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**“Hua-na”: Experimental  
& Game-Theoretic Approaches  
to Understanding Chinese-Filipino  
Segregation Norms**

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## Table of contents

1. Introduction	5
2. The Chinese-Filipinos: Sketches of segregation norms	8
3. Testing for the presence of ethnic discrimination in economic bargaining situations: The “ <i>Hua-na</i> Experiment”	11
4. Ethnic segregation norms as evolutionarily stable strategies	18
5. Conclusions and the outlines of a research programme	22

## List of figures

1. Pre-crisis indicators of overseas Chinese economic success in host countries	7
2. Payoffs in a Battle-of-the-Two-Cultures game	21

## **Abstract**

This paper interrogates Chinese-Filipino ethnic segregation norms in two ways: first, by using experimental methods to test for the aspects of discrimination between Chi-Fils and native Filipinos, and second, by using a game-theoretic approach to model market and selection behaviour. We find evidence of a vibrant, two-tiered integration process. On the one hand, the experimental data show remarkably few signs of any kind of ethnic consciousness, let alone discrimination, among “third-generation” Chi-Fil university students. On the other hand, we also find a need to respond to reports of persistent segregation norms among traditionalist families. In the absence of a practical way of studying the phenomenon within first and second-generation Chi-Fil cohort groups, we resort to modeling the norms. We show them to be evolutionary stable strategies within repeated Battle-of-Two-Cultures game situations, as well as community/kin-enforced insurance contracts designed to overcome moral hazard problems in markets.

# **“Hua-na”: Experimental & game-theoretic approaches to understanding Chinese-Filipino segregation norms<sup>1</sup>**

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## **1. Introduction**

### **A. But first, what’s in a name: Integration & identity politics**

In the vernacular of the *Tsinoy*s<sup>3</sup>, the word for “Filipino” is *hua-na*. I have chosen it to begin this paper on changing social compacts out of a belief that it is an apt metaphor for the whole range of Chinese-Filipino integration issues today. For one thing, its meaning is still culturally contested. “Assimilationists”<sup>4</sup> or “integrationists” within Chi-Fil society<sup>5</sup> (composed of intellectuals, the “third-generation”, as well as members of civil society organisations such as *Kaisa Para Sa Kaunlaran, Inc*) will take pains to explain that the word simply means “not Chinese”, and is devoid of any pejorative meaning.

When one examines its usage among the “traditional” Chinese-Filipinos (the “first” and “second” generation in most families), however, the matter is not as straightforward. For one thing, there appears to be no written character for *hua-na* – certainly unusual for a term meant to denote the important property of ethnicity. Many Chi-Fils will prefer to use another word to introduce Filipino friends, especially if the latter understand Hokkien. At the very least, the word does not seem appropriate for polite conversation among mixed-race circles, as it would almost certainly startle a Chi-Fil if a Filipino were ever to come up and present himself/herself as a *hua-na*.

Indeed, perhaps the best indicator of the contestability of *hua-na* as an ethnic signifier is to observe whether a Chi-Fil reader would consider it inappropriate or offensive of me, a Filipino, to use the term in public, let alone in an academic work. As with the integration process, meanings matter greatly when viewed from within a subculture as from without.

### **B. Social capital, changing compacts, and the ethnic economy**

In this work, I propose to interrogate two research areas that are at a theoretical crossroads – social capital and the overseas Chinese in the Philippines.

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<sup>3</sup> A contraction of “Tsinong Pinoy”, literally “Chinese-Filipino”.

<sup>4</sup> We use quotation marks to signify that these are the actual terms used in daily conversation for these concepts/ideas.

<sup>5</sup> Chi-Fil authors prefer the term “society” to “community” in order to dispel the notion that Chinese-Filipinos in the country are a monolithic and cohesive force, and emphasise the diversity and conflict that also exist among them.

The literature on social capital has moved on from initial attempts to ascertain its existence and contribution to development theory (see Putnam, *et al*) to more systematic efforts to “operationalise” it as a tractable concept (say, through the World Bank Social Capital Project). Thus far, two “schools” have emerged – the first positing social capital as a set of norms adopted by members of a self-referencing community, with the second viewing it as a set of formal and informal networks. Platteau (1994) gives a good taxonomy of the various mechanisms at work for both the norms and networks approaches, but past this, there has been little consensus as to how best to pin down such elusive variables as “trust”, “reciprocity”, “commitment” and “respect” – or even terms such as “networks” and “institutions” (see Fine 2001 for an excellent review of the relevant methodological issues).

Likewise, the phenomenon of the overseas Chinese has become the subject of an emerging research programme, driven mostly by scholars who want some insight into their peculiar (and highly successful) ways of conducting business. However, three obstacles have thus far prevented efforts from progressing: first is the general difficulty of obtaining *representative* empirical data about institutions, norms, and practices of the Chinese-Filipinos. There is hardly a custom or norm – especially one that hints of segregation – that the Chinese-Filipino respondent in interviews will not re-interpret, qualify, or downplay<sup>6</sup>. But it is equally true that the culture itself is in a state of flux. McBeath (in See, 1992) classifies Chinese-Filipino society into 4 types: the “Chinatown” Chinese, the “modern” Chinese, the *mestizo* elite with almost no ties to the Chinese community, and the *mestizo* masses. Their proportions are changing quite rapidly and with them, the mix and quality of norms.

Second is what I see as the “triumphalist” and “essentialist” character of most Chinese-Filipino scholarship in the Philippines. “Triumphalist” because except for a few notable cases, the vast majority of work produced by Chinese-Filipinos about the Chinese-Filipinos focuses either upon case studies of the *taipans* and their often sanitised rags-to-riches tales, or the contributions of historical figures with Chinese roots<sup>7</sup>. “Essentialist” because the discourse on Chinese ethnicity is frequently under girded by claims of uniqueness and irreducibility, as opposed to, say, functionality. The peculiarities of market behaviour in Chi-Fil society, for instance, are not treated as part of the broader class of immigrant behaviour – rather, they tend to be explained in terms of “Chinese-ness” or (distinctive) “Chinese values”<sup>8</sup>.

Lastly, some of the more prominent Chi-Fil commentators have demonstrated extreme sensitivity toward any suggestion that perhaps Chi-Fil customs or institutions may themselves be imposing certain costs upon the integration process.

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<sup>6</sup> For instance, the long-standing and fairly widespread aversion to relationships with Filipinos is never “discrimination” – it is merely “preserving one’s cultural heritage” or “respecting the wishes of one’s family”.

<sup>7</sup> The local literature on integration is extremely asymmetric, in this respect. All the papers investigating, say, the negative social externalities of segregation norms that I used in this work, I had to obtain from foreign journals.

<sup>8</sup> See, for instance, the work of influential Chi-Fil author Go Bon Juan who argues that “the ethnic Chinese management and business style can be fully and effectively applied, though, only among ethnic Chinese” (1996).

A typical example of such a reaction would arise from discussions of Chinese “control” over the Philippine economy. On the face of it, this seems like a straightforward and ultimately testable empirical proposition – and, indeed, there is ample evidence that the overseas Chinese are disproportionately represented in the highest income levels of almost all Southeast Asian countries.

For instance,

**Figure 1. Pre-crisis indicators of overseas Chinese economic success in host countries**

	<i>% share of population</i>	<i>% share of market capitalisation</i>
Malaysia	29%	69% (x 2.37)
Singapore	77%	81% (x 1.05)
Thailand	10%	81% (x 8.10)
Indonesia	4%	73% (x 18.2)
<b>Philippines</b>	<b>2%</b>	<b>55% (x 27.5)</b>

Source: *Dynamics of Asian Business*, Pierre van der Eng (Australian National University)

Or perhaps<sup>9</sup>,

**Purcell (1980):** “As early as 1932, Chinese merchants were already conducting 70 to 80% of Philippine retail trade, with an investment equivalent to US\$25 million. They owned 75% of the country’s 2,500 rice mills and a significant proportion of internal commerce as well.”

**Liao (1964):** “During 1962, they made 15.6% of the new capital investments in the manufacturing sector and 20.32% in the retail and wholesale sector.”

**Limlingan (1986):** “In 1980, the Chinese Filipinos were estimated to be 1.4% of the Philippine population. Despite this small number, 33.6% and 43.2% of the top 259 manufacturing and commercial firms, respectively, were owned by Chinese Filipino merchants.”

**Redding (1990):** “In terms of sales volume, Chinese Filipino merchants had a share of 35% of national sales and 67% of total sales in the commercial sector in 1981.”

**Palanca (1995):** “In 1990, 35.4% of the top 1000 corporations in the Philippines were owned by Chinese Filipino businesspersons.”

In any case, all it would take to disprove the statement is counter-factual evidence. And yet, in the Philippines, any casual suggestion of this triggers a wave of denial<sup>10</sup> and

<sup>9</sup> All succeeding quotes, including table above, are cited from Apolinario, Go, Magpily & Peñaflores (2001).

accompanying accusations of 50s-style “yellow peril” paranoia. Indeed, to discuss the ethnic economy, its mechanisms and implications for, say, equity and income distribution, is to notice the corpse at the dinner party. Presumably, this is so because in such discussions, no distinction is made between the *descriptive* claims about Chinese economic success (*ie* is it true?), and any *normative* implications of this (*ie* is it politically acceptable?).

The manuscript proposes a modest contribution to the literature by (a) expanding the stock of empirical data on the ethnic Chinese; and (b) producing a more theoretically solid analysis of the evolving social interaction between this important ethnic group and mainstream Philippine society.

### C. Outline and plan of the work

We divide the paper into four parts. **Part 1** provides an introduction not just to the operation of ethnic segregation norms among the Chi-Fils in the Philippines, but also the methodological and practical difficulties of measuring them. In **Part 2**, we report the results of an experimental ethnic discrimination test administered to a sample of “3<sup>rd</sup>-generation” Chi-Fil university students.

In **Part 3**, we develop a simple model for explaining the persistence of segregation norms in the face of a rapidly marketising economy. We show these norms to be evolutionarily stable strategies in a “Battle-of-the-Two-Cultures” game within a polymorphic population. We likewise suggest that such norms serve as kin-enforced insurance contracts against moral hazard problems that can resist “invasion” by those with assimilationist tendencies. Finally, in **Part 4**, we consolidate our findings and outline a research programme for interested scholars.

## 2. The Chinese-Filipinos<sup>11</sup>: Sketches of segregation norms

Where it exists, the preference for Chinese partners (spouses, business associates, etc) is much more strongly enforced among Chinese-Filipinos than almost anywhere else in Southeast Asia. Understandably, we make this claim with utmost caution given the absence of published secondary data on such slippery phenomena. But the assertion may be defended by citing the vitality of both formal and informal institutions whose main purpose it is to preserve, reproduce and transmit these norms.

Likewise, although it may be considered anecdotal and unrepresentative, informal interviews with individuals taken from a good cross-section of Chi-Fil family types both from Manila and the provinces over a period of 15 years revealed that (i) most are

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<sup>10</sup> Take, for instance, Teresita Ang-See’s “Images of the Chinese in the Philippines” in which she argues that it is actually “impossible for the Chinese to form a cartel to control the economy”.

<sup>11</sup> The ethnographic and historical data on the characteristics and origins of Chinese-Filipinos are extremely well-documented and we see no need to repeat the material here. Those interested should refer to the works of the late Chinben See, Prof Benito Lim, Teresita Ang See, and Prof Victor Limlingan, which are the most readily accessible.

expected to observe these well-defined and fairly uniform segregation norms with varying degrees of necessity, or (ii) if their families do not expect them to do so, they are in the minority. I am tempted, in fact, to survey the participants in this conference to obtain validation or refutation of this, as I base my own comparative assessment on the experiences of friends from Malaysia, Thailand, Indonesia and Singapore. In the end, it is probably safe to say that although there is considerable disagreement as to its influence or continued relevance, what *is* undeniable is that there exists a well developed and actively functioning set of mechanisms designed to give both positive and negative reinforcement for these segregation norms.

### **A. Institutional transmission of segregation norms: Chinese schools and “kai-xiao”**

For example, on the positive (*ie* institutional) side, there is the latter-day phenomenon of “Chinese schools” burgeoning outside traditional Chinese residential areas of Binondo, Tondo, and Caloocan. Once a polemical issue in the 1960s (see Liao 1964), Chinese schools make it possible for Chi-Fil families to preserve an ethnically-homogenous circle of associates for their children<sup>12</sup>. Indeed, whilst there are usually no explicit school policies that prohibit the entry of Filipino students, other screening devices are employed with the same effect. For instance, there are rules that forbid transfer students, thereby preserving the ethnic mix of the batch that is already pre-disposed to enrolling there. At the pre-school levels, there is the practice of assigning Chinese names to students, effectively serving as a “glass ceiling” that increases the adjustment costs for non-Chinese children. Even at the high school level, it is not unheard of for parent associations to insist that school officials, for instance, make sure there are no non-Chinese dates in attendance during proms or parties<sup>13</sup>.

There is also the custom known as *kai xiao*, which consists of heterosexual meeting and dating experiences arranged by kin (usually parents and grandparents, but increasingly by family friends). More generally, there are numerous kin-based associations (some of which are incorporated), chambers of commerce, civil society organisations that serve as the focal point for continued and more or less exclusive interaction.

### **B. Normative restraints**

On the negative side (*ie* in the sense of restraining, preventing), one finds a wide array of segregation norms and practices backed up by self-contained essentialist and functional justifications, some better articulated than others. Without going so far as to say that these practices are absolute or unchanging, we document a few common examples below.

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<sup>12</sup> Although typically, the ethnic socialisation aspect of schooling will be downplayed in favour of explanations citing the need to learn the Chinese language, or the high quality of education at these institutions.

<sup>13</sup> Such informal but binding rules were in force in even “less conservative” schools like the Immaculate Conception Academy in the late 90s.

As explained in the foregoing section, the segregation process normally begins in childhood, when Chi-Fil children are typically sent to Chinese schools with almost no Filipinos students in them<sup>14</sup>. My own 15-year experience as a faculty member in a university with a disproportionately large Chi-Fil population (in some classes, the ratio is as high as 80-20 in favour of Fil-Chis) as well as with numerous full-blooded Chi-Fil friends and associates bears repeated confirmation of the existence of such norms. They aver, although always circumspectly, that as children, they were both passively (through separation and the lack of opportunities for extended and non-hierarchical<sup>15</sup> interaction) and actively dissuaded (through “friendly warnings” from parents or *angkongs/amahs*) from having “too many” Filipino acquaintances, or from becoming “too close” to Filipinos<sup>16</sup>.

It is in adolescence that the segregation ethos usually first produces visible signs of strain, as mixed-race relationships are generally frowned upon, if not forbidden outright. From the available evidence, we hypothesise that majority of Chi-Fil parents (and certainly grandparents) may countenance their children having non-Chinese friends, but draw the line at their children having relationships with non-Chinese partners. And while it is true that newspapers bear confirmation that mixed-race marriages are on the rise, this is not necessarily equivalent to the claim that the norm is being weakened or in decline (in Part 3, we show how this is what can be expected in a polymorphic population). In fact, the disapproval within Chi-Fil families of relationships with Filipinos is so strong that it frequently extends even to Chi-Fils who are not considered “pure” (*ie* whose parents are not themselves “100% Chinese”).

Marriage to a Filipino, even for the most assimilationist of families, can still be a source of trepidation. The claim often heard is that even if the Chi-Fil spouse’s immediate family “accepts”, there is always the problem that the Chi-Fil *community*<sup>17</sup> (the matrix of more distant relatives, associates, etc) will find the marriage objectionable and thus undermine the family’s social standing (a highly-prized asset within Chinese society, which often determines the level of economic opportunity available for the business-orientated). Indeed, an especially powerful and frequently-used argument against mixed-race marriages is that since Chi-Fil children are expected to carry on with the family business and given that Filipinos are not exactly inclined to/capable of/trustworthy enough for this sort of long-term undertaking, then it is best to find a “more practical” match. At this point, the *kai-xiao* network is put to use.

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<sup>14</sup> Obtaining population profiles in Chinese schools is always going to be an iffy undertaking. A good number of Chinese families have adopted Filipino surnames and thus any crude “name count” is likely to overstate the proportion of Filipinos students. Instead, we cite reliable yet anecdotal evidence that the Philippine Cultural High School, whose share of Filipino students is said to be about 10%, is actually the most “integrated” of the Chinese schools in Manila.

<sup>15</sup> We refer here to friendships and relationships with those considered as peers – not hierarchical ones, as with teachers, maids, priests, or drivers, who may just happen to be Filipino.

<sup>16</sup> This in no way suggests that children are **prohibited** from having Filipino friends; rather, the well-known “calculus of social relations model” posited for the Chinese is instructive in fully understanding the cultural context of this norm. According to this model (Fortes, 1969), the innermost circles of the Chinese psyche are reserved **exclusively** for persons of Chinese ethnicity – further differentiated according to relational distance, language, and ancestral origins.

<sup>17</sup> In this case, the use of the term “community” is accurate since we refer to the set of Chi-Fils that actively takes part in the enforcement of this ethnic norm.

Given the often conflicting reports of the persistence of segregation norms versus the increasing assimilation of Chi-Fils, there appear to be reasons for adopting McBeath's typology and hypothesising that each stratum of Chi-Fil society practises these norms in a different way. The "third generation" may be well on its way toward assimilation, but with the "first" and "second" still deeply non-integrationist. What is evident from the foregoing, nevertheless, is that in each instance, such norms are embedded both market and non-market motivations. Our next task, then, is to test for the extent to which these norms manifest themselves in bargaining relations.

### **3. Testing for the presence of ethnic discrimination in economic bargaining situations: the "*Hua-na* experiment"**

Does ethnicity figure significantly in Chinese-Filipino market relations and strategising? The experimental economics literature may provide a useful way of answering this question. Holm (2001) reports and carries out a test for ethnic discrimination that has been administered to natives and immigrants in countries as diverse as Japan, Sweden, Austria and Slovenia – and even to tribal communities in the South Pacific.

The design of the experiment does not just allow us to test for the existence of ethnic discrimination. More than this, it enables us to see the extent to which such discrimination can be traced to "general mentality" factors that motivate behaviour in bargaining situations: trust, reciprocity, coalition forming and exclusion, tolerance, and coordination. We posit, as Holm (2001) does, that economic discriminating behaviour may be touched off by (i) a sense of ethnic superiority, (ii) feelings of distrust, or (iii) plain dislike.

It must be noted that when we administered the test, our objective was **not** to obtain a representative sample for either the Filipino or Chinese-Filipino populations – the logistical demands of this would overwhelm us. Instead, we take this as an opportunity to (i) reconcile conflicting accounts of the state of integration in the Philippines and (ii) address the problem of obviously not being able to come out and simply *ask* people about their ethnic preferences without naturally putting them on the defensive.

#### **A. The "*Hua-na* Experiment": An overview of design and implementation issues**

The study of CONTROLLED economic experimental discrimination behaviour is relatively new. To be sure, face-to-face bargaining situations have been examined for decades, but these experiments have been considered "uncontrolled". Roth (1995) specifies that in order to successfully isolate discrimination effects, subjects must be able to receive a "controlled" signal (manipulable by experimenter) of, say, sex or ethnicity. If this can be done (and the earliest attempts of this were apparently made in 1998), then it would be a useful, if not superior, complement to other methods of studying discrimination effects – *eg* regression analyses of official statistical data.

Economic experimental methods are also notable in that they are specifically designed to minimise “self-awareness” among subjects. In contrast to sociological approaches where respondents, being aware of the purpose of a given test, might act in unnatural or politically correct ways, the experimental technique provides monetary incentives to act consistently with one’s beliefs. Whilst this in itself may not be foolproof, it is at least superior to methods that place no evident “costs” on behavior that is inconsistent with the subject’s own beliefs.

## **B. Description of the sample**

We draw heavily from the work of Holm (2001) who, in the case of gender signals, pioneered the use of the experimental method. They present the following criteria that, in turn, motivated our sample selection:

**The subjects should be selected from areas where immigration and integration problems have been significant.** Both theory<sup>18</sup> and available evidence point to this being the Greater Manila area, as opposed to provincial settlements of Chinese-Filipinos.

**The subjects should be able to fully understand the instructions and strategic situations in the experiment.** As experimental situations may be too complex for some people to understand, we selected subjects who are used to text-and oral-descriptions containing abstract instructions. Like Holm *et al* (2001), we fulfilled this requirement by selecting undergraduate university students of relevant ethnicities.

**The subjects should be accessible in sufficient numbers.** For this sort of work, we needed voluntary subjects in sufficient numbers – especially since using repeated interactions would sooner or later reveal the specific purpose of the experiment and lead to undesirable behaviour. As such, 187 students from 6 “blocks” of 3<sup>rd</sup> –year DLSU-Manila students were chosen as subjects. Of this, 85 (roughly 45%) were Chi-Fils and the rest were “native” Filipinos.

Three immediate remarks must be made about this group. First, Holm *et al* themselves used similar numbers<sup>19</sup> of students for their gender and ethnicity studies. Second, although the subjects are young and are therefore less likely to have developed independent opinions on, say, their ethnicity, they are also more interesting to study since they are likely to be more receptive than older persons. This has allowed experimenters to argue that the attitudes of the young are, in fact, a reliable barometre of the many different group’s views that compete for their attention (*ie* parents, media, teachers, etc). As such, the younger generation has been regarded as a “sensitive concentrate” of the surrounding society.

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<sup>18</sup> We visit the literature on this in Part 3, where it is demonstrated that the size and proportion of groups in a polymorphic population have a bearing on the qualitative aspects of group interaction.

<sup>19</sup> Holm’s survey to test for ethnic discrimination among Swedes used a sample of about 225 students.

Finally, the choice of DLSU-Manila students is clearly biased in the sense that those participating in the experiment have parents with higher incomes than the average. In a sense, this may actually be fortuitous in that the sample is biased toward that group of citizens that has a higher probability of obtaining influential positions in future society<sup>20</sup>.

### C. Practical design and implementation

The experiment was carried out using verbal and written instructions and questionnaires. The sessions were conducted during class hours in October 2002. To avoid second-guessing and unnatural behaviour, the subjects were never informed about the specific purpose of the experiment. Instead, they were told that they were taking part in a study on game theory and experimental bargaining behaviour.

Five “games” were played, according to the 5 “general mentality” factors identified above (again, trust, reciprocity, coalition forming and exclusion, tolerance, coordination). On each card-questionnaire, the names of fictitious<sup>21</sup> co-players were given. One of the names would be unmistakably Filipino (*eg* Lanuza; it must be pointed out that a good number of Hispanic-sounding names such as Roxas and Concepcion are identified with Chi-Fil families, as it is common for many Chi-Fils to take on non-Chinese names upon naturalisation) and the other unmistakably Chi-Fil (in general, we avoided Hispanic-sounding Chinese surnames such as Cojuangco).

We took care to provide only surnames as information – this is how we controlled for gender influence (studies demonstrate that results are less robust when gender aspects are not abstracted from the experiment). Also, we screened out those surnames that have a decidedly high “social profile”. We did not wish for subjects to be unduly influenced by “contextually loaded” names such as Ayala or Gokongwei<sup>22</sup>.

The subjects were told that 10% of them would be randomly selected to receive the monetary value of their bids in Philippine pesos, simply by participating in the test. The proportion is typical in the experimental economics literature, and is used to create incentives for matching beliefs with behaviour. The sums given out amounted to about Php 300 – roughly 30% of an average student’s weekly allowance. Not bad, really, for an exercise that took about 40 minutes to run.

### D. Games experimenters play – tests and results

We find the mechanics of the discrimination tests and their results below:

**The trust game.** North (1991) perhaps said it best – trust covers a multitude of market imperfections. Indeed, bargaining in a trust-laden environment reduces the cost

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<sup>20</sup> Although discriminatory behaviour is hurtful whenever practised, regardless of one’s economic profile, the consequences on average are likely to be worse if a CEO, public official, or media executive exhibited it.

<sup>21</sup> Given that ethnic discrimination is illegal in the Philippines, this is the logical alternative to face-to-face meetings.

<sup>22</sup> The Zobel de Ayalas are an old and prominent Spanish family, although Ayala in itself is not an uncommon name; the Gokongwei family is a *taipan* clan that owns a large string of malls, among other things.

of control and monitoring. To isolate the element of trust/distrust among the subjects, we selected a game that has been studied in its different forms by a number of researchers<sup>23</sup>.

In this game, a player A (the student) receives Php 1000<sup>24</sup>. She is then advised that she can choose to send a sum, denoted by  $x$ , between 0 and 1000, to a co-player B. The sum received by B will then be trebled. B, presumably, can then choose to send back a sum, this time denoted by  $y$ , between 0 and  $3x$ . The players will then receive their payments, A's formulated as  $200 - x + y$  and B's as  $3x - y$ .

It does not take much to see how this is a "trust game". The more A trusts B, *ceteris paribus*, the greater the amount she is likely to send. We must stress, however, that in the absence of trust, A's dominant strategy<sup>25</sup> is not to send any money at all. It is largely on account of experimental economics methods that we see the huge gap between "game-theoretic" and "actual/laboratory behaviour". In this experiment, for instance, only one student chose the sub game perfect Nash equilibrium of *offer* = 0. The vast majority of people instinctively give strictly positive amounts<sup>26</sup>.

*Results of the trust game.* The average offer of Chinese-Filipinos to Filipinos in the Trust Game was Php 557.80; to fellow Chi-Fils, it was only slightly higher at Php 565.76. For Filipinos to fellow Filipinos, it was Php 412.69; to Chi-Fils, it was likewise higher at Php 423.49. The average offer of a player to a co-player of different ethnicity versus to one of same ethnicity was not statistically significant. The result of this game suggests no strong discrimination effect in trust behaviour of the sample.

**The reciprocity game.** The roles were then reversed and the subjects were informed that they now had to make decisions as responders taking on the co-player B's role. In this case, large sums returned in proportion to the amounts received would indicate reciprocity behaviour. It has also been suggested (Fehr *et al* 1997) that discrimination may be construed from differences in the degree of reciprocity among the ethnic groups against others.

In this game, the subjects find a card upon which an amount is written. They are told that their co-players have sent this amount to them. The game has been set up in such a way that majority of the cards contained a "provocative" bid of Php 200 – *ie* signaling that one's co-player had sent only 1/5<sup>th</sup> the original sum. The rest featured more "reasonable" bids, such as Php 500 or 1/2 the initial sum.

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<sup>23</sup> See, for instance, Ferschtman & Gneezy (2000); also Fehr, Gächter & Kirchsteiger (1997).

<sup>24</sup> Strictly speaking, we mean that players received points that with a certain probability would be converted to real pesos after the experiment.

<sup>25</sup> In game theory, a dominant strategy is defined as the best strategy to pursue regardless of what the other player does.

<sup>26</sup> This is a long-established result in experimental economics – see Berg, Dickhaut & McCabe (1995), for instance.

*Results of the reciprocity game.* For the Filipino sample, the average return bid to Fil-Chi co-players was 45.5% of the relevant 3x figure; to fellow Filipinos, it was 41.4%. Curiously, Filipino subjects returned a greater proportion (57.3%) to Fil-Chis who made provocative bids than to those who made reasonable ones (39%). We surmise that this may be related to behaviour tested in the Battle of the Sexes game.

The Chi-Fil sample, on the other hand, registered an average return bid of 46.7%, again from the pot 3x, to Filipino co-players; to fellow Fil-Chis, the average return was 48.1%. However, subjects here rewarded reasonable Filipino bidders with a 49.8% return rate and gave slightly lower amounts to provocative bidders: 43.1%. The differences are not statistically significant and should therefore be treated as mere indications.

Was there any evidence of cross-ethnic punishing behaviour? Again, the evidence is weak, as there was a less than 5% difference in the amounts given to “provocateurs” and “reasonable blokes” across different ethnicities. The degree of reciprocity did not seem to be triggered or influenced by the co-partner’s ethnicity.

**The coalition-forming/exclusion game.** The premise of this game is that there are serious equity issues if it can be shown that individuals in society are excluded from economic transactions on account of their ethnicity. A test that gauges the extent to which coalitions are formed along ethnic lines involves asking a subject to choose between sharing a sum of Php 1000 between herself and 2 players (1 Fil, the other Fil-Chi); versus sharing a slightly smaller sum of Php 900 with only 1 player of her choice.

To test for discrimination effects, we declared that if the player chose the second option, she was free to determine which of her co-players would be excluded – using their surnames as the sole basis for deciding. She would, in both cases, be the one to settle the proportions all the parties would receive.

*Results of the coalition-forming/exclusion game.* Both the Filipino and Chi-Fil subjects chose to share with 2 players 65% of the time and 1 player the other 35% of the time. The statistically significant result to report is that in cases when 1 co-player had to be excluded, Filipinos excluded fellow Filipinos twice as often as they excluded Chi-Fils. Fil-Chis, on the other hand favoured fellow Fil-Chis only slightly, excluding them 4 times out of every 5 that they excluded Filipinos. Indeed, the evidence from an application of the binomial distribution (on the hypothesis that the probability of excluding a Filipino name is equal to the probability of excluding a Chi-Fil name) actually suggests that on top of the cross-cultural exclusion behaviour that exists among Chi-Fils, own-ethnicity discrimination is a notable problem among Filipinos.

There is another sense in which discrimination can be uncovered. Since the subject gets to choose not just whom to exclude, but also how much to give to the surviving co-player, it would be reasonable to assume that an exceedingly low amount reserved for a co-player of opposite ethnicity could indicate “dominance behaviour” and thus an implicit form of discrimination.

However, the laboratory results precluded any of this. In fact, on average, Filipinos who chose option A (sharing Php 1000) took Php 593 for themselves and distributed the rest equally between the co-players (only 2 deviated from this half-and-half scheme). The Chi-Fils, on the other hand, took Php 431 on average, likewise dividing the remainder half-and-half practically every single time.

For option B (sharing Php 900 with 1 co-player), Filipinos and Chi-Fils took an average of Php 510, leaving the rest to the remaining co-player.

**The tolerance game.** In this version of the “Ultimatum Game”, respondents are presented with a take-it-or-leave-it proposition. It is a well-known result in experimental economics that subjects turn down proposals in a way that is difficult to explain using traditional game-theoretic principles. For instance, offers that seem ridiculously low will regularly be rejected, the subjects preferring a zero-zero payoff than one that is positive yet divided “unfairly”. As such, it has been concluded that there must be a number of social, psychological, or cultural factors that drive this behaviour given that the desire for monetary rewards does not seem to be a sufficient explanation.

To test for this behaviour, we present subjects with a “provocative” (*ie* unmistakably low) offer, presumably from one’s co-player. Further, it is explained that if the subject accepts the offer, she will receive the amount proposed and her co-player will get the larger share of the pie. If she rejects the offer, however, *both* she and her co-player will get nothing. In effect, the response to this variant of the Ultimatum Game signals the extent to which a subject would choose to “punish” a provocative offer.

*Results of the tolerance game.* Acceptance rates for this game were high in both ethnic groups – 88% for Filipinos and 81% for Chi-Fils. When we analysed the rejection data, however, we found evidence to suggest that when Chi-Fils turn down an offer, they are likely to take a tougher (less forgiving) stance toward Filipinos than they are toward fellow Chi-Fils; rejected Filipinos outnumbered rejected Chi-Fils 2.5 to 1. Filipinos, on the other hand, despite high acceptance rates, showed a more even distribution of rejection episodes (about 1.3 Filipinos for every Fil-Chi turned down).

This, if any, is the most marked indicator of discriminating behaviour. The pattern is that Filipinos are not treated “consistently unfavourably” – they are more likely than Fil-Chis to be punished when proffering a very low amount.

**The coordination/battle of the sexes game.** In the final game, the test for discrimination is based on the idea that some bargaining outcomes require coordination of the sort that leaves one of the parties gaining less than the other. Dixit and Skeath (1999) cite the example of two university faculties that must bargain over the use of an available space. If there is only room for one of the options to be fulfilled and the university administration declares that disagreement over the use of the space will lead to

the default of both parties, then clearly this means that one of the faculties must capitulate in order to avoid a zero-zero outcome<sup>27</sup>.

Subjects in this experiment are asked to divide the amount of Php 300 unevenly between themselves and a co-player. To simplify matters, only two options are allowed: bidding 200 (leaving 100 to one's co-player) and bidding 100 (leaving 200 to one's co-player).

The proviso is made that in order for the subjects to claim their share of the winnings, both their and their co-player's bids must sum up to 300. In other words, without actually meeting or securing any personal information about each other, the subjects and their co-partners must somehow coordinate purely on the basis of a controlled ethnic signal.

The strategies have been classified into "hawkish"<sup>28</sup> (make the high bid of 200) and "dovish" (make the low bid of 100). If the subject believes that she is the "leader" (*ie* that the person of different ethnicity will play follower), then her optimal strategy would be to play hawk. Belief in the existence of dominance opportunities then is the indicator of discrimination in this experiment.

*Results of the coordination/battle of the sexes game.* Both Filipino and Chi-Fil subjects registered similar strategies for cross-cultural players and own-culture players. The lack of statistical significance controlling for ethnicity suggests that the almost uniform 57% tendency to go "hawkish" and 43% like hood of going "dovish" is due to factors other than the ethnic calculus. Little evidence for discrimination is thus available from this experiment.

*Preamble to Part 4.* The results of our experiment on 3<sup>rd</sup>-generation Chi-Fil students indicate mild observance of discrimination at best, found largely in coalition-forming and tolerance behaviours. Although we are careful to stress the limitations of our sample, we take the results as evidence of a vibrant integration experience within this sub-sector of Chi-Fil society.

How do these results square with the existence of long-standing reports of ethnic segregation behaviour among Chinese-Filipinos? Our results seem to confirm the validity of stratifying Chi-Fil society into "generations", with the "first" and "second" less inclined toward integration than the Chi-Fil youth.

Unfortunately, it is a little trickier to examine the intensity of these norms through the same methods of experimental economics. The subjects in this case, apart from being historically reticent, do not exactly fit the description of ideal-type respondents. They are difficult to gather in similar sessions, and are not likely to respond well to written-

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<sup>27</sup> This is called the "Battle of the Sexes Game" because in a series of experiments, it was demonstrated that males behave more aggressively and less compromisingly when alerted to the fact that their co-player is a woman.

<sup>28</sup> Here, we adopt the international relations parlance of "hawks" referring to those for whom relative gains are important and thus would act aggressively given the chance; and "doves" who prioritise absolute gains and usually choose non-aggressive strategies.

question formats. Our efforts to model the operation and replication of these norms, then, will have to be undertaken using largely analytical tools. For this, we turn to the theory of evolutionary games.

#### 4. Ethnic segregation norms as evolutionarily stable strategies

In this section, we use concepts from the evolutionary game theory literature to investigate the persistence of segregation norms in the face of an economy that is becoming increasingly marketised. Our starting point here is the idea (Becker, 1957 & Arrow, 1973) that monopolies preserve the incentive to discriminate, as monopoly rents allow prejudiced employers to absorb the costs of forgoing productive but ethnically-disadvantaged workers. Intuitively, the integration process should then be hastened by the competitive forces that presumably accompany globalisation. Or, in the vocabulary of evolutionary games, “integrationists” should be able to successfully “invade” the population of “traditionalists” (Dixit & Skeath 1999).

We argue, however, that the process of integration may be held back successfully if, in fact, these segregation norms serve a functional<sup>29</sup> purpose – *ie* as an informal means of insurance against moral hazard in daily economic transactions. In this sort of environment, even if integrationists obtain extra gains from trade (being able to transact with first-best partners, regardless of ethnicity), they may find themselves discriminated against by the larger proportion of traditionalists. There are, thus, costs associated with being “tagged” as an integrationist. These costs may include social ostracism, exclusion from future economic transactions, or simply the loss of market privileges previously enjoyed (Fong and Ooka 2002). The operation of these forces is presented in the model below.

##### A. A simple model of a persistent segregation norms

We begin by assuming that imperfect markets are fraught with significant moral hazard problems, and that these problems may be addressed among Fil-Chis by pooling risk (Akerlof, 1976), say, in the fashion:

$$\bar{\sigma} = \left[ \frac{1}{N} \right] \sum_{i=1}^N \sigma_i \quad (3.1.1)$$

where  $\sigma_i$  is the zero-mean, independently distributed shock to an individual’s income, which is then pooled by the operator  $\Sigma$  and borne equally by the population  $N$ . The average risk per capita is then denoted by  $\bar{\sigma}$ .

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<sup>29</sup> To avoid unnecessary controversy, we will not dwell on the point that perhaps segregation norms are motivated by a deeply-entrenched belief in the inherent superiority of one’s ethnic group.

We can then define the income of each member of a Fil-Chi population by the equation:

$$\bar{y}_i + \bar{\sigma} \quad (3.1.2)$$

where  $\bar{y}_i$  denotes mean income, to which is added the pooled risk variable.

We then consider an economic transaction between two parties from the Fil-Chi population, one of which is an “integrationist”, and the other a “traditionalist”. The transaction also involves a sub-contracted third party who may or may not belong to the ethnic group, and is understood to be hired by the integrationist.

The integrationist stands to gain  $\bar{\theta}$  and hires the third party to do work, for which the latter receives  $\underline{\theta}$ ; and  $\bar{\theta} > \underline{\theta}$ . The quality of the work done is determined in large part by the success of the match between the sub-contracted worker and the integrationist employer. A good match produces output  $\bar{\pi}$ ; a bad match yields  $\underline{\pi}$ , with  $\bar{\pi} > \underline{\pi}$ . The integrationist is responsible for making the selection between a Fil-Chi worker and, say, a Filipino one; in either case, there is the probability  $\delta \in \{0,1\}$  that the match will be successful. If the integrationist expends a certain screening effort  $\alpha$ , however, he/she will be able to find not only a successful match with probability 1, *but one that satisfies the segregationist preferences of the traditionalist partner.*

Because the traditionalist partner desires both the economic transaction and a Chi-Fil sub-contracted worker, he/she can introduce a premium, in which the integrationist is paid  $\bar{\theta} + \lambda$  when  $\pi = \bar{\pi}$ , in order that the latter may exert best efforts in finding a suitable fellow Chi-Fil sub-contractee.

Now with this premium offered, the integrationist will screen *iff*

$$\mu(\bar{\theta} + \lambda) - \alpha \geq \delta\mu(\bar{\theta} + \lambda) + [1 - \delta]\mu(\bar{\theta}) \quad (3.1.3)$$

which further suggests that the effort will be undertaken only if the  $\lambda$  that solves the equality is paid out.

Now if the integrationist has a commitment to co-opting a non Fil-Chi worker, it may be said that he/she is, in effect, making a positive transfer  $\Phi > 0$  to the latter (as well as to the other ethnic group, it may be construed). Given that the law still prohibits racial discrimination, we may still claim that every non-Fil-Chi worker, in fact, has a probability  $\delta < 1$  of securing the job. But if the integrationist obeys his/her more ethnically tolerant preferences, this may be interpreted by an observant traditionalist as making what is, in effect, an in-kind transfer of value  $\Phi = [1 - \delta]\underline{\theta}$ . If we posit that the size of the transfer is positively related to the degree of social punishment that the integrationist will receive, we can then set up the relevant individual welfare functions.

The expected utility of an integrationist who expends effort in searching for a worker of the same ethnicity may be written out as

$$\mu(\bar{\theta} + \lambda - \Phi) - \alpha \quad (3.1.4)$$

while one who prefers an “integrationist” solution would have expected utility

$$\delta\mu(\bar{\theta} + \lambda - \Phi) + [1 - \delta]\mu(\bar{\theta} - \Phi) \quad (3.1.5)$$

This means that the minimum premium that will induce the integrationist to find a Fil-Chi worker is  $\lambda^*$  such that

$$\mu(\bar{\theta} + \lambda^* - \Phi) - \alpha = \delta\mu(\bar{\theta} + \lambda^* - \Phi) + [1 - \delta]\mu(\bar{\theta} - \Phi) \quad (3.1.6)$$

We can then see that if  $\Phi$  is set arbitrarily close to zero, then the left hand side is smaller than the right hand side. This implies that when  $\Phi$  is small, then the integrationist has to be paid a higher premium in order to induce him/her to search for a Fil-Chi worker. It then follows that no traditionalist will transact with an integrationist in lieu of a fellow traditionalist. The integrationist norm is then “punished” by the equivalent of ostracism.

## B. The evolutionary view: Invasion of the mutant integrationists

Another way of explaining how segregation norms can be sustained in the face of their general inefficiency is to consider the effect that the initial distribution of integrationists and traditionalists may affect the evolutionary path<sup>30</sup>. We modify our initial assumptions thus: (a) each population is made up of a given proportion of integrationists and traditionalists, and (b) that within each type, there exist two classes of individuals – “hardliners” and “compromisers”. A hardliner, by definition, will always insist on keeping the values his/her kind upholds; a compromiser, on the other hand, will be willing to change his or her ethnic preferences in order to get along.

We may also infer that if two individuals are drawn from a population, with one being a hard-liner and the other a compromiser, then the hard-liner’s preference will prevail in all cases. There will, however, be an impasse if 2 hardliners of different “species” meet, since neither will be willing to give in. Following this reasoning, we obtain the curious result that a similar paralysis will obtain if two compromisers meet<sup>31</sup>.

<sup>30</sup> In the extreme, we may have two scenarios: an increasing mix of integrationists, or one of traditionalists. When two species make up a population, the population is referred to as being “polymorphic”.

<sup>31</sup> This, of course, would amount to the famous “paradox of altruism”, in which each party would offer what the other wants and preclude any possibility of agreement.

The following table is usually constructed to list the payoff structure for the different types of individuals featured in a given population. In each cell, the first number in the coordinate denotes the traditionalist's payoff; the second, the integrationist's.

**Figure 2. Payoffs in a battle-of-the-two-cultures game**

		Integrationist	
		Hard-liner	Compromiser
Traditionalist	Hard-liner	0,0	2,1
	Compromiser	1,2	0,0

If we let  $x$  be the proportion of hard-liners among the traditionalists, and  $y$  that among the humanists, we can construct the expected payoffs for any particular type of individual.

We can begin with a particular hard-liner traditionalist. If he/she meets a hardliner integrationist a proportion  $y$  of the time and obtains 0, and meets a compromising integrationist the rest of the time and gets a 2, his/her expected payoff<sup>32</sup> would be calculated as  $y * 0 + (1 - y) * 2 = 2(1 - y)$ . Likewise, a compromising traditionalist's fitness would come to  $y * 1 + (1 - y) * 0 = y$ . For traditionalists, therefore, to be a hard-liner is to be more "fit" when  $2(1 - y) > y$ , or when  $y < 2/3$ . The proportion  $2/3$  then serves as a sort of equilibrium in this polymorphic population – although an unstable one, as we will find out. We may also say that hard-liner traditionalists will reproduce faster, as they are fitter – meaning  $x$  increases when  $y < 2/3$ .

Similarly, when we consider the population of integrationists, we find that hard-line integrationists are fitter, so  $y$  increases when  $x < 2/3$ . Another way of saying this is that the hard-liners of each species do better when their species is in the majority, and when there are not too many hard-liners in the other species.

We may generalise the result of this section by stating that the payoff structure and initial proportion of species determine a population's stable point. Small departures from this equilibrium, however, favour the fitness of one type of hard-liner and thus cause this type to "invade" the other species. Thus, if hard-line traditionalists can maintain a given payoff structure, they can, aided by their superior initial numbers, preserve the viability of segregation norms in the face of contrary forces.

The evolutionary games framework then helps us understand the persistence of segregation norms even in the face of increased pressure from competition. The explanation also fits the stylised facts rather well. Traditionalist norms are kept alive not just by the sheer initial numbers of this group, but also by the built-in ability of institutions and networks to produce *hard-line* traditionalists. Indeed, Edward Wickberg's survey (Baviera & Ang-See 1991) of Chinese associations highlights

<sup>32</sup> In the vocabulary of evolutionary games, the expected payoff is also referred to as the "fitness" of a strategy. "Fitness" implies not just the capacity to survive, but more importantly, the capacity to **reproduce**.

“cultural survival” and “re-sinification” among the avowed purposes of these associations, especially as concerns have been raised about the “assimilation” and “Filipinisation” of today’s Chinese youth.

In contrast, integrationists have to rely on a much more passive process of having the next generation experience greater participation in mixed-race activities. We term the process passive as there are few, if any, organisations devoted to the replacement of these segregation norms (I daresay that even the *Kaisa* literature, for all its statements about assimilation, is still circumspect on the issue of mixed-race relationships, for instance). Likewise, an asymmetry exists in that hard-line integrationists are still more likely to encounter resistance in the form of customs that impose costs upon assimilation, while hard-line traditionalists almost certainly enjoy favours and prestige from the “first” and “second” generations.

The important policy insight is that if the process of integration is going to be hastened, it must involve mechanisms that not only change the payoffs among agents of differing ethnic preferences, it must also encourage the creation of *hard-line* integrationists. Only then will the polymorphic population move toward an integrationist equilibrium.

## **E. Conclusions and the outlines of a research programme**

If we take the “norms” version of social capital, we find that the current stock of its ethnic aspects among Chi-Fils in the Philippines is in a state of flux. Available experimental evidence from a limited sample of 3<sup>rd</sup>-generation Chi-Fil indicates only weak adherence to segregation norms and discriminatory market behaviour, limited to coalition forming and tolerance attitudes. It is widely suggested, however, that such norms are still prevalent within the “first” and “second” generation age cohorts.

The dearth of scholarly work on the externalities associated with integration in societies like the Philippines clearly points to the need for a research and policy programme directed to this and similar issues. To be sure, the research areas involved are quite challenging. There is a need, firstly, for more extensive and differentiated mapping of ethnic and “general mentality” indicators – say, through an expanded application of experimental methods. The emergence of an “incipient business civilisation” (the late Susan Strange’s term) as a result of globalisation clearly has implications for various ethnic norms being both reinforced, modified, and eroded.

Even with purely theoretical methods, the opportunities for meaningful investigation are numerous. The 7 “circles” denoting relational distance in classical models of the Chinese psyche provide an adequate starting point for recognising the complexity of interactions that comprise this particular form of ethnic capital. As we have demonstrated the viability of using an evolutionary game theory framework in explaining the persistence of such norms, we may presumably use this as a jump-off point for modeling more complex market and non-market interactions among different ethnic groups – marriage, migration, political participation, etc.

And then there are the inevitable policy questions. What are the different ways by which payoff structures can be modified? How significant are the initial geographical distributions of ethnic populations in determining the rate of integration? What implications may be drawn for the many formal and informal ethnic-based institutions that have evolved in the Philippines? Since integration has strong public goods characteristics, is there sufficient welfare basis for, say, the increased regulation of such institutions?

Perhaps more than any other region, Southeast Asia has shown the capacity for both accommodating and traumatising integration policies. In this sense, the Philippines is an important source of insights as it is here where immigrant Chinese society is best organised<sup>33</sup> and, one may argue, most influential. Increased understanding of the *motivations behind* and peculiar forms of segregation/integration behaviour is likely to produce more equitable, welfare-improving and politically acceptable instruments of social cohesion.

In the meantime, as they say, it is business as usual.

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<sup>33</sup> Wickberg estimates that there are over 1,000 “Chinese” organisations serving a population of 600,000 to 1 million.

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