period forced the Cuban government (first, Fidel Castro until 2006; second, Raul Castro has placed much more emphasis to decentralised land structures and production structures since 2008) to adopt inward-looking policies (based on small farming) to reduce the country's dependence on imports and establish a route out of the food crisis. Within this context, cooperative and private small farmers placed themselves at the forefront of Cuba's food security matrix. The role of these producers was particularly evident in the food groups of cereals, vegetables, meat, pulses and vegetable oils, all of which were key to meeting Cuba's food requirements. With the contribution of private small farmers to total production rising, the island significantly reduced the import ratios of pulses, cereals and meat from 1990-92 to 2005-07. These patterns could offer valuable lessons on food security to other small developing economies applying similar or distinct agricultural policies.

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APPENDIX I

Organisation of Cuban agriculture

State sector (large farms)	Non-state sector (medium and small production units)	Mixed sector (large farms)
<p>State farms</p> <p>New-type State farms (GENT)</p> <p>Revolutionary Armed Forces (FAR) farms, including farms of the Young Workers' Army (EJT) and the Ministry of the Interior (MININT)</p> <p>Self-provisioning farms at workplaces and public institutions</p>	<p>Collective production</p> <p>Basic Units of Cooperative Production, UBPCs: large/medium farms (much smaller than state farms)</p> <p>Agriculture Production Cooperatives, CPAs: small farms</p> <p>Individual Production (small private farms)</p> <p>Credit and Service Cooperatives, CCSs</p> <p>Individual farmers, in usufruct</p> <p>Individual farmers, private property</p>	<p>Joint ventures between state and foreign capital</p>

Source: Martín, 2002.

APPENDIX II

Non-State sector in Cuba

	Type	Characteristics	Type of land ownership
Collective large, medium and small farms depending on sectors.	UBPCs	Former state farms Much smaller than state farms and imitate CPA size and their patterns of small farming production during the 1990s They buy tools, animals etc.	Collective usufruct of land
Collective small farms	CPAs	Voluntary association of small farmers in a cooperative to combine production and technologies	Voluntary association and delivery of land to the cooperative
Private small farms	CCSs and Individual/dis perse farmers	Renters, agrarian workers, sharecroppers, owners who form a cooperative to organise agricultural work and obtain credits and services from the state. Plots to farm coffee, cacao and tobacco	They own the land (private lands) They own the land in usufruct under well-defined periods and conditions (at least ten years)

Source: Funes *et al.*, 2002; Martin, 2002.

LIST OF ACRONYMS

ACAO	<i>Asociación Cubana de Agricultura Orgánica</i> (Cuban Association of Organic Agriculture)
Acopio	National Agency of State Food Collection and Distribution
ACTAF	<i>Asociación Cubana de Técnicos Agrícolas y Forestales</i> (Cuban Association of Agricultural and Forestry Technicians)
ANAP	<i>Asociación Nacional de Pequeños Agricultores</i> (National Association of Small Farmers)
CADECA	<i>Casas de Cambio S.A</i> (Currency Exchange Bureaus)
CARG	Compound Annual Rate of Growth
CEEC	<i>Centro de Estudios de la Economía Cubana</i> (Centre for Research of the Cuban Economy)
CEPAL/ECLAC	<i>Comisión Económica para América Latina y el Caribe</i> (Economic Commission for Latin America and the Caribbean)
CMEA	Council of Mutual Economic Assistance
CNP	<i>Consejo Nacional de Producción</i> (National Production Council, Costa Rica)
CPAs	<i>Cooperativas de Producción Agropecuarias</i> (Agricultural Production Cooperative)
CSSs	<i>Cooperativas de Crédito y Servicio</i> (Credit and Service)
CUC	Cuban Convertible Peso (equivalent to one dollar) <i>(Peso Convertible Cubano)</i>

EAP	Economically Active Population
EP	Employed Population
INCA	<i>Instituto Nacional de Ciencias Animales</i> (National Institute of Agricultural Sciences)
INIE	<i>Instituto Nacional de Investigaciones Económicas</i> (National Institute for Economic Research)
IPM	Integrated Pest Management
MINAGRI	<i>Ministerio de Agricultura (Cuba)</i> Ministry of Agriculture
ONE	<i>Oficina Nacional de Estadísticas (Cuba)</i> National Bureau of Statistics National Programme for Strengthening Family Farming
PSD	Participatory Seed Diffusion Project
R&D	Research and Development
TNCs	Trans-national Corporations
UBPCs	<i>Unidades Básicas de Producción Cooperativa</i> (Basic Units of Cooperative Production)
WTO	World Trade Organisation

